

Participatory Action Research for Emotionally Meaningful Stories

Arthi Kanchana Manohar

B.Arch. (Architecture), M.A. (Architecture and Digital Media)

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Narrative Structure

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Glossary

Word or Phrase	Explanation
Auto ID technology	Auto ID technology refers to technique of automatically identifying objects or things, collecting data about them, and entering that data directly into computer systems
AIDC	Automatic Identification and Data Capture
DCA	Dundee Contemporary Arts is a Centre for the development and exhibition of contemporary art and culture in Dundee, Scotland, U.K
DVD	A Digital Versatile Disc (DVD) is a format for the storage and play back of video. DVD's can also be used solely for data storage.
EPSRC	The Engineering and Physical Sciences Research Council. It is a British Research Council that provides government funding for grants to undertake research and postgraduate degrees in engineering and the physical sciences
FAO	Food and Agriculture Organization of the United Nations providing food security. It is set up to make sure people have regular access to enough high-quality food to lead active, healthy lives.
ICT4D	Information and Communication Technology for Development
IoT	The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. The term IoT was first used by Kevin Ashton in 1999.
IP	Internet Protocol (IP) address is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries.
NASA	The National Aeronautics and Space Administration (NASA) is the agency of the United States government that is responsible for the nation's civilian space program and for aeronautics and aerospace research.
NGO	Non Governmental Organisations are legally constituted corporations created by natural or legal people that operate independently from any form of government.

OHS	The Oral History Society promotes the collection, preservation and use of recorded memories and plays a key role in facilitating and developing the use of oral history and in making this accessible to everyone.
PAR	Participatory action research (PAR) seeks to understand the world by trying to change it, collaboratively and reflectively.
Panchayaths	Panchayaths are local self-governments at the village level or small town level in India. The roles of Panchayaths were strengthened during the British rule in India.
QR Code	Quick Response Code is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan.
Ramayana, Mahabaratha and Bahavathgita	They are collection of narrative text composed during the period 2nd century BC. They tell the stories of divine incarnations along with philosophical and ethical reflection.
RFID	Radio-Frequency-Identification is the wireless non-contact use of radio-frequency electromagnetic fields to transfer data, for the purposes of automatically identifying and tracking tags attached to objects.
SSL	Small Society Lab project is a collaboration between DCA and the Product Design Research Studio at Duncan of Jordanstone College of Art and Design. It explores and makes use of community-based art, design and technology practice to support creative change in the city.
TOTeM	The TOTeM project is funded through a £1.39 million research grant from the EPSRC to explore social memory in the emerging culture of the Internet of Things.
UMAR	UMAR-Azores, Association for Equality and Women's Rights. UMAR is developing projects and studies about Women in Fisheries in the Azores.
VAI	Vinnarasu Association of India is a rural based service organisation committed for the cause of the poor and marginalised.

Author's Declaration

This thesis is the work of Arthi Kanchana Manohar and the author is solely responsible for the contents. The contents of this thesis have not been submitted for any other higher degree.

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Arthi Kanchana Manohar
B.Arch., M.A.
2017

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Associated Publications, Workshops and Expositions

Kanchana Manohar and Rogers (2010). Story cultures understanding: How stories of different cultures can influence digital memories. Short paper for DOME workshop in conjunction with UbiComp Conference 2010, Copenhagen, Denmark, 26 September 2010.

Kanchana Manohar and Speed (2010). Storytelling within an Internet of Things. Workshop proposal for the Third International Conference on Interactive Digital Storytelling, 1 November 2010, Edinburgh.

Kanchana Manohar (2011). Connected communities and story probes. Poster for Listening to Community Voices Conference at the University of Azores, Azores, Portugal, 21 October 2011.

Kanchana Manohar and Sousa (2012). Connecting communities across seas. Article published in *Caminhos Em Terra e no Mar As Mulheres na Pesca nos Açores*, May 2012.

Kanchana Manohar and Pasupulati (2012). Transforming temple streets in the new digital era. Paper for IASTE 2012, biennial conference of the International Association for the Study of Traditional Environments. The myths of traditions. 4 October 2012. Portland, USA.

Kanchana Manohar, Birnie and Rogers (2013). Connected communities and story cultures. RGS-IBG Annual International Conference, 29 August, London.

Kanchana Manohar, A (2014). Understanding the technological impact: Connecting communities using story cultures. Fourth research workshop. Higher education and creative knowledge: Exploring digital co-production and communities. CREATE, University of Glasgow. 20 March 2014. Glasgow, UK.

Exhibitions

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Kanchana Manohar (2011). Stories from around the world. Small Society Lab, Visual Research Centre, DCA and the University of Dundee. (June 2011-July 2011)

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Abstract

In this thesis, I developed an empirically and theoretically grounded understanding of participatory action research (PAR). My aim was to develop and explore PAR methods within three culturally different fishing communities located in India, Portugal and the UK in order to generate emotionally meaningful stories. The work was conducted as part of the practice-led TOTeM research project and aspires to be associated with such works that have been able to make a methodological contribution by introducing theoretical insights, innovative methods and analytical concepts. In this study, the key finding is revealing the importance of the preliminary activities that helped design the innovative methods. I assess how my PAR methods, such as story interviews, digital storytelling workshops and story kits, helped me to gather participants' personal experiences within the three chosen communities.

Photographs and 'objects' provided a medium through which to identify stories that were emotionally meaningful to the participants. These stories gathered from the three chosen communities were analysed through a story narrative analysis method. Each method evoked strong, emotionally meaningful responses from the participants with regard to human relationships and demonstrated the vital role of objects in identifying stories that illustrate the participants' intimate relationships. The collective findings from the three communities established that the methods utilised provided a new way of synthesising storytelling with digital technologies.

The findings reinforce the role played by the participants as co-creators in collaboratively designing the methods, enabling me to craft a better way to gather stories. Upon critical reflection of the methods, supporting evidence was found that storytelling serves as an invaluable technique in providing participants with opportunities to explore their cultural identity through uniquely self-reflecting narratives and shared moments. I present the three stages of the participatory methods as my story culture framework and the findings and challenges as my original contribution to knowledge. I propose that this transferable framework will support designers as they engage with various settings to elicit information from user and stakeholder participants, develop their own experiential and critical perspectives and utilise their intuitive and expressive expertise to establish, manage and sustain productive human-centred design relationships.

Biographical Note

People are always curious about what happens on the other side of the world. They like to be connected; they have an impulse to share their thoughts and ideas through stories, and have the desire to know they are being heard. These aspects become a need within the community. How can we connect people across the globe? People like stories of all forms; many of us like to narrate and listen to stories. During my childhood, I grew up listening to my grandparents' stories; now, when I think about my childhood, I cherish the lessons I learnt from their stories. How much can I remember from my childhood? As the years have passed, I have forgotten much. What if I had a place where I could store these stories and reach out to revisit my memories so I could secure and further value their teachings? In the past, stories have proved to be an effective medium within communities for preserving their customs and practices. With these questions in mind, I decided to work with stories, nurturing the idea that my research could help people archive their voices easily, through stories other people could stumble upon later. I therefore decided on a study integrating technology and stories in order to connect people in a way that would be affordable and accessible to low-tech communities. I would look at auto ID technology, specifically QR codes, in order to connect physical objects to the virtual world.

CHAPTER 1

Setting the Scene

1.1 Introduction

The main aim of the research is to understand the use of technology within participating fishing communities in India, Portugal and the UK by using storytelling as an approach. I will critique existing research methods identified from the wider field of PAR, foregrounding my research framework as the central driver in my investigation of the research question.

1.1.2 Research Question

What is the value of using storytelling as a research approach to understand the use of technology within participating fishing communities in India, Portugal and the UK?

1.1.3 Objectives

In order to answer the research question, my study has the following objectives:

- 1) to explore the background and review cultural probes as a method for storytelling;
- 2) to explore the story kit method and how it can add to the current cultural probe method;
- 3) to develop and demonstrate PAR methodology for integrating storytelling into technology and presenting a critical reflection of the methodological issues;
- 4) to explore the capabilities and limitations of auto ID technology in generating emotionally meaningful stories;
- 5) to analyse and evaluate the effectiveness of my story culture framework in generating emotionally meaningful stories using story narrative analysis.

In this research, I use auto ID technology as a tool for storytelling in culturally distinctive communities. To understand the cultural implications of auto ID technology, user groups were chosen from different parts of the world. I chose three fishing communities in India, Portugal and the UK. The reason behind my choice was that although these communities were culturally and geographically different, they shared a common factor enabling a comparative study: they were all fishing communities in societies with a strong storytelling culture. With regard to the UK, the Scottish Fisheries Museum introduced me to relevant community groups for my first field study. During this, I found the fishermen had many interesting stories and memories, confirming my choice of communities. Studies from the World Resources Institute have identified fishing as an activity that is shrinking on a global scale. In addition, it has been observed that fishing communities in India and Portugal are relatively low-tech compared to the UK fishing community. Hence, for this study, I decided to select three culturally diverse fishing communities. Working with these would provide me with the opportunity to adopt my chosen research methods, including identifying how PAR methods could be used to engage participants through the narratives of stories.

1.2 TOTeM: Tales of Things and Electronic Memories

Established in 2009, the TOTeM project (www.talesofthings.com) was funded by the EPSRC Research Council under the Digital Economy Theme. Its objective was to explore social memory through the IoT. It employed tagging technology, such as auto ID technology, and used QR codes to connect physical objects to the virtual world. The principal investigator for the TOTeM project, Speed (2011), stated that over its three years it was intended to create an interactive social platform. This social platform would permit users to tag any object with a memory. Through this mechanism, users could retrieve the story in the future. Furthermore, Barthel et al. (2011) state that TOTeM RFID (radio frequency identification) and QR codes were used to connect objects to databases of stories about them. De Jode, Barthel and Hudson-Smith (2011) argue that application of the IoT to auto ID technology (termed augmented memory) is rarely taken into account in studies. Therefore, in TOTeM, auto ID technology was used in relation to an object and its memories through stories.

TOTeM's web project, Tales of Things, offered a unique approach to archiving social histories and a playful critique of tagging culture. Using QR codes, users attach memories to their objects as a video recording, audio recording or text. When these QR codes are

scanned using a smartphone, the unique code directs the user to its assigned media. Then, the object encourages the user to tell a story about the memories associated with it. The results of the studies conducted by TOTeM indicate introducing digital memory as a socially interactive technology can enable new applications and perspectives for personal and social memories. TOTeM offers a new way for people to place additional value on their own objects in an increasingly disposable economy.

As part of Future Everything (Speed, 2009), TOTeM launched the RememberMe project, integrating QR codes within it as a medium for interacting with people and encouraging them to narrate stories. This was a collaborative project between TOTeM and the Oxfam shop on Oxford Street in Manchester. People donating secondhand objects to the shop were encouraged to tell their unique stories about the objects' histories. The project's intention was then to permit customers to scan the objects, which had been tagged with recordings of these stories, and then listen to the stories while shopping. Figures 1.1 and 1.2 show that the objects were tagged using QR codes and RFID tags, which were then linked to the TOTeM website. The QR codes also linked to stories about what the money raised would support. Visitors to the shop viewed the stories on their smartphones or on one of the bespoke RFID readers. Once the item was scanned, the object story appeared on a plasma screen in the store to make the object come alive. The use of such playful and interactive technology to associate old objects with personal stories helped the Oxfam shop to increase its profits by 70%, doubling sales over the next five days.

Speed (2010) states that the effect of embedding an object with stories and memories from its owner could be observed in the significant changes in the interaction dynamics between the buyer and the seller. Therefore, the socioeconomic value of real-world objects can also be altered by their presence in the virtual world.



Figure 1.1: QR codes in the Oxfam shop on Oxford Road, Manchester.

Note: Bespoke RFID readers or smartphones were used to browse certain artefacts displayed among many other objects. Labels highlighted the RememberMe objects and, once triggered, speakers located in the shop replayed the previous owner's story.



Figure 1.2: RFID readers for the Oxfam shop on Oxford Road, Manchester.

Note: On scanning the RFID tags with the reader, a video recording in the form of a story appears on screens in the shop, narrated by the person who donated the item.

Indeed, Glance (2011) proposes:

The Internet of Things can ultimately be used for the benefit or detriment of an individual and society as a whole. Although business will argue a whole raft of benefits that include increasing efficiency, safety and health, these need to be balanced by safeguards and controls. The ethics of mass connectivity have yet to be developed.

(Glance, 2011)

Glance (2011) also argues the significance of the IoT in our everyday lives with respect to objects produced and consumed, because it affects the way we use and share objects. Incorporating QR codes into objects we consume helps us track them over their lifespan, thus providing objects with a cycle or trail. This trail gives the customer valuable information about the object, detailing when it was bought from the shop and consumed, and every place it has been since manufacture. This trail of stories brings a new perspective to the object. When one consumer finds the object useless, given the attendant information, could another person give the object a new life and purpose? As Speed stated:

In a world that has relied upon a linear chain of supply and demand between manufacturer and consumer via high street shops, the Internet of Things has the potential to transform how we will treat objects, care about their origin, and use them to find other objects.

(Speed, 2011, p.18)

In addition, Barthel et al. (2011) state that digitally connecting objects with memories can support creativity and could provide opportunities to make meaningful connections. Digital object memory augments the objects connected on the IoT by using stories, either implicitly or explicitly. Digital object memory includes stories about what happened to artefacts in the past, their interaction histories and a host of other data potentially providing revealing information about them. Therefore, Barthel tends to support Speed (2011):

In the Internet of Things, objects may end up on your mantelpiece with associated memories of completely different artefacts. The value of these vessels and our attachment to them will likely depend on the social data stored in them, rather than on their physical form.

(Speed, 2011, p.21)

1.3 My Research Contribution to TOTeM

My PhD research investigated the potential of the auto ID technology behind TOTeM's IoT to capture emotionally meaningful stories in a digital form. Specifically, I explored the social benefits that could result, including encouragement of cross-cultural understanding, richer interpretations of diverse cultural communities and the curating of objects and artefacts in a fisheries museum within one of my chosen community. I adopted TOTeM's approach using PAR methodology, including field studies, workshops and distance research methods, with different communities.

A contribution to the TOTeM project was made by adapting QR codes as a method to address digital storytelling. Furthermore, the stories collected from the chosen communities through field studies and digital storytelling workshops were archived on the TOTeM website and can be accessed through QR codes. By integrating the technology into my study, I gained the opportunity to adapt QR codes to different cultural contexts and identify user issues. This research also contributes to the TOTeM project by exploring the design challenge in both personal and social networks through stories and memories. While not referring directly to the TOTeM project, Speed (2011) argues that there is huge potential in the future for people to collect and archive their stories in an object manifesting their lifestyle. Kanchana Manohar and Rogers (2010) are more specific, stating that the framework proposed by TOTeM could lead to the next big innovation in the Internet, making it a combination of YouTube and the *Antiques Road Show*.

1.4 Introduction to the Participant Communities

The chosen Indian fishing community is part of Rameshwaram town, located in the southern part of India in the state of Tamil Nadu. The town is located on Pamban Island, separated from the mainland at the tip of the Indian peninsula. It is, therefore, geographically isolated from the rest of the country. According to India's 2011 Census, the town has a population of 37,968 people and, as an island town, fishing has been the traditional occupation of many of them. However, because of a number of social and political issues this occupation is gradually diminishing. According to *The Hindu* (2007), the town has the lowest literacy rate in the state. I observed something similar to this in the second chosen community, the Azores in Portugal. This could be because of the cultural necessity in both communities for the children of fishing families to contribute to their families' livelihoods from an early age.

The Azores is composed of nine islands located in the North Atlantic Ocean and is situated roughly 1,500 kilometres west of mainland Portugal. The Azores' main industries are fishing, dairy farming, livestock farming and tourism. Out of the nine islands, the town of Rabo de Peixe (meaning 'tail of the fish') on São Miguel, also known as the 'Green Island', was chosen as a second community. São Miguel is considered to have the biggest fishing population in the Azores. It has a total population of approximately 140,000, with Rabo de Peixe's being approximately 7,500. According to Macedo (2009), Rabo de Peixe is known for its strong cultural traditions and heritage. The people who live here enjoy traditional festivals, folklore and music. During the field study, I observed that the Rameshwaram and Azores fishing communities are geographically separated from their respective wider communities.

Anstruther in the UK contrasts starkly with these two communities. The third community for this field study, Anstruther is a small fishing village in Fife, Scotland with a population of 3,500 and is the largest community in the East Neuk of Fife. Anstruther's main industries are fishing and tourism. It is the home of the Scottish Fisheries Museum, and is at the heart of Fife's fishing community. The village has a strong history of fishing; the museum collections tell stories of people and fishing in Fife from before the 19th century up to and including the present day.

The three chosen coastal fishing communities were identified as transforming communities. A generation ago, they were surviving as 'traditional' fishing villages

because fishing was their main occupation. However, these transforming communities face the fear of losing their traditional identity to rapidly changing lifestyles and emerging technologies. The Rameshwaram and Azores fishing communities are situated around a natural harbour and are geographically isolated from their wider communities. Tietze, Groenewold and Marcoux (2000) argue fishing communities in developing countries continue to retain their traditions and culture and are observed to change little over time. However, in developed countries, fishing industries are changing because of urbanisation. A recent study conducted by the Internet and Mobile Association of India (IAMAI, 2014) and the Indian Market Research Bureau (IMRB), suggested India's mobile Internet usage was likely to rise from 78.7 million users in October 2012 to 155 million by March 2014. These numbers represent most of the country's urban population. Internet services in Rameshwaram are accessed by only 38.8% of the population (The Hindu, 2012). In isolated communities, such as the fishing communities in Rameshwaram and Azores, infrastructure costs have increased in recent years, making it difficult for these communities to afford Internet, fibre optic and wireless connections.

This work is based upon PAR with the fishing communities in the three chosen locations: Anstruther in the UK, Rameshwaram in India and the Azores in Portugal. I will refer to these communities collectively as the 'participating communities'. To add depth to this contextual review, an overview of the story narration and social history traditions of each of the three participating communities follows below.

1.5 Narration of Stories and Social History – India

In Rameshwaram in southern India, storytelling is based on a wide variety of concepts with messages addressing social issues such as equality, environmental conservation and social awareness. In the latter category this can mean developing life skills for children. Most folk and traditional stories communicate messages to reinstate equilibrium in the community, such as the idea that the divine will reward good behaviour and punish bad. In India, storytelling has existed for thousands of years and continues to do so. Miller (2011) indicates that, despite cultural changes, Indian storytelling is still very much alive. The earliest form of storytelling was through oral history, painting, music, songs, puppet shows, shadow art and dance. India's history boasts teachers and scholars as storytellers who taught the Vedas (earliest body of

Hindu scriptures and the most sacred books of India) and mantras (chants), which form India's ancient literature. Storytellers have commonly interpreted mythological works to past and present generations and are expected to do so for future generations as well. Teachers were the storytellers travelling from place to place narrating stories from great epics, such as the *Mahabharata* and the *Ramayana*, that became folk tales and short stories.

As Miller (2011) writes:

India is one of the world's great lands of storytelling. This is perhaps the primary reason that I have settled in India. Despite all of the cultural changes that are occurring, India remains a leading home of storytelling, and an excellent place to study and practice the art.

(Miller, 2011, p.1)

During ancient times in India, specifically from the 2nd to the 9th century, southern India was ruled by the triumvirate of Chola, Chera and Pandya Kings. During their reign, storytelling was an important method of communication and, most importantly, a tool for knowledge transfer. According to Pattanaik (2010), the Brahmins (priests) understood the physiological influence of stories on their congregation. Storytelling was a part of their tradition in this period and they realised stories, more than rituals or mantras, could reach out to and communicate with a wider section of the people better than the Vedas. He also states that stories potentially gave rise to the idea of God and so encouraged the rise of pilgrimages and temples.

Sabnani (2007) explores the oral tradition as *Kavaad*, a storytelling tradition in Rajasthan. The main idea of this storytelling method was to take schooling to children, and so provide access to stories. Sabnani states that *Kavaad* stories trigger the imagination and curiosity of the listener, providing them with a chance to draw out the essence of the story, thus helping them determine their identity in society. According to Sabnani, telling and listening to stories was considered a sacred act in Indian tradition. He also illustrates a religious storytelling format called *Katha*, where the performers recite religious text from the *Ramayana*, *Mahabharata* and *Bhagavad Gita*.

Claus, Diamond and Mills (2003) state that such traditions were performed in temples and observed at weddings and other religious functions. According to Dunnigan (2004), the creative storytelling tradition has been the precursor to films and animated movies. This storytelling tradition is largely reflected by the evolution of Bollywood to include dance, music, romance and strong superhero characters. He argues stories have played a major role in our lives as a means of resolving social issues and reinstating community equilibrium.

Miller (2011) contends storytelling represents a social situation, with the narrator and listener involved simultaneously. According to him, media and movies cannot be defined as storytelling, because in these forms stories are only presented to the listener and they do not have the opportunity to interact. In his study, he expressed the opinion that people in India do not recognise the difference between storytelling and story presenting. He also argued there is very little importance given to the folk culture, where stories are created within a specific community to pass on the traditional values from generation to generation. However, Miller (2011) states that India's society has changed since independence from Britain in 1947. Western education, culture, fashion and, more importantly, professions, have influenced people in the past few decades, leading to modern India.

Castes (extended kinship-networks, organised around professions and geographical areas) are slowly becoming less central to social life. Conversely, 'communities of choice' – and new technologies, professions, and working environments – are becoming larger parts of many peoples' lives.

(Miller, 2011, p.1)

Therefore, my research attempts to bridge the gap between traditional India and modern India. Instead of merely listening to the stories, my research brings together narrators and listeners from participating communities to interact with the help of auto ID technology. By exploring such a novel method, my research also seeks to break down the barrier between the real and the virtual world.

1.6 Narration of Stories and Social History – Scotland

Storytelling is one of Scotland's main traditions. Numerous traditional storytelling methods can be observed in present-day Scotland compared with the rest of the UK. Sheppard (2003–2004) observes the Scottish highlanders narrated stories for transferring information traditionally through songs and other mediums. According to MacQueen and Kerr (1974), since the 1950s, oral history in the form of folk tales has played a significant part in the growth of communities. Studies by Sheppard (2003–2004), Vansina (1985) and Dunar (2009) propose that, particularly in Scotland, oral history is still considered an essential method of communication; people in communities engage, transfer knowledge, study history and resolve social issues at a micro-level. The fact that such practices exist has provided an opportunity for academic communities to develop creative methods to record, collect and archive stories, and to understand people's cultural and social identity in modern times.

In the UK, the Oral History Society (OHS) has played a major role in preserving oral history since 1971. The OHS provides support and advice for using creative methods to record stories and memories. According to Evans et al. (1972), both academics and non-academics have participated in activities such as conferences and workshops to encourage people to share ideas and experiences. During 1998 and 1999, a media series called *The Century Speaks* (BBC, 2006a) hosted by BBC radio recorded oral stories and memories from people across the nation. Oral histories of 640 hours of audio documentary were recorded, and it became the largest single oral history collection in Europe. Another programme entitled *WW2 People's War*, which was hosted by the BBC 2003–2006, collected Second World War stories. It consisted of 15,000 photographs and 47,000 stories gathered from across the nation.

In 2003, in collaboration with The British Library, BBC Radio 4 initiated something called The Listening Project that recorded over 35,000 memorable story narratives across the country. The Listening Project (BBC Radio 4, 2003) provided an opportunity for people of all backgrounds and origins in such a diverse country as the UK to record, share and preserve stories and memories. Apart from the OHS, there are local storytelling groups that I identified as part of my research. These include the Scottish Storytelling Centre in Edinburgh, Blether Tay-Gither (a Dundee-based storytelling group) and a local storytelling group who occasionally meet at the Scottish Fisheries

Museum in Anstruther. My research engaged such storytelling groups to implement PAR methods elaborated upon in later chapters

1.7 Narration of Stories and Social History – Portugal

In Portugal, storytelling is identified as part of religious observance. In the Azores, churches and museums are symbols of history; they tell stories of the people and the artefacts largely represent their religion. Portugal Storytelling Life is a project seeking to empower people in the community through storytelling, especially its youth. It was set up in Lisbon to provide a platform from which to tell stories of personal experience and history. Overall, it attempts to observe how people in the local community can gain from storytelling traditions. In Portugal, the storytelling tradition is perceived as an opportunity for multicultural exchange of ideas and stories. Such storytelling approaches in local communities provide guidance for self-identity. Therefore, as identified by Dos (2012), it is an effective, creative tool when used to interact with local people.

A researcher and storyteller from Portugal, Dos (2012), argues for the importance of storytelling with regard to everyone in the world succeeding at both a personal and professional level. He conducted extensive research on different storytelling approaches and illustrated storytelling as a method that not only provides leadership skills but helps to build confidence while shaping identity. Lick (2007) and Souza (2007) vividly captured stories of the Azoreans. Souza shows how Portuguese women's pride in their culture, religion, language and careers is demonstrated by using stories, while Lick talks about the memories of Azorean ancestors and explores different aspects of Azorean ethnic heritage through the people's emotional stories. Therefore, I involved participants from the Azores fishing community to generate emotionally meaningful stories through a PAR methodology, and provided opportunities for them to engage so that I could understand their lifestyle and cultural differences.

CHAPTER 2

Contextual Review

2.1 Introduction

The underlying aim of this contextual review is to evaluate the surrounding knowledge and connect it to the concepts of: (1) communities; (2) storytelling; (3) digital cultures; and (4) design practices. The chapter seeks suggestions from outside literature that can contribute to my intention of building a conceptual model. My attendance at a series of conferences, workshops and exhibitions facilitated an introduction to some of the leading researchers, artists and designers in the field, and helped to establish the context that informed my research. My PhD research is also a part of the TOTeM project, an EPSRC-funded project under its Digital Economy Theme. The project largely explores social memory in the emerging culture of the IoT. My involvement in the TOTeM project provided me with opportunities to create frequent social interactions with professionals, practitioners, experts and other doctoral candidates. These poignantly helpful aspects assisted me in constructing a unique research network.

For the purposes of this chapter, the context is divided into three categories:

1. PAR Methods
2. People and Stories in Communities
3. Storytelling and Digital Technology

These categories are related to each other in the research, and the research itself explores how they are articulated within it. The categories themselves represent the correlation between communities, people, technology and things, with their interrelationships. My research advances the mechanism of how these categories affect each other for today's technological developments. It is understood communities form the fundamental elements in any society; this being the case, people play a significant part in shaping the cultural identity of their community. This is upheld in my research, wherein I consider things and objects are important factors in triggering people's experiences and understanding their cultural identities through stories. According to Heidegger (1962), things are different from solid objects; they are counterpoised. In subsequent chapters, my research elaborates significantly on the role of things and objects.

My research involved participants from three fishing communities in different geographical locations. As part of the research, I examined stories and memories associated with things, including objects, artefacts and photographs. I established a sense of connectedness with people who shared their stories. My research explored the role of objects in our everyday lives through story narratives.

In this study, I intended to explore the integration of auto ID technology and PAR methods, including story interviews, digital storytelling workshops and the story kit method, into a framework, which would be tested and analysed in three culturally diverse communities with the aim of identifying its impact and other social issues therein. I customised these PAR methods and implemented them within the participating communities to understand their lifestyle and cultural differences. Within PAR methods, I adopted auto ID technology to engage participants through digital storytelling.

Such a combination of action research and participatory methods results in PAR methodology. I adapted these methodological processes throughout my research, thus making my research study practice-led, in accordance with Gray's (1996) definition of this term. Here, Gray defines practice-led research as:

Firstly research which is initiated in practice, where questions, problems, challenges are identified and formed by the needs of the practice and practitioners; and secondly, that the research strategy is carried out through practice, using predominantly methodologies and specific methods familiar to us as practitioners.

(Gray, 1996, p.3)

2.2 PAR and its Underpinning Values

PAR emerged in Scandinavia during the 1960s and 1970s and was illustrated by designers Susanne Bødker, Pelle Ehn, Dan Sjögren and Yngve Sundblad in the UTOPIA project (1981–1985). From their viewpoint, PAR aimed to address power imbalance in organisations through the user's skills. Siew and Yeo (2011) believe in the philosophical nature of PAR. It is particularly relevant when used to involve communities, especially when this involvement is directed at developing new software through social engagement. Since PAR indicates cooperation, it can lead participants to an understanding of necessity within their communities and cause them to form perceptions of the requirement to change things (Siew and Yeo, 2011). In support of this, Harvey (2008) declares the efficiency of PAR methodology in permitting members of a community to formulate varied evaluation methods that can be used to assess their own unique situation, providing them with the motivation to initiate changes within their social lives. Sim (1999) echoes this statement in acknowledging PAR as a methodological approach used by researchers to obtain knowledge of participants' worldviews. Indeed, utilisation of the approach enables researchers to acquire an in-depth understanding of users' impressions of a specific issue.

Foth and Axup (2006) propose that to help researchers verify their outcomes, it is important to ensure the research activity is relevant to the participants. Researchers are assisted in this by action research methodology. Chevalier and Buckles (2013) state that PAR practitioners usually combine the three elements of: (1) Participatory; (2) Action; and (3) Research (see Figure 2.1). PAR advocates utilising each element so that participants can: conduct self-investigation and reflective practice; discover facts; and learn. The action research element is elaborated upon further in Section 2.2.1.

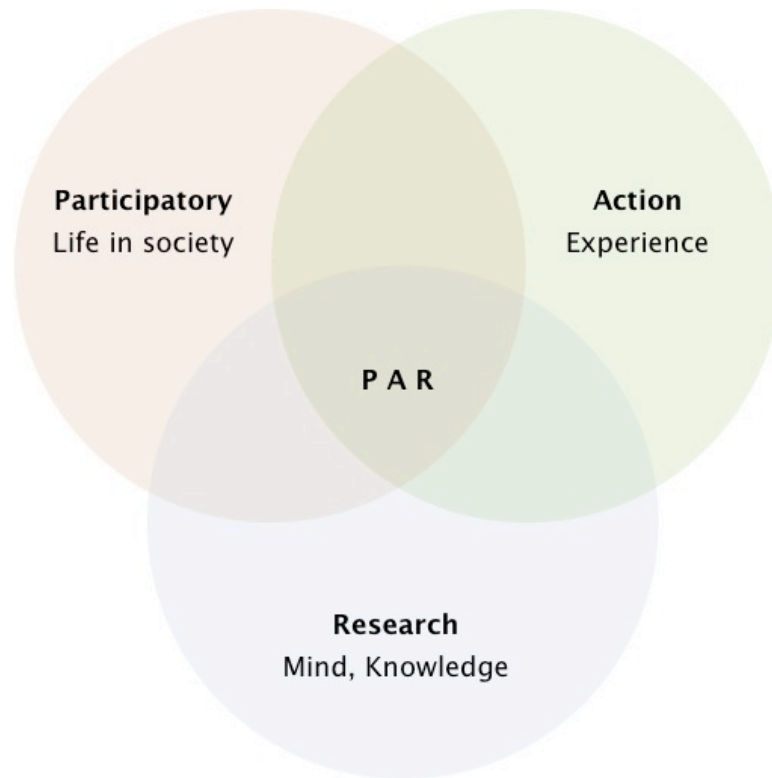


Figure 2.1: The PAR method, showing the combination of methods: participatory, action and research.

Research studies by Ardichvili et al. (2006), Clarke (2008) and Ranjan et al. (1999) illustrate the point that cultural factors play a vital role in design research. These examples demonstrate how design works synergistically with cultural factors in society. Research studies (Bruns, 2007) in the past have adapted qualitative design research methods to understand users' needs. Research studies by Bødker et al (1993) and Greenbaum and Kyng (1991) have identified PAR as an effective process for emphasising the significance of user engagement and interaction between participants and the researcher for building an efficient design approach.

2.2.1 Action Research Method

As the name suggests, the action research method is a combination of action and research. According to Lewin (1948), the action research method is called a meta-methodology or research framework because it involves both quantitative and qualitative methods. Researchers such as Dick (2002), Reason and Bradbury (2001) and Smith, Willms and Johnson (1997) adapted action research methodology to

understanding problems and provoking social change through action. Lewin (1948) argues:

The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action-research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action. Research that produces nothing but books will not suffice.

(Lewin, 1946, reproduced in Lewin, 1948, pp.202–203)

Hearn and Foth (2005) state that in an action research study the researcher is inclined to involve him/herself in the project as part of the research activity and act as a co-investigator, encouraging the participants to get involved. In such a research activity, the researcher's role will be to plan, act, observe and reflect on the process. While engaging with the research, the participants engage and benefit from the project:

It is a process that engages all project stakeholders in constantly oscillating between knowledge generation and critical-informed reflection, in a helix directed at reaching a stage of improvement from which the process can start all over again – but this time towards an even higher level of understanding and achievement.

(Hearn and Foth, 2005, p.2)

Hearn and Foth (2005) argue action research methodology is not bound to participatory methods or, in fact, any specific research method. Foth states that action research methods are drawn from soft methods giving clear attention to the uncertainty involved in projects that engage humans. Studies by Tacchi, Slater and Hearn (2003) show action research has been used as a research culture by encouraging participants to understand their social background and reflect on their problems.

Dick (2002) specifies it is important in practice-led research, especially when working with communities and involving participants in the design process, to identify implicit and explicit knowledge. The action research method is an approach used to understand both types of knowledge through action. In most research methods, their framework allows researchers to identify only explicit knowledge, including theories or arguments. The action research method, however, helps the researcher in identifying both implicit and explicit knowledge by implementing action and research simultaneously. Hence, action research methodology is appropriate for practice-led research, where the researcher can relate theoretical knowledge to their practice.

It is noted that professionals and designers in today's industries adapt the action research method to reflect on their ideas and concepts, helping them develop software, digital products or online services. Hearn and Foth (2005, p.6) term this 'the action research cycle'. Tacchi, Slater and Hearn (2003) argue that adapting the action research method with the aim of improving technology and products constrain our application of the same to our lifestyles. However, Hearn and Forth also state action research methodology is not only a ground-breaking approach, but also a holistic one. Action research methodology can be adapted to encompass user participation. This assists the researcher in understanding the issues as a whole and in introducing appropriate solutions. As Tacchi, Slater and Hearn (2003) propose:

Typically, the action research process is engaged either to design or to evaluate some aspect of a new technology. The approach focuses on actual practices of use and interaction with new media technologies in the wider context of people's lives – what has been termed 'communicative ecologies'.

(Tacchi, Slater and Hearn, 2003, p.17)

2.2.2 Critical Engagement in PAR

PAR is used as an approach either: to involve users in reflecting on future impacts in order to yield better designs; or to involve users as an end in itself as a fundamental right. Democratically motivated participation requires that everyone is given the opportunity to contribute. Pragmatically, participation should contribute to an end that is superior to

what was there before in order to yield the 'better design'. PAR is 'concerned with improving the quality of life in a broader sense, through the design of alternatives, implicitly recognising the complexity of design' (Anderson et al., 2012). The question is how to engage people so they can contribute constructively. Halskov and Hansen's (Halskov and Hansen, 2015) study of literature on participation over a ten-year period has expanded from a workplace context into new domains. In the study, they recognise that when participatory research ventures into new areas, conditions will differ and there will be specific challenges the approach will need to overcome that were not present in the previous context.

Participation is a matter of concern; it varies, and requires consideration in each new context. Thus, context is a vital element that needs to be understood when considering how participation is going to take place in a design process. Participation becomes a matter of concern, something to be assembled and designed, case by case, where the criteria for participation are not universal, but carefully developed and explicated in each project (Anderson et al., 2012). As PAR approaches venture out of the workplace, we need to rethink how we judge participation and invest time in considering what form a contribution can take. As Anderson's study points out, participation is not limited to design events or premised by physical presence or even intentional interaction. In their recent study, Anderson et al. use Actor–Network Theory (ANT) as a framework for developing an understanding of how people can participate in design processes for complex issues. It highlights the fact that people are networked entities and contributions can come in many forms, including reports and other kinds of texts, and can be influenced by others. This opens up the spectrum of what we understand and accept as participation.

Bostock and Freeman (2003), Nelson, Ochocka, Griffin and Lord (1998) and Whyte, (1991) describe the four key values of PAR as empowerment, support and relationships, learning, and social change. These four key values correlate to Fawcett's (1991) ten values guiding community research and action. Doing PAR encourages participants to share the research process, and presents a way to overcome and address the exclusion people in isolated communities face. PAR is well known for fostering learning and creating change. However, beyond this role, PAR also helps to empower participants through building relationships and supportive structures. The

PAR approach has the potential to address the inequalities in power between the participants and organisation or the participants and researchers. White (2005) noted how PAR changes traditional research dynamics whereby the researcher becomes the learner and the participants are experts because of their experience.

There are different school of thoughts with regard to PAR. One considers PAR to be participation as a means to achieve certain objectives and another looks at participation as an end in itself and a fundamental right. In my research, PAR sits within the two spectrums of thought because participation was key throughout, first, to identify and achieve objectives and, finally, to evaluate the findings. Researchers (Ryan and Robinson 1990; Hoare et al., 1993; Reardon and Bradbury 1993; Simonson and Bushaw 1993; Lammerick, 1994) describe PAR as a collaborative approach involving the participation of community members.

Despite these seemingly positive views, however, involving community members in research, particularly cross-cultural communities, poses many challenges for researchers. Our values and issues around power remain critical factors to be continually aware of and reflected upon. Most importantly, using a participatory framework to alleviate historically entrenched power differentials caused by our professional status may not be working quite as we desire (Tomlinson and Swartz, 2002). As practitioners, we need to recognise 'empowering' practices may be somewhat paradoxical; in attempting to be empowering to participants, they might only serve to empower ourselves.

Barnsley and Ellis (1992) define PAR as a 'community directed process' of gathering and analysing information on a certain issue for taking action and making change. Researchers (Conchelos and Kassam, 1981; Hall, 1981; Pigozzi, 1982; Simonson and Bushaw, 1993; Reimer, 1994; Cornwall and Jewkes, 1995) have pointed out the disadvantages of applying PAR. Reimer (1994) highlights the 'inherent relationship researchers have with local individuals hired to assist in the research process' as a disadvantage. Adding to Reimer, Bennett (2004) argues 'not everyone within the community will want to partake in participatory research'. In my experience as a researcher, I identified the fact that people were sceptical about being involved in 'research' projects because they sometimes do not see the direct benefits of participating. Time is also perceived as a factor prohibiting people from taking part in

such projects. To avoid these challenges, it is important as a researcher to identify the limitations of the research at the beginning and establish trust with the community.

2.2.3 Cultural Probes

Cultural probes are research tools that provide an innovative, design-led approach that helps in gathering information about people and their activities in everyday life (Crabtree and Rodden, 2002). Gaver, Dunne and Pacenti (1999) developed the cultural probe as a research method in an interaction design and human-computer interaction discipline. In my research, I adapt cultural probes as a method for using the distance research method to share story narratives within and across my participating communities. In 1999, Gaver and his colleagues developed cultural probes as a part of the Presence Project at the Royal College of Art. Horst et al. (2004) used cultural probes as a design tool to investigate interactions within family networks, while Davis et al. (2005) used them in an intergenerational community to explore and capture communication between children and their grandparents. The use of cultural probes has been adopted in several multidisciplinary research fields, including art, computing, sociology, health care, architecture and other design groups (see Table 1).

Graham et al. (2007) state that cultural probes act as a resource for those involved in design subjects, including designers, computer scientists, engineers, ethnographers, historians and physiologists. It is important to consider the implications of using cultural probes in multidisciplinary subjects, as they are both participant-engaging and participant-provoking research tools. Figures 2.2 and 2.3 depict parts of a cultural probe.

Significantly, Wallace et al. (2013) comment:

Probes need to work hard to facilitate a participant's reflections, deploying a range of multi-angled methods. We see them as objects that enable deep reflection and gentle ways to give a participant access to complex notions and experience. This is important, as a central factor in the probe process is the development of a relationship of trust with participants.

(Wallace et al., 2013, p.3443)



Figure 2.2: Repackaged disposable camera – part of a cultural probe labelled with requests for particular pictures.



Figure 2.3: Dream recorder – part of a cultural probe repackaged with instructions.

I view the above comment by Wallace et al. as the crux of my research purpose. It also forms part of the context of my research while pinpointing the tenets of my primary research question. Indeed, Wallace et al. (2013) state that cultural probes can be used as a research tool for designing, understanding and exploring many projects simultaneously. They argue probes can be designed so they echo research questions or social concerns by using creative methods, thereby providing participants with an interesting approach.

Table 1 illustrates the fact that researchers such as Nilsson, Johansson and Håkansson, (2003) and Lindström et al. (2006) have used probes in the conventional way. Yet, it also shows researchers such as Labrune and MacKay (2005), Dindler et al. (2005) and Maldonado, Lee and Kelmmer (2006) have used probes more widely to cover diary studies, field trips and user studies, respectively.

Table 1: Cultural probes adapted for various purposes in diverse research fields.

S.no	Subjects	Use of Probes	References
1	Architecture	Cultural probes used for longitudinal studies, contextual enquiry and ethnographic studies.	Rodden, T. and Benford, S. 2003. The evolution of buildings and implications for the design of ubiquitous domestic environments. In Proc. CHI '03. NY: ACM Press, 9L16.
		Urban probes for broad and rapid data collection.	Paulos, E. and Jenkins, T. 2005. Urban probes. In Proc. CHI '05. NY: ACM Press, 341L350.
		Probes used in design process for architects and designers.	Bravo, M, Lucero, T and Aliakseyeu, D.2007. Probing need for mobile technology for designers and architects. IASTED/HCI '07, Pages 244L249 .
2	Education	Probes used in cross-cultural studies.	Johnsrud, L. K. 1993. CrossCultural implications of graduate study abroad: the case of Korean academics. Higer Education, 25, 207L222.
		Probes used by researchers in interaction design for contextualised data collection.	Mackay, W. E. 2004. The interactive thread. In Proc. DIS '04. NY: ACM Press, 103L112.
		Probes used in longitudinal user studies.	Maldonado, H., B. Lee, and S. Klemmer. Technology for Design Education. In CHI '06 Extended Abstracts, 1067L1072.
Technology: HCI	Technology: HCI	Probes in HCI to develop objective and factual descriptions of users' needs.	Dey, A. K. and de Guzman, E. 2006. From awareness to connectedness. In Proc. CHI '06. NY: ACM Press, 899L908.
		Probes used in HCI design process (not used as intended by Gaver, 1999).	Roibas, A. C. and Johnson, S. 2006. Unfolding the user experience in new scenarios of pervasive interactive TV. In CHI '06 Extended Abstracts. NY: ACM Press, 1259L1264.
		Cultural probes used to inform design practices.	Lindström, M., Ståhl, A., Höök, K., Sundström, P., Laaksohalo, J., Combetto, M., Taylor, A., and Bresin, R. 2006. Affective diary. In CHI '06 Extended Abstracts. NY: ACM Press, 1037L1042.

<p>Cultural probes used to address intimate, idiosyncratic personal issues.</p>	<p>Hutchinson, H., Mackay, W., Westerlund, B., Bederson, B. B., Druin, A., Plaisant, C., BeaudouinLlafon, M., Conversy, S., Evans, H., Hansen, H., Roussel, N., and Eiderbäck, B. 2003. Technology probes. In Proc. CHI '03. NY: ACM Press, 17L24.</p>
<p>Chain probe responses for design process in HCI.</p>	<p>Blythe, M., Monk, A., and Park, J. 2002. Technology biographies. In CHI '02 Extended Abstracts. NY: ACM Press, 658L659.</p>
<p>Probes for designing mobile application for promoting wonderment.</p>	<p>Paulos, E. and Beckmann, C. 2006. Sashay. In Proc. CHI '06. NY: ACM Press, 881L884.</p>
<p>Probes used in HCI design process.</p>	<p>Lundberg, J., Ibrahim, A., Jönsson, D., Lindquist, S., and Qvarfordt, P. 2002. The snatcher catcher. In Proc. NordiCHI '02. NY: ACM Press, 209L212.</p>
<p>Cultural probes used in combination with interviews.</p>	<p>KuiperLHoyng, L. L. and Beusmans, J. W. 2004. Using home networks to create atmospheres in the home. In Proc. Dutch Directions in HCI. NY: ACM Press, 7L10.</p>
<p>Lightweight probes used as a method to rapidly deconstruct urban situations.</p>	<p>Paulos, E. and Jenkins, T. 2005. Urban probes. In Proc. CHI '05. NY: ACM Press, 341L350.</p>
<p>Cultural probes used in HCI for design purpose.</p>	<p>Gaver, W. and Dunne, A. 1999. Projected realities: conceptual design for cultural effect. In Proc. CHI '99. NY: ACM Press, 600L607.</p>
<p>Probes used alongside other participatory methods for design.</p>	<p>Mattelmäki, T., Battarbee, K., Empathy Probes. Paper presented at Participation and Design, Malmö 2002.</p>
<p>Domestic probes used for HCI design process.</p>	<p>Gaver, W. W., Bowers, J., Boucher, A., Gellerson, H., Pennington, S., Schmidt, A., Steed, A., Villars, N., and Walker, B. 2004. The drift table. In CHI '04 Extended Abstracts. NY: ACM Press, 885L900.</p>
<p>Cultural probes used in the design process for user groups comprising elderly people.</p>	<p>Gaver, B., Dunne, T., and Pacenti, E. 1999. Cultural probes. interactions 6, 1 (Jan. 1999), 21L29.</p>

Technology: HCI

<p>Cultural probes used to address intimate, idiosyncratic personal issues.</p>	<p>Hutchinson, H., Mackay, W., Westerlund, B., Bederson, B. B., Druin, A., Plaisant, C., BeaudouinLafon, M., Convery, S., Evans, H., Hansen, H., Rousel, N., and Eiderbäck, B. 2003. Technology probes. In Proc. CHI '03. NY: ACM Press, 17L24.</p>
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<p>Probes for designing mobile application for promoting wonderment.</p>	<p>Paulos, E. and Beckmann, C. 2006. Sashay. In Proc. CHI '06. NY: ACM Press, 881L884.</p>
<p>Probes used in HCI design process.</p>	<p>Lundberg, J., Ibrahim, A., Jönsson, D., Lindquist, S., and Qvarfordt, P. 2002. The snatcher catcher. In Proc. NordiCHI '02. NY: ACM Press, 209L212.</p>
<p>Cultural probes used in combination with interviews.</p>	<p>KuiperLHoyng, L. L. and Beusmans, J. W. 2004. Using home networks to create atmospheres in the home. In Proc. Dutch Directions in HCI. NY: ACM Press, 7L10.</p>
<p>Lightweight probes used as a method to rapidly deconstruct urban situations.</p>	<p>Paulos, E. and Jenkins, T. 2005. Urban probes. In Proc. CHI '05. NY: ACM Press, 341L350.</p>
<p>Cultural probes used in HCI for design purpose.</p>	<p>Gaver, W. and Dunne, A. 1999. Projected realities: conceptual design for cultural effect. In Proc. CHI '99. NY: ACM Press, 600L607.</p>
<p>Probes used alongside other participatory methods for design.</p>	<p>Mattelmäki, T., Battarbee, K., Empathy Probes. Paper presented at Participation and Design, Malmö 2002.</p>
<p>Domestic probes used for HCI design process.</p>	<p>Gaver, W. W., Bowers, J., Boucher, A., Gellerson, H., Pennington, S., Schmidt, A., Steed, A., Villars, N., and Walker, B. 2004. The drift table. In CHI '04 Extended Abstracts. NY: ACM Press, 885L900.</p>
<p>Cultural probes used in the design process for user groups comprising elderly people.</p>	<p>Gaver, B., Dunne, T., and Pacenti, E. 1999. Cultural probes. interactions 6, 1 (Jan. 1999), 21L29.</p>

<p style="text-align: center;">3</p> <p style="text-align: center;">Technology: HCI</p>	<p>Probes used for baseline understanding in users' environment to design new interfaces for musical expression.</p>	<p>Gaye, L. and Holmquist, L. E. 2004. In duet with everyday urban settings. In Proc. New Interfaces For Musical Expression 2004.</p>	
	<p>Value probes used in HCI for self-expression.</p>	<p>Voida, A. and Mynatt, E. D. 2005. Conveying user values between families and designers. In CHI '05 Extended Abstracts. NY: ACM Press, 2013L2016.</p>	
	<p>Photo diaries.</p>	<p>Dindler, C., Eriksson, E., Iversen, O. S., LykkeLOlesen, A., and Ludvigsen, M. 2005. Mission from Mars. In Proc. IDC '05. NY: ACM Press, 40L47..</p>	
	<p>Mobile probes for design decision process.</p>	<p>Cheverst,K, Fitton, D and Rouncefield, M. 2004. Smart mobile and technology probes: evaluating testing at work. Accepted, ECITE 2004.</p>	
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	<p>Probes used in design process or to validate findings from other methods.</p>	<p>Crabtree, A., Hemmings, T., Rodden, T., Clarke, K., Dewsbury, G., Hughes, J., Rouncefield, M. and Sommerville, I. (2002) "Sore legs and naked bottoms". Proc. DIRC Conference on Dependable Computing Systems, London: The Royal Statistical Society.</p>	
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		<p>Digital cultural probe for design of children's technology.</p>	<p>Peta Wyeth, P and Diercke, C. 2006. Using digital Cultural probes in design with children, In Proc. OZCHI, 2006, Sydney, Australia. Pages 385L388</p>

4	<p>Technology: mobile interaction</p>	<p>Probes used during field trips for data collection.</p> <p>Probes in HCI to develop objective, factual descriptions of users' needs.</p> <p>Probes used as a methodology for designing information systems.</p> <p>Cultural probes used to differentiate between feelings and data for design process.</p>	<p>JLB. Labrune & W. Mackay. Tangicam: Exploring observation tools for children. In IDC 2005 (Interaction Design and Children), Boulder, CO, USA, 2005</p> <p>Amin, A. K., Kersten, B. T., Kulyk, O. A., Pelgrim, P. H., Wang, C. M., and Markopoulos, P. 2005. SenseMS. In Proc. MobileHCI '05, NY: ACM Press, 161L166.</p> <p>Battarbee, K., Baerten, N., Hinfelaar, M., Irvine, P., Loeber, S., Munro, A., and Pederson, T. 2002. Pools and satellites. In Proc. DIS '02. NY: ACM Press, 237L245.</p> <p>Kim, D and Lee, K. 2007. Case study of cultural probes for Korean participants in contextual mapping methods.</p> <p>Chavan, A. L. and Munshi, S. 2004. Emotion in a ticket. In CHI '04 Extended Abstracts. NY: ACM Press, 1544L1544.</p>
5	<p>Technology: technology in communiites</p>	<p>Cultural probes used as a supplement to social science approaches.</p>	<p>Howard, S. Kjeldskov, J., Skov, M.B., Garnæs, K., and Grünberger, O. 2006. Negotiating presenceLinLabsence. In Proc. CHI '06. NY: ACM Press, 909L921.</p> <p>Choukeir, J. 2008. Commutation design for social integration in Lebanon. Case study: Youth groups in Lebanon, PhD Thesis.</p>
6	<p>Sociology</p>	<p>Probes used in studying the economic changes in communities. (not used as intended by Gaver, 1999)</p>	<p>Judice, A and Judice, M. 2007. Designing cultural probes to study invisible communities in Brazil. University of Art and Design Helsinki, Finland. Design Inquiries '07. Stockholm.</p>
7	<p>Economics</p>	<p>Cognitive probes to monitor health applications.</p>	<p>Mamykina, L., Mynatt, E. D., and Kaufman, D. R. 2006. Investigating health management practices of individuals with diabetes. In Proc. CHI '06. NY: ACM Press, 927L936.l.</p>
8	<p>Health care and physiology</p>	<p>Probes used in design process for health care of former psychiatric patients to manage medication.</p>	<p>Kember, S., Cheverst, K., Clarke, K., Dewsbury, G., Hemmings, T., Rodden, T., and Rouncefield, M. 2003. Designing assistive technologies for medication regimes in care settings. Universal Access in the Information Society, 2 (3), 235L 242.</p>

	<p>Health care and physiology</p>	<p>Probes used for longitudinal studies and contextual inquiry.</p> <p>Probes used for regular monitoring with user groups (cancer patients).</p> <p>Probes used as a method to engage participants with cognitive difficulties in design.</p> <p>Probes used to capture whether or not participants would find a product useful.</p>	<p>Desmet, P. and Dijkhuis, E. 2003. A Wheelchair can be fun: a case of emotion driven design, In Proc. DPPI '03. NY: ACM Press, 22L27.</p> <p>Community Toolkits (Internet), NHS Stroke Cancer Awareness Programme. Uscreates</p> <p>Svensk, A, Jönsson. B and Malmborg. L 2005. Mobility and Learning: Engaging People in Design and their Everyday Environments.</p> <p>Aley, E., Cooper, T., Graeber, R., Kerne, A., Overby, K., and Toups, Z. O. 2005. Sensor chair. In Proc.. MULTIMEDIA '05. NY: ACM Press, 922L929.</p>
<p>9</p>	<p>Design</p>	<p>Probes used to capture emotional values in textile design.</p> <p>Identity probes – probes used by designers to capture emotional experiences of participants wearing denim.</p>	<p>Bang, AL. 2009. Triads as a Means for Dialogue About Emotional Values in Textile Design. Malins J, editor. In Design Connexity: Proceedings of the Eighth European Academy of Design International Conference. Gray's School of Art, The Robert Gordon University. pp. 44L49</p> <p>Candy, F. J. 2003. The Fabric of Society: an investigation of the Emotional and Sensory Experience of Wearing Desnim Clothing, In Proc. DPPI '03. NY: ACM Press, 28L33</p>
<p>10</p>	<p>Ethnography</p>	<p>Probes designed for rapid ethnography in HCI design.</p> <p>Probes used in design process or to validate findings from other methods.</p>	<p>Millen, D. R. 2000. Rapid ethnography. In Proc. DIS '00. NY: ACM Press, 280L286.</p> <p>Hemmings, T., Clarke, K., Crabtree, A., Rodden, T. and Rouncefield, M. (2002) Probing the Probes. In Proc. Participatory Design 2002, pp. 42L50.</p>

2.2.4 Using Cultural Probes in Past Research

Cultural probes are widely considered as a substitute for ethnographic and user-centred methods for understanding user requirements (Hemmings et al., 2002). However, in the past, cultural probes have been used alongside contextual interviews and as part of field studies and other ethnographic research methods to investigate how technologies are used within user groups. Cultural probes have also been used in ICT alongside focus groups and contextual interviews. For instance, Vetere et al. (2005, p.473) employed probes as diaries, scrapbooks, digital cameras, postcards and catchphrase stickers (e.g. 'I felt alone when ...', 'I feel supported when ...'). They were introduced after interviews and following focus groups and assisted in discovering design ideas for intimate technological devices. In my own research, I explored the previous use of probes as shown in Table 2.

Table 2: Use of cultural probes in past research.

Reference	Probe type	How probes were introduced	Duration of probes	Number of participants	Findings/Inferences
Vetere et al. (2005)	Diaries, scrapbooks and other materials.	Probes were introduced in person following interviews and were followed by focus groups.	1 week	6 couples	Design ideas and concepts for intimate technology devices.
Gaver et al. (2004b)	Disposable cameras, tags and sound recorders.	Probes were introduced initially for design inspiration.	6 weeks	20 households	Design ideas and open-ended concepts for home technology.
Hutchinson et al. (2003)	Disposable cameras and diaries.	A technology probe was introduced early on in the design process.	6 weeks	Introduced within multiple families in a cross-cultural context	An HCI approach for design inspiration in relation to new domestic technology.
Crabtree et al. (2003)	Postcards, maps, cameras, photo albums and diaries.	Information probes were introduced early on in the study to gather data for subsequent workshops.	1 week	Not given	Approach for data gathering.
Mackay (2004)	Video-based technology probes.	Probes were introduced in person to the families at the beginning of the project.	6 weeks	3 families (each family consists of 2 parents, 2 children)	Design inspiration for family communication.

Mamykina, Mynatt and Kaufman (2006)	Technology probes.	Probes were deployed following day-to-day interviews with individuals.	2-4 weeks	and 2 grandparents)	Design inspiration for prototype of a health-monitoring application.
Wolf, Rode, Sussman and Kellogg (2006)	Diaries, scrapbooks and other materials.	Probes were introduced initially for design inspiration and followed by prototyping.	Not specified	Not specified	Inspiration for pleasurable and provocative design concepts.
Voida and Mynatt (2005)	Value probe: family album, dairy planner, map, letter to kids, scrapbook.	Probe was the only method in the project and was introduced in person to families.	Not specified	2 families	Design for domestic technology.
Benford and Rodden (2003)	Diaries, scrapbook and other materials.	Probes were introduced alongside both ethnographic and longitudinal studies.	8 weeks	Not specified	Design of future domestic environments.
Berkovich (2009)	Perspective probes: digital cameras, sticky notes, instruction sheets and welcome letter.	Probes were introduced early on to support design process.	5 weeks	16 participants	Perspective probe was used to gather information for Google Finance.

Crabtree et al. (2003) state that the employment of cultural probes is a user-centred research method designed specifically for application to specific user groups for exploring and identifying their needs through active participation. Furthermore, probes help to uncover new ways in which technology can reach everyday lifestyles and can also assist in generating new perspectives. Conducting interviews in conjunction with the probe tool will give the participants an opportunity to clarify and explain the collected materials. Moreover, according to Kjeldskov et al. (2004), cultural probes initiate a conversation between the participants and researchers and help them build a relationship. Wyeth and Diercke (2006) state that cultural probes are best suited to exploring people's personal interests, likes and dislikes, and their perspectives on the world in general. Such usage of probes as research tools helps to provide details of participants' interests and passions that can subsequently be used to inspire the design for new technology. According to Arnold (2004), cultural probes are independent research tools that do not require the presence of a researcher. The probes are designed in such a way that they encourage the participants to collect data themselves. This allows participants to record everyday activities for a longer period, even in multiple locations, unlike traditional ethnographic approaches.

Gaver et al. (2004a) contend cultural probes have been broadly misinterpreted and say they are suitable for situations when the researcher needs to gather information from participants but with minimal influence on their actions.

Gaver, Dunne and Pacenti (1999) indicate that:

Over time, the stories that emerge from the Probes are rich and multi-layered, integrating routines with aspirations, appearances with deeper truths.

(Gaver, Dunne and Pacenti, 1999, p.6)

The use of cultural probes as a design tool is advantageous because they provoke inspiring design ideas for technologies aimed at improving people's everyday domestic lifestyles:

the Probes encouraged us to tell stories about them, much as we tell stories about the people we know in daily life ... They give us a feel for people, mingling observable facts with emotional responses.

(Gaver et al., 2004a, p.6)

Despite these advantages, it can be argued that probes may make it difficult to trace a path between research studies and their own subsequent design. Probes might direct participants to make their own subjective interpretations which, in turn, could put the researcher and designers in a situation where it would be difficult to draw conclusions. Gaver clarifies the fact that uncertainty is a good thing; participants' 'ambiguity' drives their ambition to make something that will help them adjust to their lives because, in responding, they gain a new perspective.

2.2.5 Reviewing the Cultural Probe

Gaver, Dunne and Pacenti (1999) created the cultural probe and suggested the umbrella term 'probology' (Gaver et al., 2004a p.7) could enthuse design. Table 1 illustrates the many people from varied disciplines who have both adopted and adapted the cultural probe, and it is utilised extensively by technologists in human-computer interaction (HCI), technologists in community studies and ethnographers.

Gaver et al.'s (2004b) design of the cultural probe and their subsequent development of the domestic probe incorporated an intricate array of artist-designer skills. Three key elements made up each prototype probe: (1) form; (2) functions; and (3) aesthetic properties uniquely developed by the designers involved in the project (Hemmings et al., 2002). The design and correlations between the activities were synchronised to elicit a variety of responses.

Gaver et al.'s (2004b) 'domestic probe' comprised five components: (1) disposable camera; (2) dream recorder; (3) photogram; (4) a friends and family map (see Figure 2.4); and (5) a listening glass. By motivating feelings about the home environment, its primary purpose was to obtain new and informed material about people located in their domestic environment. Similar to the cultural probe, this one mirrored artefact

design in its philosophy and approach, the probe package construction and the overall procedure of collecting information.

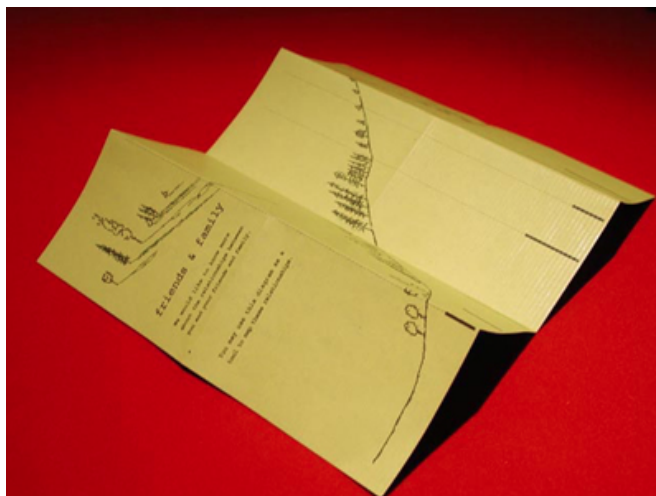


Figure 2.4: Friends and family map.

Note: A friends and family map was included in the domestic probe used to illustrate participants' relationships.

The technology probe was developed by Hutchinson et al. (2003) as part of the European-funded InterLiving project. This project had a single overriding aim – to involve users in the design process of new technology. Compared to the cultural probe, the core focus of the technology probe moved away from everyday artefact representations to representations of unknown items, for example, touchscreen interfaces, created specifically for the InterLiving project. The technology probe focused on problem solving. It also anticipated future role developments for technology in its relationship with people. The authors' research indicated the technology probe could target: (1) the simultaneous practical and leisure needs of humans; (2) the facilitation of materials in interview and workshop discussions; and (3) the encouragement of users' perceptions of technology to enable them to become more creative through their participation in the design workshop sessions.

Designed by Crabtree et al. (2003), the informational probe was intended to explore the lives of older disabled people and former psychiatric patients restricted to living at home. The main objective was to acquire details about special care needs. Thus, the probe technique was intended to be used for obtaining sensitive information

frequently not imparted by participants when conventional research tools such as direct interviews or ethnographical methods were utilised. Unlike the technology probe, Crabtree et al. (2003) reiterate that the informational probe was designed to trigger the imparting of information, and not to provide inspiration for designers and technologists. Upon its return, the informational probe was treated as a resource, rather than something to be used for reflection, and it provided evidence for further analysis and the use of other materials, as well as offering information for use within the participant workshop session. Crabtree et al. (2003) suggest the informational probe has enabled users to participate in the design process. Moreover, participants developed the ability to talk about design based on their own personal practical circumstances and requirements.

The perspective probe was developed by Berkovich (2009, p.2945) to gather information for Google Finance, which required the acquisition of information concerning a uniquely sensitive finance issue. While possessing similar features to other probes, Berkovich emphasised the perspective probe provided: (1) a means of probing topics otherwise difficult to talk about under usual circumstances; and (2) a quick and useful way to conduct research that was also cost- and time-efficient. The author designed seven probing tasks aimed at encouraging participants to adopt a holistic perspective. Findings from these tasks informed the basis of the subsequent interview. A team workshop then assisted in the analysis of the material obtained. Berkovich (2009) argued the perspective probe could be perceived as a way to 'dip one's toe' into explorative local research before more costly and time-consuming global investigations commenced.

Mattelmäki and Battarbee's (2002) empathy probe acknowledged the significance of personal and private life experiences. The objective of the empathy probe in the authors' project was to gain a holistic understanding of the way people exercise for their wellbeing. The empathy probe was meant to be used as an additional research method in conjunction with others. (Gaver, 2001 cited in Mattelmäki and Battarbee, 2002). In this sense, the empathy probe could delve into potential research domains to elicit future design directions as a prerequisite for developing new products. In their research project, the participants used the empathy probe to record personal feelings, attitudes and expectations, and it was used alongside interview and workshop research techniques. Original quotations and stories from the participants were linked

to the research analysis. The authors' findings indicated the empathy probe approach could distinguish novel directions. Indeed, after completion of the project, questions were redefined and future developments isolated. Mattelmäki's later work linked the cultural probe method to the ideation stage of a new product development process (Mattelmäki, 2005). 'Conducting research with seven design companies, collecting inspiring data shifted the research in the direction of a holistic perspective' (Mattelmäki, 2005 p.96).

Other probes have been developed for various research purposes: the value probe (Vaida and Mynatt, 2005); the exploration probe (Jung and Stolterman, 2007) and the urban probe (Paulos and Jenkins, 2005). Although containing the same attributes as the probes described previously, they offer no additional features to make them of particular value to any research that sees fit to utilise them.

From the literature, the cultural probes are seen as more of a localised method tied to Western European and North American design cultures (Manohar and Rogers, 2011). Rarely have probes been used in the East. There are a few examples, but the results show they are unsuccessful. In this research, I will take the notion of probes further in my PAR that explores stories and cultures of three cross-cultural communities in Scotland, Portugal and India.

2.2.6 Misinterpretation of Cultural Probes

Since the introduction of cultural probes in 1999, probes have been widely adapted by scholars to obtain design inspiration and help researchers understand user requirements. However, concerns have been voiced by their originators, for example, Gaver et al. (2004a) explain how probes have been misinterpreted. Koskinen et al. (2011), identify cultural probe utilisation as a conventional practice in European design research. Koskinen argues the social sciences possess a long history of using diary studies. In such studies, the researcher does not have control over when and how the participants fill in their data, making it difficult for the sociologist or the psychologist to interpret them. However, when using cultural probes, the approach is different from the beginning. Collectively, cultural probes, as termed by Gaver, Dunne and Pacenti (1999), comprise a non-scientific toolkit not intended to collect accurate data. This non-scientific approach was particularly intended for user groups that were to be engaged in the research in a more playful manner.

Probes have passed through a long history of misunderstanding and misuse. Koskinen, Battarbee and Mattelmäki (2003) state that some of this is intentional and some unintentional. However, the use of cultural probes as a methodology is regarded academically as a playful and creative application for research design. As Table 1 indicates, the cultural probe was widely used by HCI designers for understanding their end users. Gaver et al. (2004a) identified the probe method as a straightforward process and highlighted the fact that design ideas can be directly tracked back to data from the probes. Nevertheless, they also argue it is difficult to obtain scientifically valid information from cultural probes because they are very subjective. They state that the data obtained through cultural probes are not suitable for enduring the rigours of deep analysis. Importantly, the cultural probe should be designed to inspire and motivate the participants so they can reflect upon whatever the probes throw up (Gaver et al., 2004a).

Cultural probes have been employed for various research purposes. However, Gaver et al. (2004b) argue some users have misinterpreted probes as a substitute for ethnography and other methods for obtaining qualitative data from participants. Similarly, Boehner et al. (2007) state that cultural probes cannot be merely adopted as a substitute for gathering data, but should be perceived as a knowledge production tool. Gaver et al. (2004b) argue the potential benefits are lost when cultural probes are used in a purely 'scientific' fashion and are not tailored to their particular users. In my research, the probes were designed and adapted specifically for the chosen communities, not as a substitute research method, but used in parallel with other research methods to capture the essence of these communities through the participants' eyes.

Cultural probes have been interpreted broadly in the HCI community. Boehner et al. (2007) postulate that probes have become an umbrella term embracing field trips (Labrune and Mackay, 2005), photo diaries (Dindler et al., 2005) and longitudinal user studies (Maldonado, Lee and Kelmmmer, 2006). Indeed, Boehner et al. (2007) state that the probe can also act as a low-fi technology for collecting information about the use of technology itself. So, in my research, I use the story kit method adapted from cultural probes as one of the methods of information gathering, which involves the use of auto ID technology. This method engages my participants in a cross-cultural context to

facilitate the rich interpretation of diverse communities. By using PAR methodology such as cultural probes, workshops and field studies, I could compare these different methods within the chosen communities and understand the implications of their adaptation throughout my research.

2.3 People and Stories in Communities

MacQueen et al. (2001) define community as a group of people with diverse characteristics connected by social ties who share a common perspective and engage in activities in the same geographical location. 'Community' refers to an idea that has been around for thousands of years. Traditionally, community measures people within a local area sharing a similar geographical location. Willmott (1986), Lee and Newby (1983) and Crow and Allen (1994) perceive the concept of community in three ways. These are:

- (1) territorial – this represents a community in which its members have a shared commonality, often geographical;
- (2) elective – this represents a community linked through factors such as religious beliefs, professional occupation or ethnic origins; and
- (3) communion – this represents a people group having a sense of attachment to a place, group or idea (often religious).

There is more than one universally accepted definition for community, and there is certainly no explicit definition for community in the 21st century. The traditional method of categorising communities as sharing one geographical location has changed. Today, 'community' can also refer to online or virtual communities, i.e. people no longer have to be in the same geographical location to form a community. Before defining what a community is, it is important to be aware of what makes up the community. Historically, communities were organised either by a geographical location, for trade or around the local place of worship.

In communities formed around places of worship, people within the group share similar interests. They are involved in similar activities that bind them more closely to the community and, more importantly, give them a sense of connection. Nicolson (2010) states that communities in the same geographical location should be of the right size, neither too large nor too small. They should be large enough to have volunteers, and yet small enough to have a real centre. People within communities can be of different types. Some people are native to the community, whereas others move

in and out of it. These migratory flows have led to the growth of hundreds of cross-national communities. The mobile population might not know many people in their own community, thus rendering the term 'neighbourhood' ambiguous (Robertson, Smyth and McIntosh, 2008). According to Nicolson (2010), a community should have a balanced population, incorporating volunteers, at the same time giving people a sense of neighbourhood values. Nicolson (2010) also discusses how a community can be formed in order to solve a specific issue within a group. He claims that, sometimes, the issue itself can be a reason to define a community. Even though Nicolson's definition of community is positive, other scholars (e.g. Crow and Maclean, 2006; Hoggett, 1997) have negated the idea of a community, arguing the concept heralds exclusion, inequality and social division. Mooney and Neal (2008) argue for communities as having a unique position representing social belonging, collective wellbeing and support, but they can also be negative in the light of possible social problems and problem populations. In relation to the advancement of modern society, Durkheim (1964) perceived community in terms of people's interests and skills rather than it being merely centred on localities.

2.3.1 What is a Community?

In my research, I study community not simply in terms of people in the same geographical location, but also as people sharing a common lifestyle.

2.3.2 Evolution of Communities

The term 'technology' has developed over the last century, and communities have been simultaneously transformed. McLuhan (2013) states that such a change has not necessarily affected communities negatively. These changes have helped communities' progress, notably with regard to basic requirements of food, water, electricity, sanitation and clothing. This rapid development has led to the rise of different kinds of communities, including virtual communities. Clarke (2008) argues that in today's communities, people are no longer bound together by any sense of emotion, passion or motivation. Toffler (1970) neatly summarises this effect of change: 'Change is the process by which the future invades our lives' (Toffler, 1970, p.11). He recognised that even in the 1970s technology and industry were developing at a greater rate of change than an individual could cope with. Today, society forces people to adapt themselves to this fast-moving environment in a shorter time span. Toffler

also argued society does not necessarily comply with slowly evolving civilisation. Lutfala (2011) states that the development in digital technology has had both positive and negative consequences for humanity. In other words, development in technology imposes social isolation on people which, in a wider context, could culminate in social instability and mental health issues (Griffin, 2010). Conversely, simultaneously, it has played a significant role in advancing health care and bringing people closer.

As people move away from their native communities these tend to dissolve, and individuals lose a sense of identity/connection with their original community. My research centred on enriching the community context by engaging participants in PAR methods within their communities. Introducing new technology such as auto ID technology could, possibly, enhance communication between people. Technology should be perceived as a useful alternative and a unique opportunity for connecting people and reaching distant places, and it could potentially enrich communication within and across communities. In some cases, technology may be the only means by which communities can be connected.

As Thackara argues:

These new ways to connect will be the communication services of tomorrow. People are by nature social creatures, and huge opportunities await companies that find new ways to improve communication and community among people in their everyday lives.

(Thackara, 2001, p.50)

My research supports Thackara's (2001) statement by exploring new, tangible ways of connecting geographically dispersed people within the participating communities.

2.3.3 Introduction to Storytelling

Storytelling is a natural way of sharing experiences and life events concerning knowledge, learning, culture and identity. Gubrium and Holstein (1998) state that the act of extracting meaning from experience leads to the development and maintenance of individual identity. Doherty and O' Doherty (2010) explored the concept of identity

as stories. According to Doherty, storytelling is a process whereby the storyteller builds up his/her personal identity through his/her life stories. Kate and Ania (2007) describe storytelling as a thread to help people engage, and develop networks, building possible connections. Storytelling is more than just recollecting memory; it is a process of narrating personal experiences. Every aspect of storytelling represents the narrators' identities, from the emotions involved in the story to what the narrator chooses to share or not.

It is commonly understood stories come in two forms, fictional and non-fictional. Cass et al. (2002) state that sharing stories based on personal experiences is even more powerful than sharing fictional stories, because they are simple yet true. They believe the listener can more often relate to these personal experiences; a listener can connect to the stories as he/she might recognise his/her own joys and struggles in somebody else's tale. Goins (2012) states that fictional stories are often closer to the truth; they teach us about our own stories. Goins proposes the art of storytelling helps us to relive our lives by bringing back our memories; it brings back the emotions and feelings we felt then through stories.

People will forget what you said, people will forget what you did, but people will never forget how you made them feel.

(Goins, 2012)

Marsh and Fazio (2006) state that fictional stories are subjective and made up. They usually involve people, places and concepts existing in the real world. Although I agree with what Marsh and Goins meant, I only partially agree with what they wrote. Fictional stories are only sometimes influenced by people and places existing in the real world. However, some authors such as Hemon (2016) and Erades (2016) argue stories are not bound within truth and imagination. In this study, I argue personal stories are based on memories and experiences consisting of both fictional and non-fictional qualities.

2.3.4 Different Narrative Formats

Eriksen (2006) states that there is lack of storytelling in contemporary anthropology. Conversely, it is thought that anthropologists tell stories all the time (Coleman et al., 2017 and Maggio, 2014). Maggio argues stories are rarely recognised as they are not always in a narrative format. The non-narrative format might not interest people outside academia. However, stories can be told in various formats, such as orally, through film folklore and so on.

In contemporary anthropology, pleas for narrative have almost become a cliché. Our journals regularly bring theoretical discussions about the centrality of narrative, about narrative as a key to understanding life, about the ways in which the great narratives of history mirror the small narratives of personal lives, and so on; but we rarely get on with actually telling stories. Maybe this is general professional affliction.

(Eriksen, 2006, p.36)

Storytelling requires interaction between a narrator and a listener. The listeners are active participants. When the narrator tells the story, the listener creates an image and visualises what is being told. De Vos (2003, p.7) states that for the listener, hearing stories is a 'relaxing and enjoyable process'. However, when a storyteller narrates a story they transmit not only the content of the story but also something of themselves. By narrating a story, a storyteller attempts to touch values, hopes and dreams, and experience a new sense of self. Wever (n.d.) states that these practices become more powerful when the narrator experiences them in connection with valued others.

Pomerantz (1997) proposes that the process of involving people in sharing their experiences through stories creates a storytelling process in itself. Storytelling is adopted as a tool throughout my research to explore cross-cultural communities. My research looks at using familiar objects and photographs offered by participants to understand participants' relationship with respect to their story narratives. It explores how objects act as carriers of their own stories within the IoT and within communities in different cultural contexts.

2.3.5 Attributes of Story Narrative

'Narrative' and 'story' are contested concepts (Stein and Policastro, 1984). The definitions for each term are subject to multiple and competing versions, and the boundaries between each are unclear. This study will use the terms 'story' and 'narrative' interchangeably throughout, to cover all these related concepts.

Stories show how a community views itself and conveys its notion of social responsibility towards its people. Folk stories symbolise the hopes and aspirations of the people in the society and are used to communicate and preserve the cultural values of the group. Bauman (1971) states that the folklore tradition encourages communication across culture and ethnicity. He also conceptualises identity through social interaction. For example, he explains in his book that Jewish humour has influenced communication across culture, i.e. between Jewish and non-Jewish groups. Nagata (1974) also confirms Bauman's view in her study *What is Malay* showing how identity is constructed in the 'emergent communicative process of everyday face to face interaction'.

Bauman is concerned with understanding how insiders view outsiders and how those insiders imagine that they themselves are viewed by outsiders.

(Beger and Negro, 2004, p.131)

Bruner argues that one of the ways people understand their world is through the 'narrative mode' of thought, concerned with human wants, needs and goals. According to Bruner (2002), stories arise when there is a break from normality in some way. He states that narrative is the dialectic between what was expected and what came to pass. If what comes to pass is what was expected, then there is no story. According to Bruner, storytelling is not so much about solutions as problems, more about the journey than the destination and about 'plight' and 'the road, rather than the inn to which it leads'.

Great narrative is an invitation to problem-finding, not a lesson in problem solving.

(Bruner, 2002, p.20)

Bruner (2002) deconstructs what makes a story so we can identify stories more easily. He uses Kenneth Burke's 'dramatistic pentad' as a way of isolating the elements of a story. According to Burke, a story needs: an agent who performs; an action to achieve; a goal; a setting; and a means. The story can be a mismatch among any of the above elements. Most definitions of narrative have time (sequencing) and plot (storyline) at their core, giving stories their usefulness in making sense of experience, with plot acting to pull together 'goals, cause and effect, initiatives and actions, and intended and unintended consequences' (Cunliffe et al., 2004, p.264).

Storytelling can be seen in both formal and informal contexts. For example, storytelling has been used as an icebreaker to make people feel more relaxed in a formal or stressful situation. Storytelling has also been used to communicate values; these are often minimalistic, evocative and resonate with listeners. According to Bauman (1977), storytelling should be a collaborative informal process. He argues the audience should be considered as co-creators. He states that 'collaborative participation of an audience, it is important to emphasize, is an integral component of performance as an interactional accomplishment'.

Maxwell (2008) argues storytelling does not have to be seen as a definitive way of portraying narrative; on the other hand, it should be offered as an alternative form of expression and communication. Stories reflect cultural norms (Zipes, 1997); however, in line with Adichie (2012), Maxwell (2008) argues cultural stereotypes can occur in traditional storytelling. Stories told through digital media (e.g. film, radio, Internet) can have far-reaching impacts based on the sheer number of potential audiences.

2.3.6 Emotionally Meaningful Stories

Wyzga (2012) aligns Smith, McCarthy and Aaker's (2013) comment about meaningful stories with the formula 'content + context + value = emotionally meaningful story'. Waisberg (2014), states that meaningful stories should strike an intellectual and emotional resonance with the audience. He claims meaningful stories make for powerful, unforgettable data. Supporting Waisberg, Zak (2013) declares personal and emotionally compelling narratives are retained in memory better than facts. Predominantly personal stories are capable of influencing the listener. For Clark

(2008), personal stories are significant. They supply inspiration and motivation, and help to raise awareness among the community. Emotionally meaningful stories evoke feelings in both the narrator and listener that symbolise individual sensitivities. In my research, I explored stories with the theme 'unforgettable', based on memories of and associations with other people, places and experiences, via my utilisation of objects and photographs.

2.3.7 What is a Story Narrative?

In my research, I defined a story narrative as personal narratives and life stories considered to be unforgettable memories that echo emotion and associations with other people, places and experiences.

2.3.8 Stories as Research Tools

Brown, Collins and Duguid (1989) define learning and acquiring new knowledge as a process of people communicating with each another via stories. They have shown how storytelling can be used as a tool to identify social issues and to preserve sociocultural identity. Sole and Wilson (2008) state that stories assist the narrators and the listeners in articulating and expressing experiences from their past, and help them understand the possible future. Linnemeier et al. (2012) state that stories collected through informal interviews help to build new connections within the community; such stories generally talk about its cultural values and identity. Individuals and collectives in a community wanting to preserve their cultural identity and share their experiences in an informal and casual method adapt storytelling and anecdotes as a valuable approach. Pletinckx et al. (2004) expand on the significance of interactive storytelling. They argue that new creative research methods should be developed to enhance people's awareness and help them preserve their cultural identity through stories by incorporating new, interactive, digital techniques. Sole (2002) summarises the significance of sharing stories in a community:

- Stories have the potential to transfer values and morals from generation to generation.
- Stories highlight unique qualities and experiences from our past and help us articulate it to the possible future.

- Stories are also used in communities to highlight their issues and suggestions; they convey community voices.
- Stories are the means by which to build trust among the individuals or collectives in a community by acting as a tool, the use of which allows personal stories and experiences to be shared.
- Practice-based stories help to solve real-world problems by sharing highly contextual knowledge in a less structured approach. Such problems are usually neglected by controlled procedures.
- Stories help to substitute outdated knowledge with new information. They also help new information to be understood effortlessly on an emotional level.
- Occasionally, stories can be observed to trigger instant responses among the narrators and the listeners.

According to Sole, a powerful story consists of a structured yet effective approach that can be shared with the listeners who then give their response. Sole suggests that a story should have three qualities to help the narrator convey knowledge to the listeners. Conversely, Roche and Sadowsky (2003) suggest stories should be open-ended in context rather than closed. This helps to build conversations and encourages listeners to comprehend and respond to the stories. They argue unstructured stories give listeners flexibility to reflect on them and, in so doing, such stories sometimes prompt the listeners to tell other stories that have a similar context, thus providing solutions for real-world issues. Such actions are triggered by introducing multiple interactions within the listeners. According to Lewis (2007), in the past, stories were effectively used as nonlinear narratives to communicate ideas to people and build trust among individuals and collectives, and for socialising within communities.

2.3.9 The Value of Stories

Stories have been shown to be effective in transferring values and morals across generations within communities. They are also used in communities to create awareness

and, in addition, they act as an informal medium to address social issues and provide solutions to real-world problems. As such, Denning (2002) states that stories are a powerful medium. They are, in fact, a universal medium, utilised by all generations. Denning (2002) argues stories not only have the potential to engage all generations, but also to encourage both the narrator and the listener to engage with their emotions.

Sole and Wilson (2008) state:

Stories are about the irregularities in our lives, about things and situations that catch our attention by being different from what is expected.

(Sole and Wilson, 2008, p.4)

The above examples illustrate the necessity of sharing our life experiences as stories and anecdotes. In so doing we help the listeners to relate to their context and encourage them to approach issues in the future with a new perspective.

2.3.10 Stories Versus Objects

Sometimes the value of an object or visual materials such as photographs lies in the fact they are possible carriers of profound meanings and include hidden stories and emotional and cultural values often disregarded. Participants' responses to photographs or object story analyses tend to be tacit, and the relationship between such physical elements and their owner is only implicit knowledge; the outcome is generally based on subjective assumption. Every object or photograph carries its stories, but for an object to convey its story, it needs an owner and, moreover, one who can be an active participant in the narrative. With the aid of a photograph representing people, an old family photo, for example, it is not only the owner of the photograph who actively participates in the story narrative. Others in the photograph are also involved at the same time.

Objects and photographs create a sense of attachment that transcends the borders of functionality. Every object bears its own stories. These stories could be about the functional properties of an object, or its cultural and emotional values; they could also

indicate a souvenir, a token of love or a memento. Objects could reflect a person's social status, like a fisherman's boat. It is the analysis of stories of objects, photographs, and participants' responses makes it implicit, and is founded on subjective assumptions. Csikszentmihalyi (1993, p.23) suggests 'objects reveal continuity of self through time, by providing foci of involvement in memento, and souvenirs of the past and signposts to future goals'.

Using photographs or objects permits people to recollect memories and involve themselves specifically with a time in their past associated with the objects (Georgevits, 2007). This is because a small story is embedded in a photograph or an object, and an object often takes the form of a possession of a person or a family living in the domestic home. Kanchana Manohar and Rogers (2010) note that objects and photographs are passed down from generation to generation. This means that the object, or photograph, has actually moved from one person to another. When stories travel through the years as objects, they take on a new form and shape every time the story is told. Hence, the object knowingly or unknowingly forms a trail. My research aims to include photographs and objects within my research methodology to catalyse stories and participants' past experiences.

2.3.11 Story Narrative Analysis

Social scientists and psychologists, such as Bruner, 1986, Denzin, 1989b, Geertz, 1975, Riessman, 1993 and Rosenweld and Ochburg, 1992, have been interested in narrative analysis for gaining an understanding of the social world. According to Griffin (2014) narrative analysis developed in the early 20th century as a popular qualitative method. Narrative analysis is also seen as one of the ways in which researchers interpret meaning from data to see how people make and use stories to understand the world. Earthy and Cronin (2008) define narrative analysis as an approach that aims to understand how and why people share their life experiences as stories. McClintock (2003–2004) tells us that story analysis has remained an essentially empirical attempt, emphasising data collection, reporting and the fundamental skills of research design, measurement and analysis. Robertson, Gjedde and Aylett (2008) conclude that analysing stories in their narrative components helps to make the story structure obvious and transparent. Gilchrist, Bowles and Wetherell (2010) state that connections within a community formed through stories can provide depth, strength and shared identity. Pomerantz (1997) reinforces the fact that

story narrative analysis helps us to make sense of the world as we try to comprehend the stories and aim to understand their perspective of other. In my research I use story narrative analysis to draw together emotions, and association with people, places and past experiences, with regard to the stories collected through PAR methodology.

Bruner (1990) argues narrative analysis is functional in assigning meaning to the stories. He states that 'narratives allow us to recast chaotic experiences into causal stories to make sense of them, and to render them safe'. Researchers have used narrative analysis to collect and analyse data such as autobiographies, interviews, photographs, stories, field notes and so on to understand their context and meaning. In this study, the analysis procedure follows Griffin (2014), story narrative analysis technique. Narrative analysis looks at the content as well as the social context of the stories shared and the impact they have on being told.

2.4 ICT4D and Community Studies

This section explores some of the observations made from studies involving communities and information and communication technology for development (ICT4D). Gibbs et al. (2010) explored the relationship between ICT4D and storytelling for building and sustaining connections within families in communities outside urban areas. Jones et al. (2007) studied rural communities in India by using ICT4D as a method for creating and sharing audiovisual stories. In the above examples, it is evident researchers use stories in ICT4D to emphasise outcomes, such as social inclusion, or social issues within the communities. Vashistha et al. (2014) explored ICT4D in communities in rural parts of India with the aim of understanding the challenges faced by low-income, visually impaired participants. Their study used mobile phones to consume, create and share educational content. In general, utilising information and communication technologies pervasively in cross-cultural communities both influences individuals and enhances international and social relationships (O'Brien, Alfano and Magnusson, 2007).

From these scholarly examples, it can be understood that ICT4D has been used in various fields such as cross-cultural studies, development studies, science and technology studies and cultural studies. Thomas et al. (2004) state that the use of ICT4D in cross-cultural studies has been known to influence their design because of cultural factors.

From reviewing the academic literature, I have discerned that storytellers strive to achieve enhanced storytelling techniques by adapting technologies such as the Internet and computers (e.g. Miller, 2005). Miller (2005) states that these technologies not only affect the way we narrate and disseminate stories but, in addition, they significantly alter our creation and our individual unique experiences of stories.

2.4.1 Defining Digital Storytelling

This section focuses on the use of storytelling as a medium incorporating technology relevant to supporting this research. In the early 1980s, in San Francisco, digital technology and storytelling were integrated into the performance theatre movement (Tucker, 2006). From recent studies, it is understood digital storytelling is a form of social learning. The Digital Storytelling Association defines digital storytelling as ‘the modern expression of the ancient art of storytelling in which stories derive their power by weaving images, music, narrative, and voice together, giving deep dimension and vivid colour to characters, situations, experiences, and insights’ (Rule, 2002). A few examples of previous digital storytelling studies are Reitmaier, Bidwell and Marsden (2011) and Patra et al. (2007). These studies were carried out in low-tech communities and incorporated digital storytelling as a means of bringing about social awareness. The term digital storytelling can mean a variety of things to many people. According to Armstrong (2003), digital storytelling involves telling stories and sharing information through multimedia. The Digital Storytelling Association defines digital storytelling as:

the modern expression of the ancient art of storytelling ... using digital media to create media-rich stories to tell, to share, and to preserve. Digital stories derive their power through weaving images, music, narrative and voice together, thereby giving deep dimension and vivid color to characters, situations, and insights

(Digital Storytelling Association, 2002)

Digital storytelling can be understood as the augmentation of ancient storytelling by modern techniques that are interwoven with digital technologies including audio/video recorders, smartphones and related technologies. Ohler and Dillingham (2004) state that

digital storytelling is for both traditional storytellers and digital storytellers. Due to developments in technology and new media in the past two decades, those who do it now regard storytelling as a more effective medium than ever before. They recognise the fact that they can narrate and share their experiences and thoughts as stories through the Internet using Twitter, Facebook, YouTube and Vimeo. Jones et al. (2009) state that digital storytelling is a unique way of allowing communities to share local information and participate in activities helping them make life-changing decisions. Audio recording and images can help people from different cultural contexts share information through stories; this is especially relevant for people with different local languages. Jones et al. (2009) adapted this method in rural and low-tech India. Participants uploaded stories to a non-textual interface using their mobile cameras. When working with communities having different cultural contexts, employing non-textual methods can be useful because they help to break down language barriers.

Previous studies (Robin, 2012; Alexander, 2011) have shown digital storytelling has presented some challenges for users. These vary, from unfamiliar technology to copyright, resources and so on. As Ohler (2004) acknowledges, 'if you don't have a good story to tell, then the technology just makes it more obvious'. Digital storytelling refers not only to generic digital- or technology-enabled storytelling, but also to that consisting of an audio recording accompanied by still images or a video recording with the narrator's voice. Ohler (2004) argues the technology used to tell the story should not dominate what is being communicated. The main focus of the story is the narrative and not the technology.

Lisa Heledd, a digital storytelling producer working with the BBC on her Capture Wales project (BBC, 2006b), states that her project was about preserving stories through digital imagery and audio recordings. She noted digital storytelling has a physiological effect on the narrator, helping to boost his/her confidence. Users learn new technological skills and incorporate these in their everyday lives, assisting them to voice their opinion. Digital storytelling has been widely used in schools for students' early education, and earlier studies by Birch and Heckler (1996) show contemporary storytelling has been used significantly for educational purposes.

Mobile cameras play an important role in digital storytelling; they help participants capture events as they happen and are particularly useful in places where computers cannot be

accessed. Their usefulness becomes especially apparent if we consider fishing communities. Bidwell and Browning (2009) state that using mobile phones for PAR methods in low-tech communities is essential, because these communities follow an informal pattern embedded in their lifestyle. To understand their social pattern, research studies should incorporate methods to help the researcher study and analyse activities occurring in people's everyday lives (Bidwell and Browning, 2009).

Stories are universal; they help to bridge cultural and language barriers. Storytellers have been adapting technologies to their advantage since the earliest ages of civilisation, from cave walls to palm-leaf books and from canvas to paper. In the modern-day era, storytellers are adapting technologies such as the Internet and computers in order to employ more efficient storytelling methods. Miller (2005) states that these technologies not only affect the way we tell and distribute stories (consider the relevance of the Internet here), but also change the way we create and experience them. Banaszewski (2002) states that stories give us a better understanding of the community in which we live.

Everyone has a story about a place that is important to him or her, and by using multimedia to develop and share those stories, we strengthen our understanding of our communities.

(Banaszewski, 2002)

Storytelling is concerned primarily with presenting personal narratives; however, researchers Valkanova and Watts (2007) suggest introducing new media to storytelling could also help users share social issues and identify solutions. Digital stories are usually short narratives, running for less than ten minutes, and they often address genuine issues. They do, however, require quite a lot of preparation.' In this study, digital storytelling is a combination of personal narratives and multimedia (audio recording, video recording or images) that produces a short movie (audio recording or video recording) using auto ID technology.

2.4.2 Digital Storytelling and QR Codes

Digital storytelling platforms such as Twitter, Facebook and LinkedIn reach vast numbers of the population rapidly all over the world, sharing stories like never before. Rees (2010) refers to QR code as a 'story doorway' allowing users to explore stories in a non-traditional way. Tode (2013) states that QR codes are a technique for encouraging engagement between the virtual world and the real world.

QR codes are two-dimensional barcodes (see Figure 2.6) similar to barcodes carrying information about the products to which they are attached. These QR codes allow automatic identification and data capture (AIDC), otherwise known as auto ID. Barcodes are not new to our communities. We have been using them in places such as supermarkets, post offices and pharmacies for a long time, and all the objects we use day to day have barcodes. Users of smartphones can access QR codes through a QR code reader. When QR codes are scanned, users are taken to a standard website or URL page to add a sentence or more to it, and then the next user accessing it builds on the growing storyline.



Figure 2.5: QR code.

Note: QR codes are machine-readable optical labels that contain information about the objects to which they are attached.

Art, design and community engagement disciplines have all utilised QR codes recently. O'Callaghan and Speed (2011) used QR codes as part of their methodology for investigating

the stories held by objects and identifying how QR codes assist in the collection of narratives. Similarly, O’Callaghan (2011) used QR codes as a design element to preserve an artist’s stories in her cyanotype image on a photopolymer etching as shown in Figure 2.7. Other researchers, Speed (2010) and Kawsar, Fujinami and Nakajima (2005), for example, have employed QR codes and other augmented reality tools as mobile learning methods.

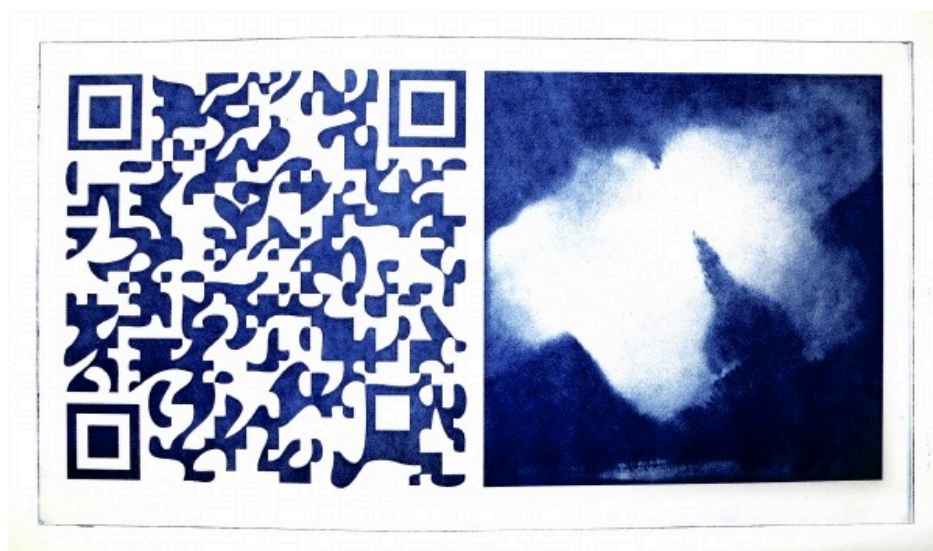


Figure 2.6: QR code and cyanotype image on photopolymer etching.

Note: This shows QR code in art works to demonstrate the relationship between a digital entity and how it is articulated in a printed form.

Archambault and Grudin (2012) state that with the relationship between physical objects and technology as it is now, research and distribution can reach its maximum potential yet, simultaneously, require minimum time for preparation and performance, as is the case with any form of traditional storytelling.

In my research, digital storytelling is explored by connecting the personal stories of physical objects such as photographs and artefacts to QR codes using audio/video files. Integrating such technology into storytelling allows the level of technology involved to be measured at different stages while converting a story narrative into a digital story and sharing it through auto ID technology.

2.5 Conclusion

This chapter reviews three important categories (1) PAR Methods (2) People and Stories in Communities and (3) Storytelling and Digital Technology that influenced the motivation of this research. The three research categories investigate important issues relating to the development of methodology centred around stories for engaging communities.

It also accommodated my objective 1:

1) To explore the background and review cultural probe as a valid method.

The first research category specifically discusses the background, use and development of the 'cultural probe'. This discussion helps to address emerging research techniques in several disciplines and also helped to inform the design of this research. In this process I reviewed cultural probe use to highlight the key differences in the design approach and how the method was used for different purposes in research studies from gathering information from the users to adopting probes as a research tool for design inspirations. The second category discussed the influence of cultural factors in today's design community, and the significance of storytelling within the communities relating to objects and photographs. The third category specifically looked at Auto ID technology in research studies and identified a lack in related empirical research. Through the TOTeM project and my PhD study a significant gap was identified in the computing concept 'Internet of Things'. My exploration of the Auto ID technology highlights its potential and limitation in adapting auto ID as a platform to share stories. To address a gap this qualitative study was conducted over a period of 30 months within the participating communities.

The following Chapters describe how I employed PAR methodology combined with paper based storytelling and digital storytelling to engage participants to narrate emotionally meaningful stories. The research explores the qualities and benefits arising from people's story narration. Chapter 3 presents the theoretical development and practical application of these methods through exploratory studies involving individual participants from the three communities.

CHAPTER 3

Methodology

3.1 Introduction

My aim has been to develop a research framework such that I can employ both a critical and a narrative approach with regard to involving my chosen communities through stories in an overall participatory research design. The development of an appropriate mixed methods approach is a key element in my research, and the exploration of emotionally meaningful stories using auto ID technology is a significant issue.

Chapter 3 explores a range of methods and shows practical and theoretical attempts to address social issues through emotionally meaningful stories. Such social and emotionally meaningful aspects have received little attention in past research, with the exception of studies conducted by Jones et al. (2007) and Vashistha et al. (2014).

I illustrate my approach in the context of both the TOTeM project and my personal experience in engaging communities, and link it with exploring the use of digital media in a cross-cultural context. Furthermore, I consider participatory methods to be a key aspect of the methodology in generating ideas to successfully engage my participants. The principle underlying my methodology is to centre stories as a means of involving my participants directly in my research, thereby enabling me to explore the use of participatory methods for generating emotionally meaningful stories. This, in turn, leads to the utilisation of unforgettable memories, personal histories and experiences from the past that resonate with emotions, in order to investigate the emotional role stories play in my participants' everyday lives.

This chapter consists of four main sections: (1) a detailed description of the participants and their selection process; (2) a description of the individual research methods deployed in the communities; (3) the design process; and (4) reflection.

3.2 Selection of Participants

During the course of my research I worked with a total of 169 participants: 38 of these were from Rameshwaram in India, 41 were from the Azores, Portugal and 90 were from Anstruther in the UK. Figures 3.1, 3.2 and 3.3, respectively, show the split between men and women participants in my research across the chosen communities in India, Portugal and the UK.

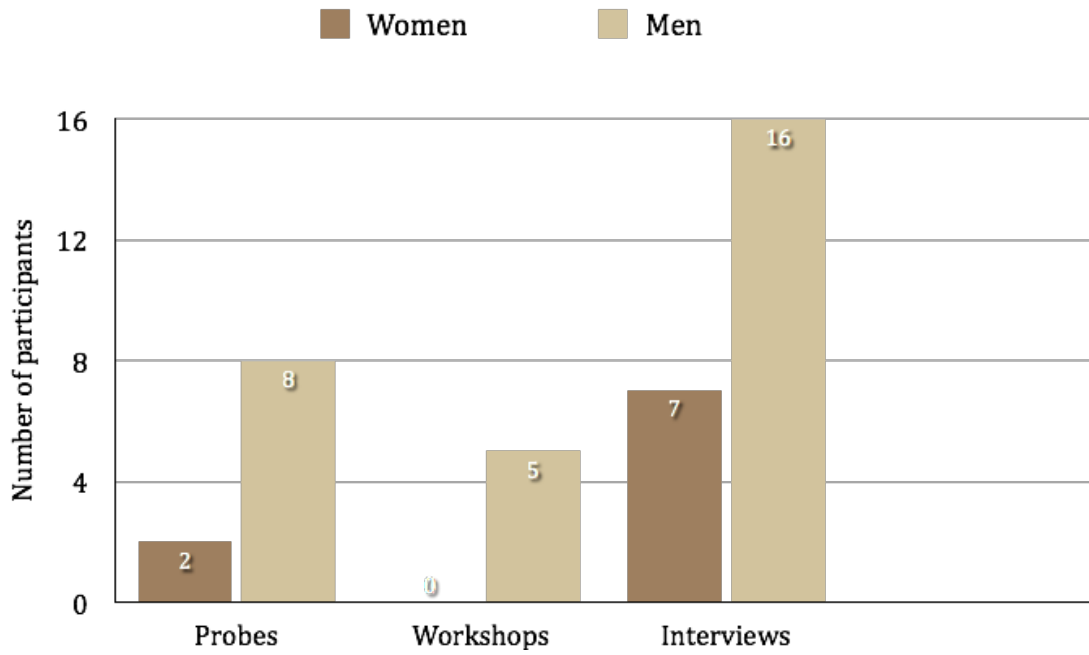


Figure 3.1: The split between men and women participants in my research with the Indian community.

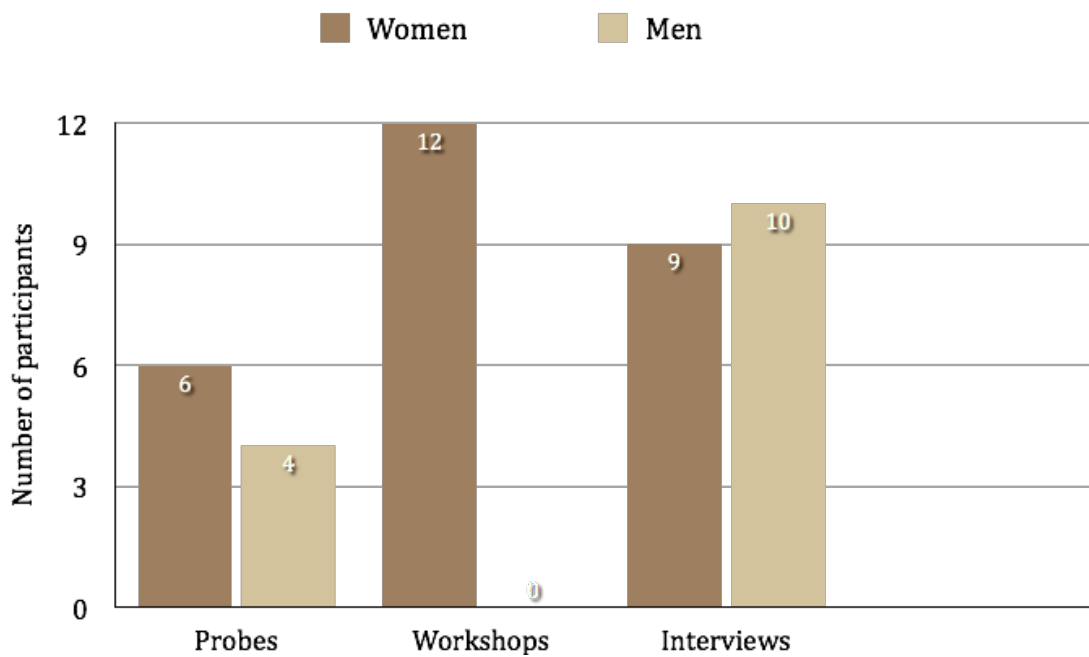


Figure 3.2: The split between men and women participants in my research with the Portuguese community.

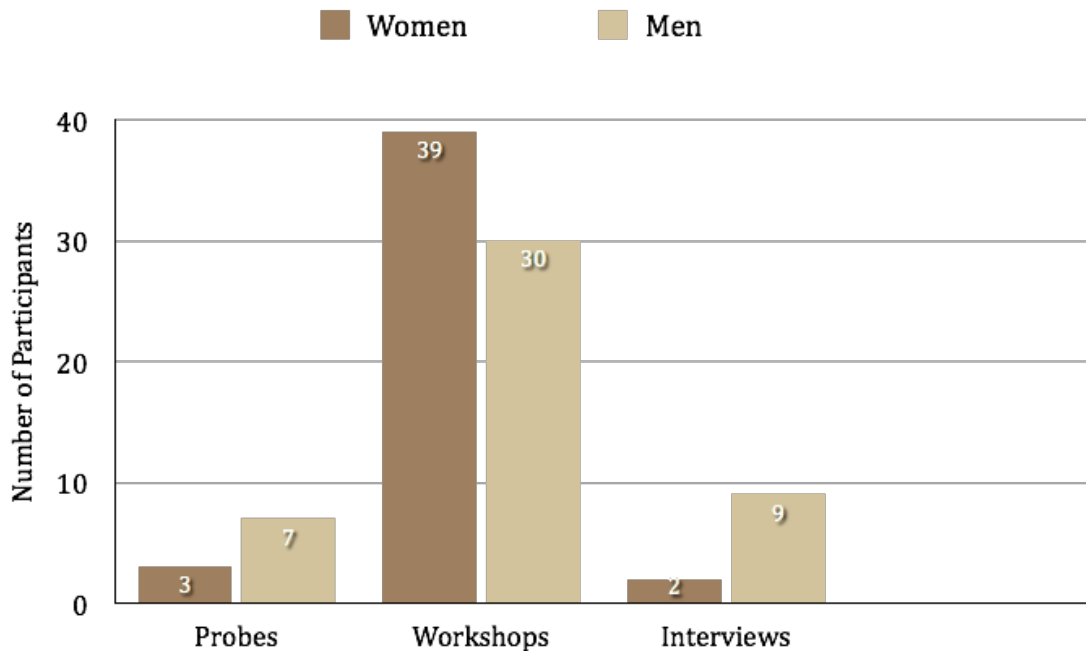


Figure 3.3: The split between men and women participants in my research with the UK community.

As illustrated in Figure 3.1, 23 of the participants in India were involved in the story interview method (16 men and 7 women), 5 participated in the digital storytelling workshops (5 men and 0 women), and 10 were involved in the story kit method (8 men and 2 women). In Portugal (Figure 3.2) 19 participants were involved in the story interview method (10 men and 9 women), 12 participated in the digital storytelling workshops (12 women and 0 men), and 10 were involved in the story kit method (4 men and 6 women). In the UK, Figure 3.3 shows 11 participants were involved in the story interview method (9 men and 2 women), 69 were involved in the digital storytelling workshops (30 men and 39 women), and 10 in the story kit method (7 men and 3 women).

3.2.1 Selection Process

I chose the 169 participants involved in the research from within their respective communities. All of them are currently part of a fishing community. The selection process varied during the three stages of the research. During the field study phase, I visited each community in person and approached participants directly in the field to elicit story interviews. I randomly selected the participants while they were performing their daily work within their fishing community, tasks such as unloading boxed fish from the boat, weighing fish boxes before sending them to the nearby

markets, untangling their fishing nets or engaging in the repairs the boats undergo upon their return from sea. In using random selection during the field study phase I wished to minimise the potential influence of external variables and to ensure the generalisability of the results. However, my rationale behind the selection of participants was that they should belong to a fishing community, either directly or by family association, so they shared similar interests and stories. Hence, one of my most important tasks in the study was to identify appropriate participants within the communities.

Selection of my participants entailed:

1. selecting participants with a family background in fishing;
2. recruiting participants from a wide age range;
3. consideration of gender balance.

During the digital storytelling workshops phase, I invited participants from my chosen communities through invitations posted within the community and by word of mouth through the mediators. The role of these mediators is elaborated in Section 3.2.2. However, in the UK, in addition to my employing these methods, I personally invited the participants via emails and by advertising the workshops on research websites.

During the story kit phase, I posted story kits to the mediators in India and Portugal, which were later distributed to the participants. However, in the UK, I introduced story kits to the participants in person by giving them brief descriptions of how the kit was to be used. During this process, I ensured those people who had participated in both the field study and digital storytelling workshops phases were approached to participate further in the final story kit phase.

3.2.2 Mediators

As I was based in the UK, initially I found it difficult to reach participants in India and Portugal to involve them in the research activity, especially after the field study phase. In these locations, the story kits were distributed with the help of a mediator. The role of the mediator in the respective communities was to reach out to participants and gain their trust. When I conducted field studies in Rameshwaram, the Azores and Anstruther, I made personal contact with certain people; it was through my field studies I chose the mediators for the project.

During my field study in Rameshwaram, I made initial contact with the community head for recruiting my participants in India. In Portugal, I made initial contact with a researcher from the University of Azores, who helped me to get in touch with the participants within the Portuguese fishing community. The educational officer from the Scottish Fisheries Museum in Anstruther acted as mediator for the UK community. Thus, I established mediators in India, Portugal and the UK, making it feasible to pursue the research.

In Portugal, among the Azores fishing community, the mediator also acted as interpreter, since I could not speak Portuguese. This was necessary both from English to Portuguese to benefit my participants, and from Portuguese to English to benefit myself. It became challenging when the story interviews involved multiple participants simultaneously. I needed to consider the possibility of some information being lost during translations in such multi-party encounters. However, the role of the mediator as interpreter was minimal in the Indian and UK communities due to my language skills in Tamil and English.

For the digital storytelling workshops phase, I organised the workshops in all three communities: one workshop in India with 5 participants, one in Portugal with 12 participants and 5 workshops in the UK involving 69 participants. In organising the workshops in India and Portugal, the mediators and I identified the most appropriate participants within the community. This led to the selection of suitable venues for the workshops, which was only possible with the help of the mediators. In the Portuguese community, the mediator again acted as an interpreter.

In both India and Portugal, the mediators helped me to distribute story kits to the same participants involved in the digital storytelling workshops. I distributed the kits including self-addressed envelopes so they could be completed and posted back to myself as researcher in the UK. In the UK, I was able to contact the same participants who had taken part in the digital storytelling workshops myself. Some people did participate in the digital storytelling workshops as well as utilising the story kit. This overlap of participants was important at this stage of the research, since the story kit reflected what the auto ID technology had demonstrated in the digital storytelling

workshops. Despite the intervention of the mediators, the time taken to complete the story kits in each country was different.

Specifically, there were two participants in India, three in Portugal and one in the UK involved in all three stages of the research, namely story interviews, digital storytelling workshops, and the story kit method. The overlap was small in each case, but this was due to the difficulty in reaching participants individually within their communities. However, this important overlap was possible because of my inclusion of the mediator. The presence of the mediator during the interview sessions created a sense of trust between the participant and myself as researcher. The participants involved in all three stages of the research provided a significant contribution to the study.

3.2.3 Categories

The participants were from fishing families who have been, and remain involved in a fishing-related occupation. They were of different ages and gender, and from different ethnic groups. Their characteristics were related to their availability (for my research) and the activities they were involved in, in the community. As a part of the selection process, I identified local storytelling groups: the KathaKosa in India and the Blether Tay-Gither in the UK. I approached these through the respective mediators. KathaKosa is a group of homemakers who get together occasionally during festivals under the shade of a banyan tree, dressed in their finest saris, to share their folk tales. Blether Tay-Gither consists of professional storytellers from Fife. People from this group congregate once a month to share their folk tales and songs. Noticeably, in Portugal, I could not locate storytelling groups. A few participants in the storytelling groups I did find expressed interest and were involved in the research activities as shown in Tables 3–8.

In this research, I categorised the participants into two types: primary and secondary. The other categorising factor was the participants' country of residence.

The primary participants have formed part of the fishing community for generations, and they continue to do so today. Living within the fishing community with fishing being their main occupation, these primary participants hail from all three communities, namely, India, Portugal and the UK. The ratio of male to female participants who volunteered for the study varied according to the community.

To illustrate this, in India, the number of male participants was higher. However, in Portugal the participants were exclusively female. In the UK, the ratio of female to male participants was equal. The classification of the participants from India, Portugal and the UK is shown in Tables 3–8. Collectively, Tables 3–8 indicate the demographic characteristics of the participants I selected from each of the three communities, their involvement at different stages of the research and how they perceived access to technology on a daily basis.

The secondary participants constituted those living in a fishing community or who grew up in a fishing family but did not have fishing as their profession. Out of the 90 participants from the UK community there were 67 secondary participants. I observed from the selection process the secondary participants were only located in the UK. All my participants in India and Portugal came under the primary category. As part of my research, the secondary participants within the Anstruther fishing community were involved in the digital storytelling workshops in conjunction with the local school and the Scottish Fisheries Museum; they were involved only in the workshops and the story kit method. For example, 27 of the secondary participants were level seven students (aged between 11 and 12) from the local primary school in the Anstruther fishing community, whom I had identified from their fishing families. This benefited my research and helped in understanding their technology use, not only at a cross-cultural level, but also inter-generationally. My criteria for choosing secondary participants in this research was not merely to incorporate auto ID technology into their lifestyles, but also to understand the impact the fishing community had on the secondary participants individually while they were growing up within it, and also the implications for those who were part of a fishing family. Data collected from the secondary participants gave my research study an added dimension. This is because the stories I collected from the secondary participants were passed from generation to generation. These stories were about tales of courage from grandfathers or great-grandfathers fishing in the sea or stories of carnivals and festivals, which have their roots in a very different past. On the other hand, stories from the primary participants were from their own experience and were stories from the present time.

3.2.4 Challenges

Since the UK participants and I were from the same geographical location, I was able to perform an instant examination of the implications and outcomes emerging from the participants' data. However, the participants from India and Portugal were from remote geographical locations, thus making the participant/researcher interaction difficult. To bridge this gap, I adopted a distance research method, using the photographs taken during the field studies and photographs taken by my participants as part of the overall PAR method. For ethical reasons, I needed to maintain my participants' anonymity constantly, which sometimes proved difficult throughout the research.

There were certain difficulties faced by myself as researcher while working with the Portuguese and Indian participants from afar, such as organising the digital storytelling workshops with the mediators in the Indian and Portuguese communities and obtaining feedback after each completed session. Nevertheless, in the UK, it was easier to recruit participants by contacting them directly via emails and by advertising the workshops on research websites. In Portugal and India, both mediators were only accessible via mobile phone communication. Email communication was not widely used within either community. Gaining feedback after the workshop sessions in Portugal and India was also very problematic due to the lack of email communication.

Furthermore, due to the distance from India and Portugal, I encountered difficulties in observing changes within the community and in acquiring in-depth information after conducting the digital storytelling workshops and the story kit studies. Because of the time gap between research phases involving the overseas communities, some participants became less involved. In the UK, however, each phase of the research operated regularly after a relatively brief time interval. This resulted in better engagement with the communities. These points were noted when I evaluated the research.

Studies incorporating PAR design in their structure are compelled to include potential users from the outset (Kensing and Blomberg, 1998). In acknowledging that engaging participants in design processes can be daunting, Coleman et al. (2010) posit that this is even more problematic if older people form either part of the sample or comprise

the whole of it. This is because older participants feel apprehensive of, hostile towards, and perhaps distrust the prospect of new technology.

Within my research, I considered PAR design because it embraces participants of different ages and ethnic groups. I developed Tables 3–8 to illustrate my participants' demographic characteristics.

Table 3: Story kit participants in the Indian community – demographic characteristics.

No.	Participant	Age (years)	Occupation	Technology usage
1	Male	28	Fisherman.	Owns a mobile phone. Limited access to TV.
2	Male	24	Student from fishing family.	Uses a mobile phone and watches TV regularly. Access to computer/Internet four times a week.
3	Male	35	Father was a fisherman. Member of the Panchayath (local self-government of Rameshwaram town).	Uses a mobile phone and watches TV regularly. No access to computer.
4	Male	37	Fisherman.	No access to technology.
5	Male	46	Fisherman. Head of the Panchayath.	Uses a mobile phone every day. Limited access to TV.
6	Male	55	Fisherman. Runs a fish shop at the local market.	Uses public telephone when necessary and has regular access to TV.
7	Male	51	Fisherman and storyteller.	Uses a mobile phone and has regular access to TV.
8	Male	40	Fisherman.	Owns a smartphone and has regular access to Internet and TV.
9	Female	27	Wife of a fisherman and sells fish at the local market.	Occasionally uses a mobile phone and has regular access to TV.
10	Female	28	Wife of a fisherman.	Access to TV only.

Table 4: Story kit participants in the Portuguese community – demographic characteristics.

No.	Participant	Age (years)	Occupation	Technology usage
1	Female	55	Wife of a fisherman. Technology user.	Owens a mobile phone and has regular access to TV.
2	Female	42	Wife of a fisherman.	Family owns mobile phones. Never used a computer.
3	Female	54	Wife of a fisherman.	Access to TV only.
4	Male	47	Fisherman.	Not given.
5	Male	28	Fisherman. Technology user.	Owens a mobile phone and has regular access to TV. Uses email regularly.
6	Female	25	Wife of a fisherman. Technology user.	Not given.
7	Female	35	Wife of a fisherman.	Access to TV only.

Table 5: Story kit participants in the UK community – demographic characteristics.

No.	Participants	Age (years)	Occupation	Technology usage
1	Male	64	Father was a fisherman.	Does not own a mobile phone. Uses emails only when necessary. Prefers to write letters.
2	Male	50	Lives in a fishing community. A frequent visit to the Scottish Fisheries Museum.	Owns a smartphone and regularly uses a computer.
3	Female	35	Lives in a fishing community. Professional storyteller.	Does not have a smartphone. Has never used a computer.
4	Female	38	Lives in a fishing community. Artist. Technology user.	Owns a smartphone and regularly uses a computer.
5	Male	40	Fisherman. Technology user.	Owns a smartphone and regularly uses a computer.
6	Male	58	Fisherman.	Not given.

Table 6: Workshop participants in the Indian community – demographic characteristics.

No.	Participants	Age (years)	Occupation	Technology usage
1	Male	28	Fisherman.	Owens a mobile phone. Limited access to TV.
2	Male	Not given	Fisherman. Comes from a fishing family.	Family owns mobile phones. Has never used a computer.
3	Male	45	Fisherman. Head of town Panchayath.	Uses a mobile phone every day. Limited access to TV.
4	Male	Not given	Fisherman.	Not given.
5	Male	28	Fisherman.	Owens a smartphone. Regular access to Internet and TV.

Table 7: Workshop participants in the Portuguese community – demographic characteristics.

No.	Participants	Age (years)	Occupation	Technology usage
1	Female	Not given	Wife of a fisherman.	Owens a mobile phone and has regular access to TV.
2	Female	42	Wife of a fisherman.	Family owns mobile phones. Has never used a computer.
3	Female	39	Wife of a fisherman.	Not given.
4	Female	32	Wife of a fisherman.	Access to TV only.
5	Female	Not given	Wife of a fisherman.	Not given.
6	Female	33	Wife of a fisherman.	Access to TV only.
7	Female	Not given	Wife of a fisherman.	Owens a mobile phone and has regular access to TV.
8	Female	41	Wife of a fisherman.	Not given.
9	Female	29	Wife of a fisherman.	Access to TV only.
10	Female	28	Wife of a fisherman.	Family owns mobile phones. Has never used a computer.
11	Female	42	Wife of a fisherman.	Owens a mobile phone and has regular access to TV.
12	Female	Not given	Wife of a fisherman.	Access to TV only.

Table 8: Workshop participants in the UK community – demographic characteristics.

No.	Participants	Age (years)	Occupation	Technology usage
1	Male	24	Lives in a fishing community.	Owens a mobile phone.
2	Female	38	Lives in a fishing community. Artist. Technology user.	Owens a smartphone and regularly uses a computer.
3	Female	35	Wife of a fisherman. Lives in a fishing community. Artist. Technology user.	Owens a smart phone.
4	Female	23	Father was a fisherman. Professional storyteller.	Owens a mobile phone and regularly uses a computer.
5	Male	22	Fisherman.	Not given.
6	Male	60	Fisherman.	Owens a mobile phone.
7	Female	51	Lives in a fishing community.	Owens a mobile phone and occasionally uses a computer.
8	Male	40	Lives in a fishing community.	Owens a mobile phone.
9	Female	Not given	Works at the Scottish Fisheries Museum.	Owens a smartphone and regularly uses a computer.
10	Male	21	Fisherman.	Owens a smartphone and regularly uses a computer.
11	Female	Not given	Works at the Scottish Fisheries Museum.	Owens a smartphone and regularly uses a computer.
12	Female	54	Not given.	Not given.

3.3 Description of Research Methods

In this research, I adopt PAR as an approach to elicit emotionally meaningful stories from the participants. By doing so, the participants are engaged as co-researchers, helping me to collaboratively design the research methods, thus facilitating me to craft a better way to gather stories. In line with Bauman (1977), throughout the process, the stories were co-created and co-interpreted along with the participants. Involving participants as co-researchers meant that there was a need to help them, i.e. by facilitation, guidance, storytelling and provision of the right approach, to encourage participants at all levels to be involved. Through this approach, the effectiveness of the research is enhanced because the participating communities are more informed and their preferences and needs are better understood, thereby helping them to better contribute to improved outcomes and solutions.

The cornerstone of my research is my use of stories in PAR methods. The research methodology consists of three distinct phases: (1) field study phase; (2) digital storytelling workshops phase; and (3) story kit phase. These are represented in Figure 3.4. In exploring specific PAR methods, I identified a need to balance ambiguity against usability and transparency in communication and a requirement to demonstrate the role of stories in maintaining social interaction among different sets of people. Figure 3.4 illustrates the various research methods used in all three communities, the sequence of which is represented by number. The duration of each method is also given in Figure 3.4. The duration of the field study phase in each community was one whole week. Each workshop organised took place on just one day and included a presentation of the research, discussions and feedback sessions. However, during the story kit phase, it took 10–14 weeks on average for the results to be returned from each participant. Among the three research methods deployed in Portugal and India, the story kit was the only method executed by the mediator. The other two methods (field study and digital storytelling workshops) were organised and conducted by myself. In the UK, the situation was slightly different; the field study and story kit methods were organised and conducted by myself, whereas the digital storytelling workshops were organised and conducted with the help of the mediator.

3.3.1 Field Studies

Visiting the participants from all three communities was essential, especially during this initial research stage. The field study stage included observation, and story interviews, through which I gathered valuable information from participants. DeWalt and DeWalt (2011) argue that observing participants is essential to understand participants' lifestyles; it helps the researcher gain an intimate knowledge of the chosen community and provides an opportunity to interact with people in their natural environment within an extended time period. In my research, the field study helped me to gain the trust of the participants. I would not have achieved the same level of knowledge and understanding without the visits. As indicated in Figure 3.4, the duration of the field study in each community was one week.

During my week spent in the Azores visiting the fishing community there, I accompanied the mediator on some days and on others I was by myself so I could interview and observe participants. During my week in Rameshwaram visiting the community by myself, I was able to communicate easily with my participants because I knew the language, unlike with the Portuguese community participants. In Anstruther, the field study was done over a time span of three weeks due to the availability of the mediator and the availability of my participants there.

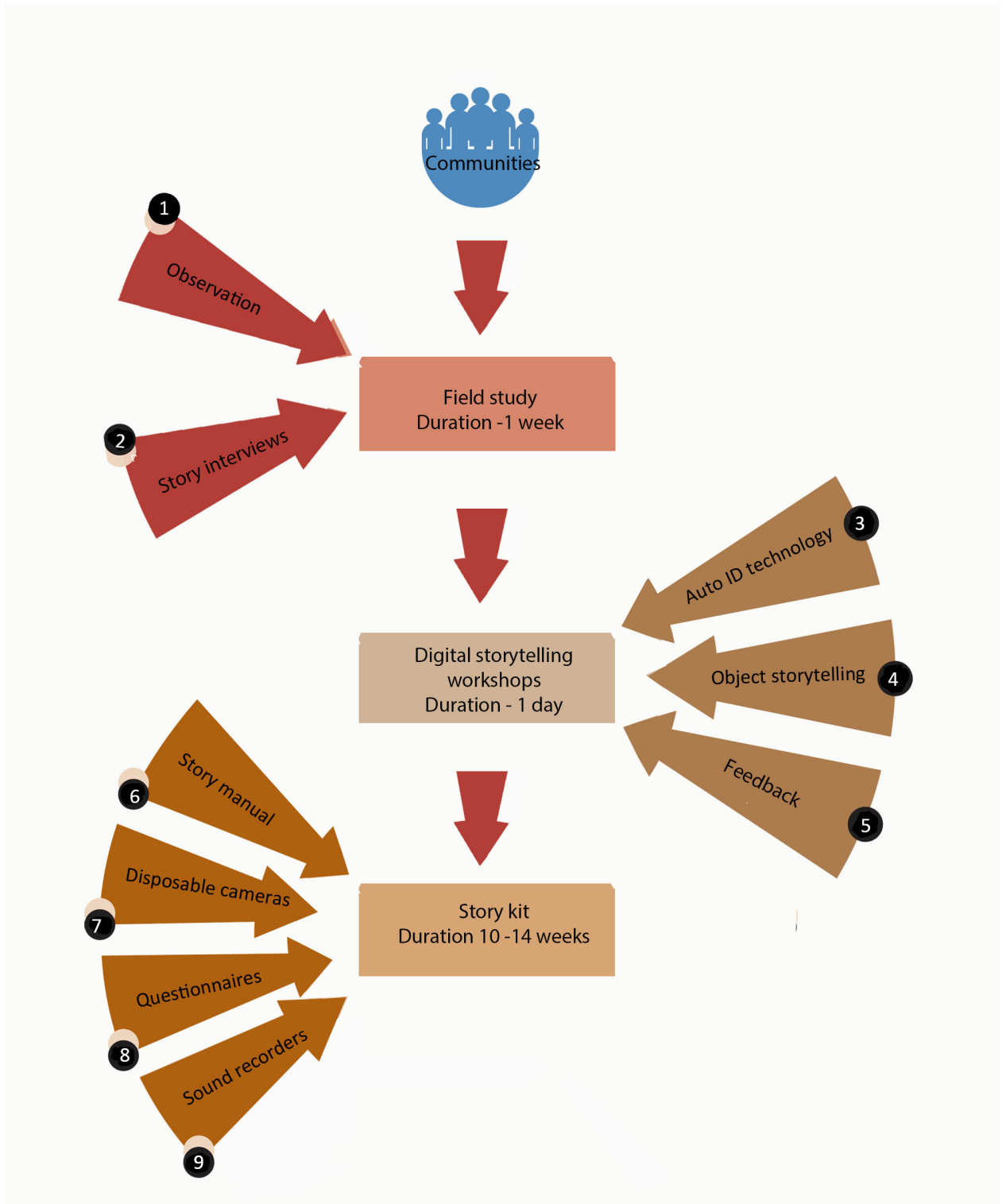


Figure 3.4: Framework illustrating PAR methods.

3.3.1.1 Observation Methods

In my research, I adapted observation methods based on traditional ethnographic research to understand the chosen fishing communities and their lifestyles. In conducting a field study within the chosen cross-cultural communities I presumed there would be multiple perspectives available from the participants. In conducting a qualitative study, the method involved certain levels of observation and participation with the subjects. This was significant because I approached the participants in their own environment rather than them coming to my chosen location. The observation method consisted of field notes, photographs and video recordings of interviews with participants. Field notes were entered into a computer and data gathered from video recordings were translated and transcribed for analysis purposes. The observation method for each community also included a certain level of cultural understanding from my side, achieved through the presence of the mediator while conducting the interviews. The time taken for the observation in each community varied between an afternoon and series of afternoons depending on the number of participants and the availability of the mediator. The following aspects were observed during the field study (Table 9).

Table 9: Categories of the observation method.

Categories	Observation
Appearance	Clothing, age and gender. Anything that indicated fishing profession, social status and/or ethnicity.
Communication and interaction with each other	Languages spoken. Who initiates the stories in a group? Dynamics of interaction.
Physical behaviour and gestures	What participants do while interacting, who does it and their emotions.
Personal space	How close participants stand to each other. This could indicate the relationship between them and their ease with regard to other participants.
Participants' movement	Participants who enter and leave the space during the session – how long they stay, number of people. Are they accompanied by others?

3.3.1.1.1 Observation

Observation is the first method in my PAR research that involved me being physically present in the field to observe the participants' everyday activities. Observing what they did, how they interacted and what they talked about helped me to understand their social patterns. In my research, observation as a part of the PAR method is an important practice in field study; from my point of view it helped me to understand and articulate the social patterns for all three communities individually. This method is acknowledged as especially useful when working with communities from different cultural contexts (Harvey, 2008). In this stage, I examined how people connected and communicated within their respective communities, and if they used technology. During the observation stage, the information gathered enabled me to frame the story interviews and to make the discussions more appropriate for the context. Following this method, the later stage of the research saw active participation with the community, including through interviews, workshops and expositions.

In this initial stage, I attempted to gain familiarity and build trust with each community. It is important to build this relationship between the researcher and participants before introducing them to or involving them in interviews or workshops. The observation in the initial stage of participant involvement helped me to better comprehend the communities' norms. This gave me an opportunity to identify new ways of exchanging information through human interaction.

This long-term empirical study conducted at frequent intervals was advantageous. It assisted in my gaining the trust of each community and in monitoring research progress with the chosen participants. Frequent visits to the communities and taking part in the local storytelling group where possible helped me to familiarise myself with the particular communities and to build a relationship of trust with the participants, especially in the UK., There was a strong level of commitment by the participants throughout the study, helped by the mediators.

As this research was focused on fishing communities, I observed the main activities happened during the early morning, from 6 am to noon when the fishermen returned from sea. I identified this pattern in all three communities, and so I undertook the

research during times and in places where the participants were comfortable with being involved in the research activities. Identifying these patterns during the observation stage was essential to enable me to progress my research.

When it became clear the activities I observed had become predictable and I did not perceive additional surprise elements or new activities, the observation stage of the field study phase ended. While observing in the field, I noted in the south of India, particularly, the existence of non-governmental organisations (NGOs). Examples of these are the Centre for Social Reconstruction, the Centre for Education and the Vinnarasu Association of India (VAI). These organisations encourage people in the community to improve their social awareness in terms of child education. Most importantly, they focus on women's safety. However, through my interaction with the participants, I identified the fact that activities carried out by NGOs are not helping the community to express or share its stories, and they certainly do not assist them to cope with new, developing technologies.

There were NGOs in Portugal too, such as União de Mulheres Alternativa e Resposta (UMAR), which focuses on involving women in the community. During interactions, it was common to see my research participants raising concerns, for example, about their government imposing unnecessary compulsory technologies on the population with scant regard for their personal needs. Hence, for some people in the community, technology was a threat. In the UK, on the other hand, many research projects and government-initiated developments concerned with new technology deliberately targeted participants in the community. Yet, some people were still reluctant to get involved. From the field studies I conducted, I noted a lack of programmes and leadership in the Indian and Portuguese communities, hindering their ability to engage in community-level activities.

3.3.1.2 Story Interviews

In my research, following the observation method, I employed semi-structured story interviews. This was my basic research instrument. The purpose of the story interview was to collect emotionally meaningful stories or similarly unforgettable stories from my participants. The questions also helped them to reflect on their current technology usage in their day-to-day activities. The design rationale behind the questions was to make the participants feel at ease so that I could collect data more naturally in the form

of stories. During the story interview session the following questions were asked of the participants:

- How are you connected to your fishing community?
- What do you think about storytelling?
- Tell us an unforgettable story from your fishing experience.
- Tell us an unforgettable story that happened in your community.
- How often do you get together and share stories in your community?
- What do you think about your fishing community?
- Have you used technology to share stories with someone? If so, how?
- Can you tell me what technology you use in your day-to-day activities?
- Have you heard of or used QR code or any other auto ID technology before?
- Have you been part of a group activity organised by the local NGOs in your community? If so, what was it about and what did you learn from the activity?
- Do you often visit fisheries museums in your community? If so, why and how often do you visit?

The story interviews also included some basic demographic questions about age, sex, occupation, location and name, which remained anonymous throughout my research. Interviews fostered interactions with the participants through stories and helped to gain viable insights into their social situation. I interviewed participants of different ages and gender, from different ethnic groups and among community members and community leaders within each community. Occasionally, I combined these interviews and discussions with observation, since the latter assisted me in formulating appropriate interview questions during this first phase. This approach led to familiarity between the participants and myself as researcher and, in turn, obtrusive barriers were broken down. As my approach was open-ended, informal and, hence, unstructured, it meant I could select the context for the subsequent research stages and I could determine the research direction. In fact, my involvement in storytelling groups, workshops and topical discussions assigned an appropriate and relevant structure to the interviews. Thus, from the interviews, I found the following aspects to be true:

- achievement of an understanding of other people's worldly perceptions;
- the establishment of a rapport between the participants and myself raised our interactions to a different level;
- useful and revealing insights were uncovered.

In this research, all three phases were important because every phase was unique and provided valuable information for further studies. In particular, during the interviews, I noted the responses given when asking people about their values and beliefs differed from what they actually manifested in their everyday lives, i.e. what they told me was different from what I actually observed. I acquired insights into the participating communities during these informal interview sessions, including the lack of connectedness within the communities and reluctance with regard to adapting to new technologies. Such insights were possible only by using observation as well to create rapport and, therefore, encourage people to interact within the community. The crucial significance of all three phases of this research was, therefore, confirmed. The following were noted with regard to the chosen three communities during the field study, the first phase:

- Participants from the chosen communities were observed to use few technologies as local communication tools (not usually seen using smartphones or as having frequent access to the Internet within the community). In all of the three communities there were people who expressed interest with regard to adopting new technology and there were people who showed no interest in new technologies at all.
- The chosen communities' major occupation was fishing; it was noted in all three communities that there was a growing socioeconomic problem because this occupation was seen to be in decline.

I'm a fisherman for the past 30 years and I see a major decline in fishing industry in Rameshwaram. No one wants to pursue this profession these days. They think it is dangerous and unpredictable. But I do this because it is my family profession. And I want to keep up the tradition.

(Participant, India, interview phase, Appendix E, page 295, line 18)

- Beyond ubiquitous barcode auto ID, the participating communities were not aware of emerging trends in auto ID; in particular, they were not aware of QR and RFID. None of the chosen three communities had used auto ID technology through QR code before. From the interviews conducted in all three communities it was observed that most of the participants were not aware of the technology, although a small number of participants in the UK were familiar with QR codes. In general, few participants were familiar with QR code and were not aware of the process, or its mechanics.

They look like barcode. But, I have never seen this before.

(Participant, India, interview phase, Appendix E, page 295, line 23)

No, I have never seen these before.

(Participant, Portugal, interview phase, Appendix E, page 298, line 5)

I'm familiar with QR code. I have seen them on advertisements in bus stops and on products I use like shampoos. But, I don't know how they work.

(Participant, UK, interview phase, Appendix E, page 301, line 6)

- The level of organisation and planning work carried out by participants themselves and/or by the government in order to preserve their sense of connectivity was significantly different in each community. This was noted during my face-to-face interaction with the participants during the field study.

NGOs here come door to door to meet us and they mostly talk about child education, women safety and women welfare. I learnt about the importance of education, health, nutrition and general awareness of women and children.

(Participant, India, interview phase, Appendix E, page 295, line 26)

In our community the only NGO we have around is UMAR. We gather in our community centre occasionally to meet the authorities. And they work mostly with women in Azores. It is an association for women rights and equality group. UMAR has helped gender violence and has offered shelter for women in need.

(Participant, Portugal, interview phase, Appendix E, page 298, line 20)

3.3.1.3 Interview Location

I believe it is important to conduct my research in the field, because this means involving participants in their own environment, where they feel comfortable. For research purposes, I visited all three communities to conduct field research using semi-structured interviews. Pugh (2010) states the key success in engaging participants is to visit them in their own space or in a welcoming environment because this will help build relationships with them.

In the UK community, the interviews took place at the Scottish Fisheries Museum, where I was able to easily contact local fishermen and their families. In Portugal, I conducted the interviews at the harbour and in community centres. However, in Rameshwaram in India there was no facility such as a community centre where I could meet and gather people together to conduct interviews. Consequently, the interviews took place in an open environment, while participants were going about in their daily business. Such an environment contributed positively to the research and was an added advantage to the study since the participants felt more relaxed and comfortable in their own environment. This is beneficial for both the participants and the research because the participants are in the place probably most conducive to the best responses and have the freedom and flexibility to be creative. It will also help to guide the research in a direction that reveals networks of people, objects and stories within the community. Interviewing some participants while they were going about their daily activities and interrupting what they were doing to hold a discussion meant they were motivated to engage in further discussions and to narrate stories that held contextual relevance to the research.

3.3.1.4 Ethical Issues

My research study raised several issues with regard to ethics. The University of Dundee ethics guidelines (<http://www.dundee.ac.uk/eswce/research/ethics.htm>) were considered in this study. The research followed the ethics protocol; the information collected from the participants was used in my research only with their consent. Before the participants engaged in the study, they were given a consent form providing them with the necessary information to make a decision about their participation.

The core insights into the participating communities gathered from the interviews pertain to the ethical issues I noticed throughout my research. During the interviews I observed that some participants expressed concerns about privacy. These issues were culturally different between India, Portugal and the UK. The participants in India were reluctant to converse in front of others, especially when talking about personal objects and artefacts. In these cases, I took the participants to a semi-private space for their interviews. Some participants in India had concerns with the interviews being video/audio recorded. In these cases, I took handwritten notes of the conversation.

Participants in Portugal were more engaging when surrounded by their family members and friends than when interviewed individually, as their input helped to build conversations and story narratives. In the interviews conducted in the UK, the participants had no such inhibitions; they were comfortable with the interview sessions, indicating the process was not new to them. Some participants had been part of similar research activities in the past, and were familiar with the interview format. I found that a lot of their familiarity with research activity was due to the close proximity of the communities to the universities around them. This meant that participants were aware of my research process and how the data recorded were going to be handled. I did not need to explain the process to the UK participants in detail, as was the case in India. It is essential to note that Anstruther in the UK is within ten miles of the University of St Andrews. Similarly, the Azores fishing community is within five miles of the University of the Azores. However, in India, the Rameshwaram fishing community is within 200 miles of the nearest university. This greater distance could also have affected the way the community got involved in my research project: the data gathered through an informal approach revealed more information pertaining to the participants' needs and issues than data gathered through

observation and open-ended interviews. I consider that this is my study's main contribution to new knowledge in the academic field.

3.3.1.5 Interview Structure and Guidelines

Following the observation stage, I structured the interviews with respect to the research context. Interviews were informal, open-ended and structured to help build conversations through stories. During my research, it was essential I gained unbiased answers from the participants. If I had asked leading questions, the study would have lost its validity. Although the aim of the research is to answer the research questions and shed light on certain issues, I designed the interviews such that they did not influence the information given by participants. I provided the participants with the choice of ignoring any question they did not wish to answer.

3.3.2 Digital Storytelling Workshops

The main focus of my study employing this particular research method is to create digital storytelling through QR codes, because these allow participants to use digital tools to tell a story. Thus, in my research, I explored digital storytelling as a way of participants sharing their emotionally meaningful stories, unforgettable stories or experiences. By involving participants of all age ranges, my digital storytelling workshops explored the cross-generational and cross-cultural boundaries of the participants through their narratives. When recruiting participants for the workshops, I outlined the objectives of the workshops as well as their own objectives, as given below:

Objectives for the Participants

1. to overcome their inhibitions and bring with them to the workshop a personal object (artefact or photograph) they value most;
2. to narrate emotionally meaningful stories or unforgettable stories inspired by their personal objects.

Objectives of the Workshops

1. to illustrate different responses observed within these diverse communities by involving people in research projects in order to arrive at and disseminate conclusions from the data gathered;

2. to identify and explore areas of commonality, shared boundaries and differences within the chosen research method;
3. to explore different design strategies within the PAR method and, most importantly, to identify the most appropriate methods in terms of the cultural contexts in which they were to be used;
4. to provide participants with a platform for exchanging information and connecting with one another using narratives as a medium;
5. to explore the possibility of digital storytelling utilising PAR methods in different cultural contexts;
6. to identify opportunities for new hybrid research using design methods combining participatory research, action research and the testing of technology within and across the participating communities.
7. To connect stories to the objects participants had brought along and/or to objects in the museum.

Individual Workshop Design

The workshops were entitled People, Places and Memories. One workshop was conducted in the Indian community and one in the Portuguese community, with five workshops being conducted in the UK community. All the workshops lasted for about two and a half hours. My research design encouraged my participants to work in groups of two or three, and gave them personal responsibility. As part of my research I requested each participant to bring an object to each session to help them narrate unforgettable stories, and I assigned a role to each participant, such as director, camera operator or actor. Allocating these roles gave each individual a unique responsibility within the group, promoting both creativity and efficiency within the workshops.

Digital Storytelling workshop

A three-hour workshop investigating the relationship between objects and storytelling.

Workshop schedule for Session 1:

10:00–10:15

Arrive at museum for a brief tour. Participants will then go to the education centre for an introduction to the workshop followed by a practical demonstration of the technology the group will be using to record stories.

10:15–10:30

Participants will be split into groups of three or four to try out the equipment. Within each group each participant will be assigned a 'role', which can be rotated (museum navigator, recorder, director, speaker, etc.).

10:30–11:45

Each group will be sent to a different location to narrate stories using their personal objects. *The stories should be from their own experience. If a person does not have a story related to the chosen object, then they may simply use their creativity to invent something.

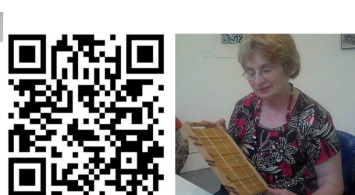
11:45–12:15

Once all the stories have been narrated and digitally recorded, each group will return to the education centre for a 'reporting back' session, using digital media to access recordings.

12:15–13:30

Participants will be offered the opportunity to attach individual stories to their objects in the form of a video recording, audio recording or text. By attaching QR codes (barcodes) to the objects, the stories will be able to be recalled using a smartphone.

The selected objects will be tagged with a QR code, which is printed on a paper label, which will be next to the object. Stories can then be retrieved by smart phones or Ipods



In using the tagging technology a simple recall procedure is established, providing the information – the 'stories' – about the objects. Participants will be able to imagine a future context where objects carry multiple stories as different owners add to the narrative.

Figure 3.5: Digital storytelling workshops – structure.

Each workshop focused on connecting stories to the objects or photographs participants had brought along or to objects in the museum. I recorded their stories and uploaded them to a hosting website entitled Tales of Things. I attached QR code tags carrying their respective stories to the participants' objects. The QR codes gave global access to the stories to anyone from anywhere who had access to a smartphone, thus making the stories digital.

Figure 3.5 illustrates the structure of my digital storytelling workshops. I distributed this leaflet to my participants along with an invitation to the workshops. As well as the workshops giving my participants an opportunity to narrate and share stories about their objects, they also gave them an opportunity to connect with other participants within the designed environment. In addition, the workshops allowed my participants to familiarise themselves with the QR code tagging technology and learn to make digital stories. Furthermore, the workshops gave the participants an opportunity to build an emotional connection with the objects and to identify networks by narrating stories. As a whole, the workshops supported my varied research approach design. They formed a part of the framework in that they comprised workshop study on a *group level*, thus enhancing the other parts of the framework in my research, namely the field study I had conducted on a *community level* and, subsequently, the story kit study I would conduct on an *individual level*.

During the workshops, I converted the participants' narrative stories into digital stories using auto ID technology. The participants had narrated their stories in the form of text and illustrations, helping to set the context and permitting me to demonstrate and explain the technology to them.







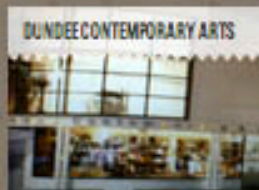




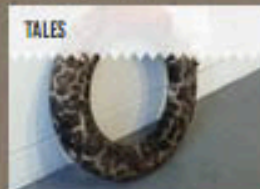


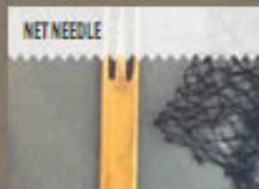

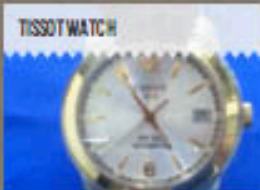



Figure 3.6 illustrates a screenshot of the TOTeM website with links to the stories from all three communities. The stories were stored during the workshops in a private account that I had created. I shared the user name and password with the participants only if they thought they might wish to return to the website to delete their stories at some time.

Tales of Things HOME Things and Collections ADD A THING Where **EVERYTHING** Has Its **MEMORY**

Things Collections SEARCH FOR A THING **Submit**

You are here: Home (Things) > DCAworkshop's -

Things Search Results *find Thing* **Collections Search Results** *find Your Collection*

 FISHING STORIES FROM INDIA EDIT DELETE	 FISHING STORIES FROM AZORES EDIT DELETE	 DUNDEE REPTHEATER EDIT DELETE	 DUNDEE OVERGATE CENTE EDIT DELETE
 FISHING STORIES FROM AZORES EDIT DELETE	 PROTUGAL PROBE EDIT DELETE	 DUNDEE CONTEMPORARY ARTS EDIT DELETE	 BOAT FROM BRUGES EDIT DELETE
 FISHING NET EDIT DELETE	 WOMEN IN FISHERING EDIT DELETE	 THE STEALING OF CHRISTIE MCHARG EDIT DELETE	 TALES EDIT DELETE
 BOYA AND THE FISHING NET EDIT DELETE	 MY RING EDIT DELETE	 NET NEEDLE EDIT DELETE	 THE REAPER EDIT DELETE
 TISSOT WATCH EDIT DELETE	 UNIVERSITY OF DUNDEE EDIT DELETE	 FISH AND CHIPS BAR ANSTRUTHER EDIT DELETE	 ANSTRUTHER BEACH EDIT DELETE

1 2 3 >>

Figure 3.6: Screenshot of TOTeM website with links to participants' stories.

According to Bishop (2006), there are three main concerns with PAR: activation, authorship and community. Claire (2006) and Gilchrist, Bowles and Wetherell (2010) elaborate upon the third concern: community. Community participation is vital to identify social concerns, shape the community into a better place and provide a 'collective solution to social problems' (Gilchrist, Bowles and Wetherell, 2010 p.20). Identifying such responsibility and creating self-organisation within community groups will help them build an efficient lifestyle. Greenbaum (1993) explains that PAR as a method aims to develop responsibility not only to establish a cost-effective system but also improve the quality of our lifestyles. Building on the works of Greenbaum (1993), Claire (2006) and Gilchrist, Bowles and Wetherell (2010), my research approach utilises auto ID as a digital technology in digital storytelling workshops to provide an online platform through which participants' are encouraged to develop collective responsibility to share their social concerns in the form of stories.

I observed that, prior to the utilisation of the story kit method, one of my participants was focused on using the auto ID technology as a way of connecting with people on a day-to-day basis. This was the main reason I adopted the digital storytelling workshops strategy in the first place: to allow the communities the time to familiarise themselves with the QR code technology and, thus, be able to utilise auto ID technologies in their everyday lives. I consider that the digital storytelling workshops phase of my research was the period when my abstract ideas were turned into concrete activities and my participants had the opportunity to benefit from what I was trying to achieve.

3.3.2.1 Workshops with Indian and Portuguese Participants

At first, accessing Portuguese and Indian participants proved difficult primarily because of the language difficulties but also because of their mistrust. However, assisted by mediators from the University of Azores and the community head of Rameshwaram, respectively, I was able to run workshops with both Indian and Portuguese participants. The assigned character roles permitted the Indian and Portuguese participants to engage in my structured activities, and they maintained their interest in the sessions. The aim of the workshops was for the participants to: (1) familiarise themselves with auto ID technology; (2) enable them to produce their story narratives as digital stories; and (3) assist them in disseminating their story experiences within and across the Indian and Portuguese

communities, although the success of this was limited by cultural influences. Figure 3.7 shows a Portuguese participant holding her object and narrating stories.



Figure 3.7: Portuguese participant narrating stories with her object.

One of the main drawbacks in conducting workshops in India and Portugal was that I was unable to conduct a series of workshops, as I was able to do with the UK community. There were practical issues, such as financial and time constraints, that limited my research in India and Portugal. Other drawbacks were that the online platform, Tales of Things, was only available in English, and not all participants from India and Portugal were fluent in reading and speaking English. Therefore, I needed a translator to conduct the research. The narrative analysis of the workshops is elaborated upon in Chapter 4.

3.3.2.2 Workshops with the UK Participants

I arranged for digital storytelling workshops to take place at the Scottish Fisheries Museum in the Anstruther fishing community, the actual organiser being the SSL. The SSL is an annual open project designed to link art, design and technology for the benefit of Dundee's inhabitants and it works with citizens and local and international partners so the future of this city might be expressed via creative research activities. After gaining permission from the museum curator and educational officer at the Scottish Fisheries Museum, I conducted a series of workshops with local groups. As they were run under the auspices of the SSL, the workshops were thematically arranged around the topic of storytelling. Individual workshop titles were 'Digital Storytelling Workshop', 'Fisheries' Stories' and 'People,

Places and Memories (PPM) Part 1 and Part 2'. PPM Part 1 explored the links between story narratives and places and between people and objects. PPM Part 2 was a follow-up workshop to investigate the participants' perceptions of auto ID technology and whether or not they wanted to incorporate this technology into their daily routines to permit people and places to be reached via the medium of stories. Figure 3.8 shows a UK participant during the PPM Part 1 workshop scanning the QR code next to his photograph and using his smartphone to narrate a story.

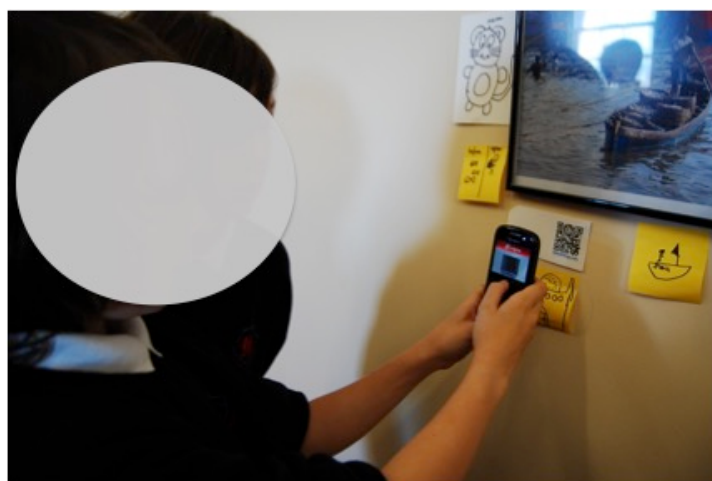


Figure 3.8: UK participant engaging with auto ID technology to share stories.

3.3.2.4 Workshops Summary

The intention of the digital storytelling workshops was to collect emotionally meaningful stories utilising personal objects and convert them to digital stories through auto ID technology. The study involved participants of all ages from 12 to 70. Through this approach, the objects and images played an important part in the research; they were used to inspire, and provide reminiscence stories, memories and experiences. Observing the workshops provided insight into my participants' approach to narrating qualitative information generated by my research approach. I reflect on my workshops in Section 3.7.2 and a detailed evaluation of the findings from them can be found in Chapter 4.

3.3.3 Story Kit

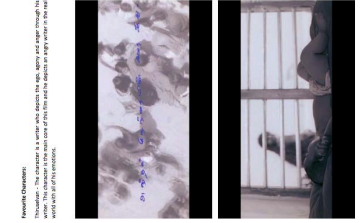






In this research, I designed story kits inspired and adapted from cultural probes. The story kits constituted one of the principal research tools for gathering information through stories from participants in different cultural contexts. The story kit is a research method designed to focus on stories for gathering information about participants in a creative application. In my research, I did not use story kits as a design method in the traditional manner employed by HCI researchers. In this instance, I used them for the sole purpose of engaging participants within the project in helping me to understand their lifestyles and their perception of current and future technology through narrative story expression. I designed the story kits specifically so the participants could share information through their narratives. They could control what information they captured, recorded and shared through the kits. Thus, I did not adopt probe-inspired story kits in a conventional manner to develop design ideas. They were used to engage participants at a cross-cultural level.

I made 30 story kits in total. Ten kits were sent to the mediator in India for distribution to the chosen participants. Ten kits were delivered to the Portuguese mediator in person and the remaining ten were distributed within the UK community by myself. Out of the 30 kits, I received 7 completed story kits from India, 5 from Portugal and 2 from the UK. The timeline depicted in Table 10 evidences my engagement with the participants via the story kit method following the interview sessions and after the digital storytelling workshops had taken place. There was a time interval of approximately ten weeks between the introduction of auto ID design technology into my research via the workshops and my receiving the completed story kits.

I followed the digital storytelling workshops phase with the story kit phase, which included introductory questions, such as: 'How do you currently share your stories?' and, 'How would you like to share your stories in the future?' Through such questions, my participants were given the chance to reflect for a few weeks on whether they wished to use auto ID technology as a method to share their stories, after my demonstration at the workshops. I gave the story kits (see Figure 3.10) to the UK participants after a briefing session. With regard to the communities in India and Portugal, the story kits were distributed through the mediators, in which cases, I enclosed a manual of instructions for the participants' use with each kit.

My story kit design was based on cultural probes. Cultural probes are used for data collection in research studies; they also function as a form of capture device to record mundane and everyday actions, places, objects and people. Probes also encourage people to tell stories about their daily lives and the people around them. According to Crabtree et al. (2003), adapting cultural probes helps researchers by allowing them to supplement the understanding developed through ethnographic research in situations where intrusions and disruptions are likely to arise. Moreover, the probe tool helps to enhance a participant's engagement, for example, if they are asked to record events, interactions of objects, people and places, and also their emotions, feelings and desires. Graham et al. (2007) state that introducing objects to the participants triggers the production of data.

Table 10. Time schedule for various research activities carried out by the author as a part of the study

Month	November	January	April	May	Decemeber	January	May	
Year	2009	2010	2010	2010	2010	2011	2011	
Study	Movie probe-Pilot study online	Storytelling Session with BletherTay Group	Story Interviews with in a Domestic setting (Case Study)	One to one semi structures interviews with the fisheries community in Scotland	One to one Semi structures Interviews with the Fisheries community in Rameshwaram, India	Digital storytelling workshops session with Fisheries community in Rameswaram, India	Digital Storytelling Session with BletherTay Group	
Number of Participants	5	10	10	7	15	5	9	
Process	Online Questionnaire	Storyteling with Objects and artefacts	Storyteling with Objects and artefacts	One to one semi structures interviews	One to one semi structures interviews	Digital storytelling workshops with auto ID technology	Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	
Image								
Findings	Probes were identified to be effective for distance studies	Objects trigger memories	Storytelling helped to create new networks and also strengthen the existing ones with a domestic setting	Interviews helped to understand participants' socio economic structure and helped to frame DST workshop	Interviews helped to understand participants' socio economic structure and helped to frame DST workshop	Technical Challenges were identified such as access to equipments, wifi Internet and language barriers. It helped to build trust among participants for future research works	Helped to identify networks within the community	

June	July	June	July	June	July	June	August	October
2011	2011	2011	2011	2011	2011	2011	2011	2011
Digital Storytelling workshops (People, places and memories part-1) Small society Lab	Directed storytelling workshop (People, places and memories- Part 2) Small society Lab	Digital storytelling workshop with Objects (Fishing stories) Small society Lab	Digital Storytelling workshop- Insight generation. Small society lab	Digital storytelling workshop with Level 7 School children from Fisheries community (Part 1)	Digital Storytelling workshop with Level 7 School children from Fisheries community (Part 2)	Semi structures interviews with the Fisheries community in Portugal		
12	7	5	4	32	32	10		
Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	Generating insights from Design researchers and participants for identifying various uses for DST	Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	Digital storytelling workshops with auto ID technology, identifying networks (Material and immaterial things)	Semi structured interviews		
								
Findings demonstrated how images triggered participants' memories and also created networks	Findings demonstrated how images and objects triggered participants' memories and also created networks	Findings demonstrated how images and objects triggered participants' memories and also created networks	Opportunities identified by the participants to use auto ID technology in various contexts	Findings helped to identify new networks within the school groups and also within the community	Findings from second session demonstrated how places and images triggered stories that connected stories from previous workshop session.	Interviews helped to understand participants' socio economic structure and also helped to frame DST workshop		

October 2011	November 2011	December 2011	December 2011	January 2012	February 2012	March 2012	October 2012	January 2013
Digital storytelling workshop and insight generation sessions with the Fisheries community in Portugal	One to one semi structured interviews with the Fisheries community in Scotland	One to one semi structured interviews with the Fisheries community in Scotland	Story Probes to Fisheries community in India, Portugal and the UK	Story Probes return from Fisheries community, India	Story Probes return from Fisheries community, Portugal	Story Probes return from fisheries community, UK	Exposition In Anstruther Fisheries Museum 'From Western Arctic to Bay of Bengal	Directed Storytelling Workshop with undergrad Product design and Interaction design students
12	2	2	30	10	7	5		28
DST workshops with QR codes	Semi structured interviews	Semi structured interviews	Customised storyprobes with story manual, sound recorders, disposable cameras and questionnaires					Various design research method to collect data from participants using storytelling methods
								
Insight generation helped to identify issues and generate solutions using SWAT analysis method	Stories triggered through objects and artifacts, identifying networks within communities	Stories triggered through objects and artifacts, identifying networks within communities	Probes reached participants through mediators in each community	Story probes in India helped gather data and generate useful insights	Story probes in Portugal, helped gather data and demonstrated how auto ID technology help their social connectivity	In UK there was a saturation in probes culture.		

My research aimed to understand a community's cultural value, identity and social structure through stories. It is a well-known fact that stories have always been a traditional way of conveying our thoughts to the world; they are a ubiquitous element of communication. Stories are also one of the methods of expressing a person's cultural identity and memories of events, places and people. Hence, I designed the kits in such a way as to gain insights into communities from stories created using objects, visual images and audio recordings. Figure 3.9 illustrates a story manual for participants in India that forms part of the story kit illustrated in Figure 3.10.



பரிட்டனேவீம் - உனிடடே கிண்க்டோம்



ராமலேவரம்-இந்திய

Figure 3.9: A story manual in Tamil for participants in India.



Figure 3.10: Annotated image of a story kit.

As Boehner states, technology probes are low-fi technology for collecting information about the use of technology. I used this story kit not in the context of collecting information about the use of auto ID technology, but for the purposes of engaging participants and comparing research methods within the community to understand which ones were suitable for certain communities, and the reasons for their use.

Moreover, I used the story kits as a method to observe how participants interpreted their experience through narratives in yet another different way, as I had already done by engaging them in the other research methods I had employed: story interviews and digital storytelling workshops. In adapting cultural probes as a story kit, I replaced certain aspects of what a cultural probe is supposed to be with new contexts for different purposes. For example, the story manual was used instead of diary studies, since my research looked at participants' perception of different cultures through stories.

I designed the story kits in such a way as to be playful and to engage the participants with the story manual, the sound recorder and the disposable camera.

As Participant 4 from the UK states:

I was involved in all three research methods and my favourite method was the story kit method. I thought the method was playful and creative compared to the other methods (workshops and interviews). Because there was more than one opportunity to tell stories, I was able to take the kit with me and do it in my own time.

(Participant 4, UK, story kit, Table 5, digital storytelling workshops, Appendix E, page 299, line 3)

I had the opportunity to brief participants in the UK individually about the story kit. However, in India and Portugal I was unable to do this, and so my participants here were briefed via the mediator.

The story kit used in this research consisted of the following elements:

1. Story manual
2. Sound recorder (ten-second recorder)
3. Disposable camera
4. Questionnaire
5. Consent form
6. Instruction manual

The story manual, sound recorder and disposable camera captured the participants' stories in three different formats: text, audio recordings and images. These items were used in a way similar to how Gaver, Dunne and Pacenti (1999) used probes. However, the story manual was designed based on the field study I had conducted in all three communities, and appropriate photographs were selected to create it. I employed the story manual, which included photographs of the three chosen communities, to elicit stories from participants through photographs. I included a questionnaire in the story kits for the Indian and Portuguese communities so that they could familiarise themselves with this particular research tool.

The especial strength of the story kit method as used in this study was that I designed and produced the materials specifically tailored to the participants in the chosen communities and their environments. In particular, I designed the story manual based on information gathered from the field studies conducted while working within the three communities. The photographs taken during the field studies were selected for having similar subjects that were yet distinct in their cultural and social aspects. I wrote the story kits in the relevant languages, Tamil for Rameshwaram in India, Portuguese for the Azores in Portugal and English for Anstruther in the UK. The story kits were the tool kit I used to communicate with the local participants and to encourage them to reply personally.

3.3.3.1 Instruction Manual

The instruction manual (Figures 3.11 and 3.12) provided a detailed explanation of the purpose of the story kit. I elaborated on all the methods used within the kit and listed the sequence of procedures. Moreover, I provided clear guidelines on how to utilise all the technology included within the story kits.

The instruction manual gave detailed information for each item in the kit and was provided in the relevant language. Although I explained the principles of the story kits to the mediator and the participants, I identified the instruction manual as being necessary to assist the participants in the later stages of the study; some of the participants took two and a half months to complete and return the story kits and during this time it was necessary for them to have an instruction manual at hand if and/or when they had issues with regard to the completion of the kit. As Participant 3 from the UK states:

I found the story kit easy to use as all the information was clearly laid out in the instruction manual and I could go back to refer to this whenever I needed to.

(Participant 3, UK, story kit, Appendix E, page 289, line 13)

This is a research study from the University of Dundee, Scotland. The data collected from the study will only be used for research purposes. Thank you for participating and for taking the time to complete this study. Please follow the instructions and complete all sections.

1. Story manual

Look at the pictures in the manual and tell a story related to these. It could be your own experience or a story that the picture suggests. The photographs depict the life in two fishing communities in India (Rameshwaram) and the United Kingdom (Pittenweem) and show the people's fishing techniques, lifestyles, homes, clothes, etc.

2. Sound recorder

Using the sound recorder, give your opinion on the following:

'Living and working in a fishing community, how do you think you can make the world a better place?'

'What would you do to make your community feel more connected to the outside world?'

To record, follow the instructions.



Hold

Talk

Release

The sound recorder only records for 30 seconds. If you want to re-record your story, press and hold and record again. The previous story will automatically be erased and the new one will be stored.

3. Camera

Using the camera, take photographs of each item in the list below. Before doing so, read the instructions for the use of the camera and follow these for every picture.

- turn advance wheel until it stops
- use flash within 1–3 metres of subject
- switch on flash and wait for 'ready' light
- aim and then press shutter release
- turn off flash after picture is taken
- after last exposure, turn advance wheel until E appears in counter

Figure 3.11: Story kit instruction manual, page 1.

Please take 2 photos of each:

1. Picture of yourself
2. Picture of your family
3. Picture of your community
4. Picture of your boat holding the QR code.
5. What object you value the most?
6. What does your family value most?
7. Something that you are proud of (could be person or object)
8. Something personal
9. Something public
10. Somewhere you would like to be yourself
11. Somewhere you spend time with your friends
12. Take a picture of a place where you tell stories.



5. Questionnaire

Please fill the questionnaire attached within the kit.

6. Consent form

When you have completed all the sections in the probe kit please read the consent form and put your signature.

Once you have completed all the above. You will find a self-addressed cover in the kit. Put the items in the cover and drop it in the post box.

Thanks you for your time.

You will find the study results in the following link.
<http://arthimanohar.blogspot.com/>



Figure 3.12: Story kit instruction manual, page 2.

3.3.3.2 Story Manual

The story manual included photographs taken while on field trips to the participating communities and those that the participants had taken illustrating their own personal perceptions of their communities. In particular, the photographs' subject matter depicted the lifestyle of the selected fishing communities, specifically their culture, buildings and fishing techniques, among other things. I chose those photographs from the different communities that pinpointed their own unique cultural context. To exemplify, Figure 3.14. shows a completed story manual. Notably, it indicates two photographs, both depicting fishermen holding fish. While almost identical, clearly, the image each photograph portrays is culturally different. The design of the story manual's front cover was also taken into consideration (Figure 3.13). Labelling the story kits appropriately in Portuguese, Tamil and English was necessary to guide participants through them.

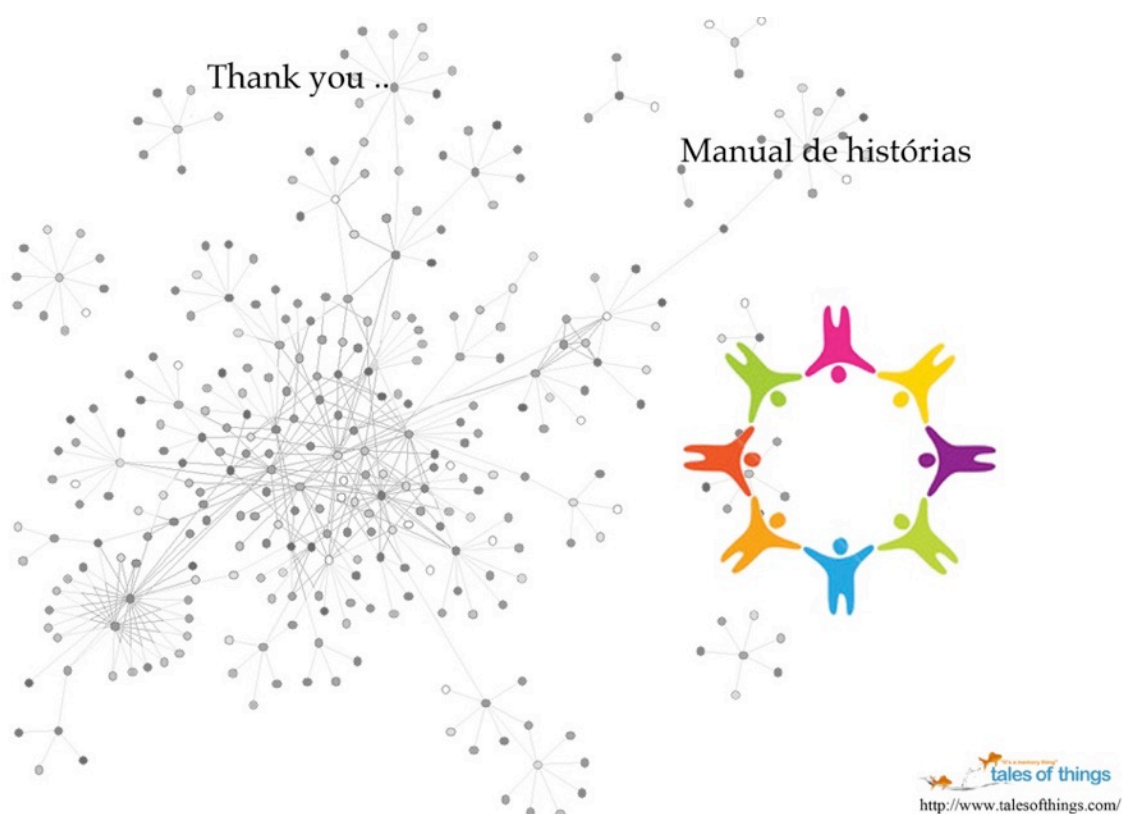


Figure 3.13: Front cover of the story manual for Portuguese participants.

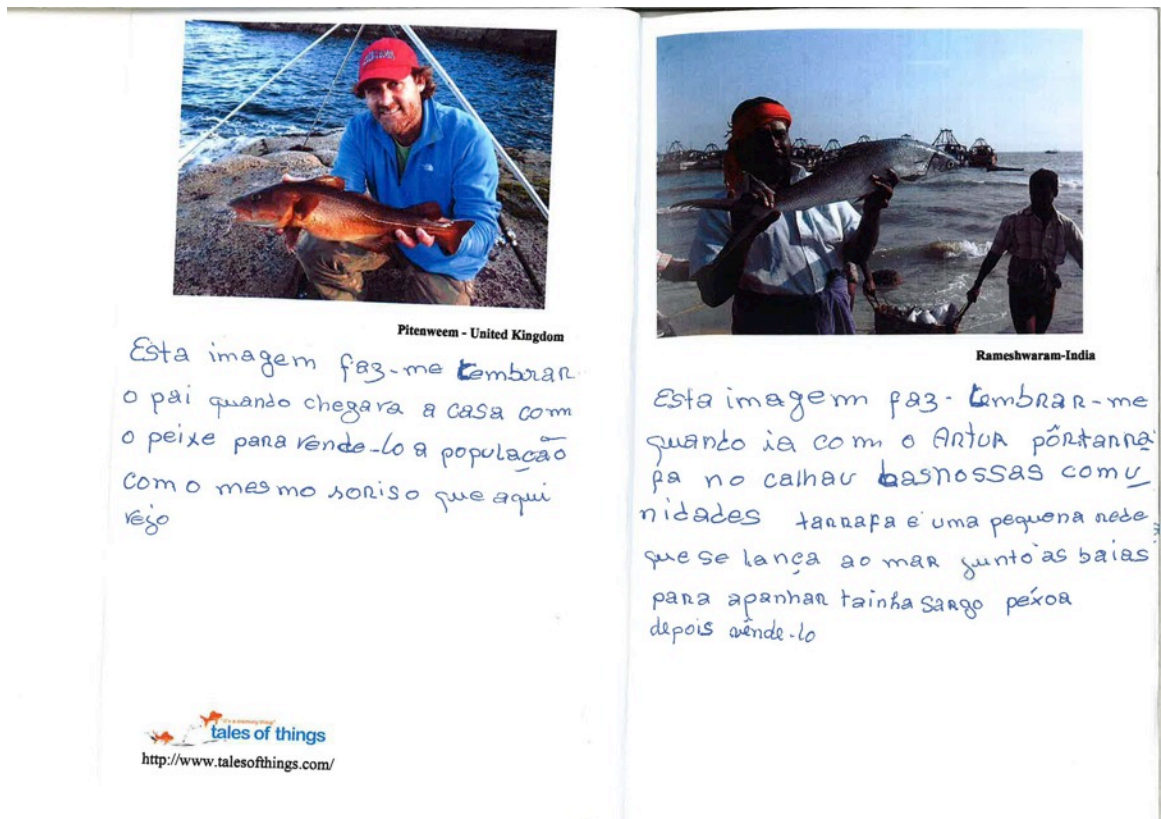


Figure 3.14: Story manual completed by a Portuguese participant.

Translation: Pittenweem – United Kingdom (Left) *‘This image makes me remember my dad when he used to come home back from sea with fish to sell. He always had a smile, which I can see here.’*

Rameshwaram – India (Right) *‘This image reminds me of the time when I used to go with Arthur to “Torropa”. Torropa is a small hut that we built near the sea, so the boys could catch fish and sell it afterwards. We spent a lot of time in the hut telling stories about the sea.’*

(Participant 1, Portugal, story kit, Appendix C, page 255, line 2)

My intention in combining the images in such a pattern and presenting them to the participants was to elicit stories from them. Combining photographs of the different communities as shown in Figure 3.14 enabled me to reflect on their cultural similarities and differences. Looking at the photographs, my participants told the stories either by writing them down or sometimes by sketching them. The stories resulting from these photographs illustrated the participants’ experiences and any

associated memories in relation to the pictures. Figures 3.15 and 3.16 show participants from India using the story manual and the story kits, respectively.



Figure 3.15: Participants from India using the story manual.



Figure 3.16: Participants from India using the story kits.

As Participant 2 from the UK community stated:

This reminds me of attending the Pittenweem Arts Festival each year and enjoying the sun (when it is there), the sea and the gorgeous colours.

(Participant 2, UK, story kit, Appendix D, page 282, line 3)

When I was about 17 years old and being interviewed for my first job as an apprentice, amongst all the samples of technical drawings I had done, I showed them an unfinished water colour sketch I had done of a boat in Aberdeen; it looked just like this one in India. I later found out that this watercolour sketch got me the job.

(Participant 2, UK, story kit, Appendix D, page 282, line 6)

Participant 2 from the UK community provides yet another example:

This is the kind of scene I remember as a child when my father and his brothers used to set out from Aberdeen to fish in the North Sea. I was never taken out because it was too dangerous, but left to play on the beach all by myself (which would be too dangerous now). I enjoyed myself and learned that some solitude was not a bad thing.

(Participant 2, UK, story kit, Appendix D, page 283, line 12)

There was a time when Aberdeen had a large fishing fleet and the fishing dock looked just like this. Now that the oil industry has taken over the nostalgia has gone.

(Participant 2, UK, story kit, Appendix D, page 283, line 17)

3.3.3.3 Questionnaires

My research study included questionnaires in the story kits. The aim of this was to adopt a more informal, friendly approach towards the participants and introduce simplicity to a method some participants could have construed as being rather complex in its operation. This contravenes Gaver, Dunne and Pacenti's (1999) argument that if cultural probes are utilised as they are in my research then using conventional structured research methods such as questionnaires is rendered unnecessary. Nevertheless, employing questionnaires within the story kits meant I could present each participant with open-ended, informal and simple questions they could elaborate on further if desired. I also used the questionnaires subsequent to the digital storytelling workshops to obtain participant feedback. The questionnaire I included in the story kits was identical to those I used during the field study phase. By including the questionnaires in the story kits, I could compare the information gained from the interviews by this method to identify if the story kit triggered participants to provide more meaningful information than provided during the interviews. Deploying questionnaires as part of my story kit method also helped in gathering in-depth background information on each participant.

Using questionnaires in this phase of my research had a further purpose. I structured the questions so subsequent data arising from the participants' responses would give me an indication of: (1) their age and gender; (2) their perceptions of technology; (3) if they used technology and its type; and (4) their views on tradition, and cultural aspects within their communities. The questions could reveal storytelling perceptions in each community and the existence of prevalent social activities and how any such activities could be improved upon. Information gleaned from general questions would refer to the overall lifestyle patterns of the participants and would give details of fishing techniques so the data across the three communities could be compared.

The questionnaire contained a number of open-ended questions and the first part was specifically designed to extract detailed background information about the individual participants relating to their community and occupation (fishing). The second part was designed to gain insights into the communities themselves and elicit information on their cultural similarities and differences. The design of the questionnaire was intended to increase the response rate and make the resulting data more accurate.

The following questions were asked as a part of the story kit method.

Part I of the Questionnaire

Age

Sex

Occupation

What technologies do you use in your day-to-day life?

How long have you been involved in fishing?

How often do/did you go/used to go fishing in a week?

What kinds of fish do you usually catch and from where?

Are they seasonal? If so, what types of fish are caught in a particular season?

Part II of the Questionnaire

Tell us about any unforgettable experience you've had while fishing.

Do you have any particular fishing techniques? If so, please explain.

Do you follow any particular tradition or custom in fishing?

Do you visit fisheries museums in your community? If so, why do you visit and how often do you visit?

The following are some responses to selected questions from different participants in the three communities:

Q: How long have you been involved in fishing?

I'm not involved in fishing although I come from a family of fisher folks.

(Participant 1, UK, interview phase, Appendix C, page 301, line 17)

I've been in the fishing occupation all my life since I was a child and my father used to take me on his boat to the sea.

(Participant 4, Portugal, interview phase, Appendix C, page 299, line 40)

My father was a fisherman, I'm a fisherman, and we never went to school. I do not wish the same for my sons. They are not going to pursue this family occupation. I want them to have a better lifestyle.

(Participant 4, UK, interview phase, Appendix C, page 302, line 1)

Q: Do you visit fisheries museums in your community? If so, why and how often do you visit?

We do not have a museum in our community.

(Participant 1, India, interview phase, Appendix C, page 295, line 36)

I have used the fisheries museum in Anstruther (Scotland) very often. I take my kids to the museum every weekend for a family activity. I think it helps them understand the culture and reminds them what it's like to be living in a fishing community.

(Participant 2, UK, interview phase, Appendix C, page 301, line 12)

We do not have a fisheries museum as such, but we do have a community space where objects, sketches and artefacts are displayed. We spend our evenings with kids telling stories.

(Participant 3, Portugal, interview phase, Appendix C, page 298, line 25)

3.3.3.4 Disposable Cameras

My research views visual studies as an important method for understanding the norms of each community. I requested the participants to take a series of pictures with the help of disposable cameras. I chose to employ disposable analogue cameras for the research because they are portable, affordable and can easily be used by participants of all ages. I selected analogue cameras over digital cameras because of privacy and ethical issues. Digital photographs lack security since they are copied and shared easily.

The participants returned the disposable cameras to me and the photographs were manually developed and selected for analysis, thus protecting the privacy of the respective participants. Specifically, I had asked the participants to photograph pictures of objects they possessed. The photographs illustrated how participants perceived objects in both their personal and social space. Photographs of landmarks, religious buildings and community places represent their personal concept of their community.

The instructions for using the cameras were translated into the participants' languages and incorporated into the instruction manual. However, I observed a common problem with using the disposable cameras: some participants tended not to use the flash while taking pictures, especially during bad light, leading to some dark photographs. A list of things to capture with the disposable cameras was given to the participants as a part of the story kit. This list is given in Figure 3.12.

While participating in the story kit phase, one of the participants used his/her own mobile camera instead of the disposable camera. The results were, therefore, different from those of other participants because the photographs were not in the order as indicated in the instruction manual. Looking at these requested digital photographs, my participants tended to present themselves differently. This is evidenced in the analysis in Chapter 4.

3.3.3.5 Story Tags

Story tags were part of the story kit method and each one displayed an open-ended question, such as:

How do you connect to people?

How will you connect to people in the future?

What would you do to make your community feel connected?

Participants also received a QR code printed on the back of the tag as shown in Figure 3.17. This gave them an opportunity to scan and narrate the story.



Figure 3.17: Story tag with QR code.

In this particular method, participants had three ways to answer the question: (1) write the answer on the tag; (2) record the answer on the ten-second sound recorder; or (3) use the QR code to scan and upload the answer. However, I observed from the 15 kits received from the participants only one of the QR codes was scanned for uploading a digital story. All participants attempted to use the sound recorder and/or paper-based method for their answers. When asked why they did not choose the QR code to share their stories, one participant from India answered he did not have a smartphone to use in conjunction with the tag. Another participant from India said he did have a smartphone but did not have an Internet connection on it. One participant in the UK simply did not wish to use the QR code, preferring the paper-based method.

Some of the responses from the participants to the story tag questions are given below:

Q: What would you do to make your community feel connected?

In my opinion in the future people will communicate through text messages, email and new communication technology like the QR code.

(Participant 2, Portugal, story kit, Appendix C, page 274, line 4)

I would promote courses and information mainly among the young people, because there are still lot of youngsters that don't know anything about fishing.

(Participant 4, India, story kit, Appendix B, page 284, line 36)

During my story kit design procedure, I developed various concepts for building the kit. In the following section I describe the design ideas adopted and those rejected.

3.4 Story Kit Design Process

The story kits included designed objects, paper folders containing the questionnaire and the instruction manual, and images related to the participating fishing communities where the participants could see that these were related to fishing, yet were different for their respective cultures. The research value of the story kit method was to provide a practical and playful approach to gathering stories through a story manual, sound recorder, questionnaire and disposable camera. The kit also built on the workshop method by encouraging the user to think further about auto ID technology and gain more insight into this. The story kit was designed to reveal information on subject matters difficult to approach in a traditional research setting. I discovered from the participants' responses that one of the unique features of the story kit method was my use of photographs in the story manual. The combination of photographs illustrating cultural similarities and differences between the chosen communities helped participants to recollect personal memories.

The story kit is not a cultural probe. However, certain aspects of cultural probes inspired me to use the story kit method and build the kit. The design process for the story kit method is detailed below, outlining design options and explaining why I chose certain ones over others.

3.4.1 Sound Recorder Design

Figures 3.18 and 3.19 depict the two sound recorder design options.

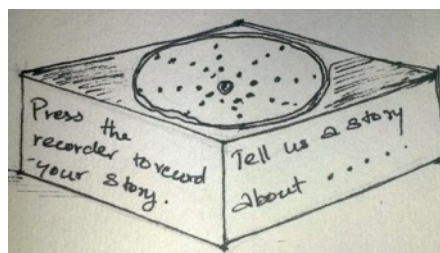


Figure 3.18: Sound recorder option 1.

Figure 3.19: Sound recorder option 2.

I eventually chose design option 2 to package the sound recorder because it was then covered on all sides, except for the top, as shown in Figure 3.19. The package is made from cardboard, making it light as well as functionally accessible for the participants to record the stories.

The small circular opening on the base of the package also helped the participants to check if the sound recorder was actually recording their stories when in use because it enabled them to access a switch to play back the recording. Once the recording had been playing for ten seconds, the red light would automatically switch off. In addition, the packaging allowed me to provide instructions and questions on the packaging itself, making it convenient for the participants to read the instructions in their respective languages and record their stories.

In design option 1, even though this offered enough space to provide instructions and questions in a clear manner, the recorder was left open for the participants to use. Here, the control switch at the back of the recorder turned the recording on and off and remained exposed. This could have led to accidental switch-off. Hence, each story kit, which had two sound recorders, was packaged carefully in a laser-cut cardboard box as shown in Figure 3.20.



Figure 3.20: Final design of the sound recorder.

Using the recorders allowed the participants to record their answers to each question for a maximum of ten seconds. This encouraged the production of precise responses from participants. My sound recorder was inspired by Gaver et al.'s (2004a) dream recorder, which he redesigned to effectively capture the participants' experiences in his research. However, there was one difference in my own research. Unlike Gaver's dream recorder, I provided an opportunity for the participants to both edit and rerecord their stories. The sound recorder supplied participant responses, both giving me information on the way they connected with their community and indicating their opinions as to how they would prefer to utilise technology to further connect themselves with it.

3.4.2 Story Manual Design

I designed the story manual to include selected photographs from the three communities that were similar in their subject, yet different with regard to each community's culture. The images were placed next to each other so the participants could look at them simultaneously and were prompted to produce stories from their past experiences.

Figure 3.21 depicts the story manual design. Each page in the story manual consisted only of photographs and I did not even provide lines on the pages as these might have restricted participants' creativity. From the returned story kits, I noticed some of the participants felt encouraged to express their stories through sketches and/or text. In every story manual given to the participants, I completed the first page, in order to provide the participants with a working example of what I expected to be produced from the story kit.

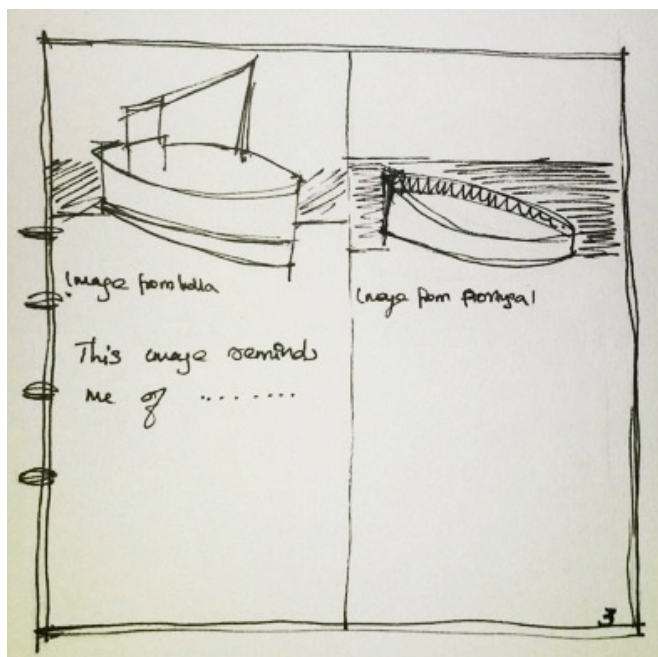


Figure 3.21: Story manual design sketch.

3.4.3 Disposable Camera Design

I chose this particular design option for packaging the disposable cameras because it allowed for displaying the questions clearly at the rear of the camera. It was also possible to provide instructions for turning the flash on with this particular design (see Figure 3.22). I provided detailed information on how to use the disposable camera in the instruction manual. Some of the participants found this additional information beneficial later on, as transpired from the feedback sessions. However, some participants neglected to turn the flash on while taking pictures, leading to some dark images. This has been observed to be natural behaviour from participants when using disposable cameras.

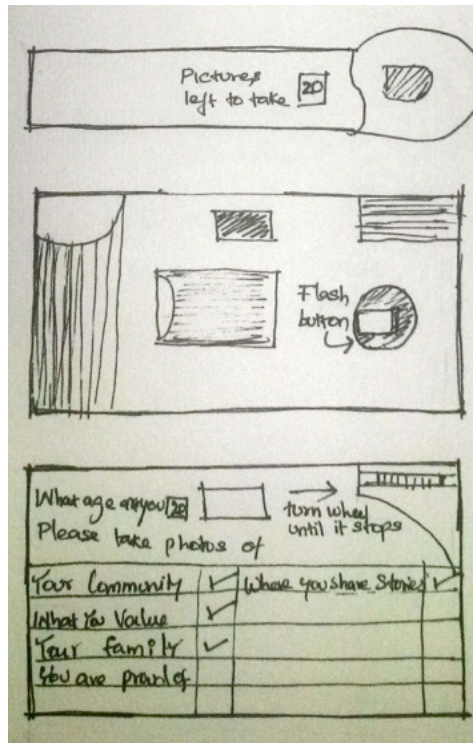


Figure 3.22: Disposable camera design sketch.

3.4.4 Story Tags

Figures 3.23 and 3.24 depict the design choices I made with regard to my story tags.

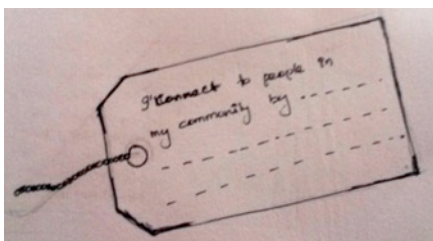


Figure 3.23: Story tags design option 1.

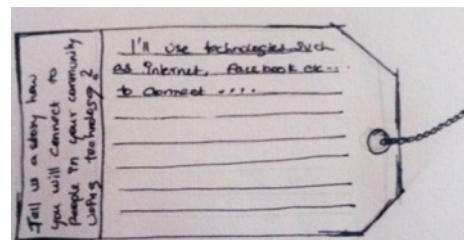


Figure 3.24: Story tags design option 2.

The story tags each displayed an open-ended question for the participants to answer and a QR code (Figure 3.25) on the back of the tag for them to scan and add their stories. I chose design option 2 for the story tags, because this meant I could provide the questions only on one side of the tag, still allowing sufficient space for the participants to narrate their stories, but leaving the reverse side free for adding the QR code.



Figure 3.25: Story tag with QR code.

3.5 Comparing Story Kits and Cultural Probes

There is nothing wrong with adapting probes for new needs and in new contexts or with being inspired by probes approaches to develop other methods. What is problematic, however, is to alter essential aspects of the probes methodology without thinking through why and how the new variants make sense.

(Boehner et al., 2007, p.1084)

In my research, story kits were not used as a method to help the design process. The story kit inspired by probes was used for the sole purpose of engaging participants within the project to help me understand the nature of diverse cultural communities through stories. Story kits also assessed how participants currently used technology, and if they had the desire to utilise technology such as auto ID in their everyday life for communication purposes.

The story kit design was inspired from certain aspects of cultural probes, such as the sound recorder. Each story tag consists of an open-ended question and a QR code as illustrated in Figures 3.24 and 3.25. I adapted one of the aspects of the cultural probe – postcards in the form of story tags – in giving the users questions to answer in this format. Along with the story tag, I provided my participants with the option of uploading the answer through the QR code attached to the back of the story tag. The participants preferred handwriting the stories on the story tag or using the sound recorder to using the QR code. By giving them the choice, this at least provided the participants with the opportunity to choose their preferred method.

3.6 Story Cultures

The framework acts as a technique for exploring cross-cultural communities using stories as its principal focus. The framework consists of three facets: (1) field study involving story interviews; (2) digital storytelling workshops; and (3) the story kit method. My long-term empirical study looked at gathering emotionally meaningful stories from the participating communities. Thus, I built these research methods for reaching the goals of the research, which were:

- 1) to gain insight into the use of technology within the participating communities by using storytelling as a research approach;
- 2) to deploy the story kit method and explore its relation to the current cultural probe method in a cross-cultural context;
- 3) to explore auto ID technology for generating emotionally meaningful stories.

The intersection between design research, participatory research and storytelling gave me the opportunity to build this framework. Henceforth, I term this methodology the 'story culture framework'. The framework uses three approaches – field study involving interviews, digital storytelling workshops and story kits – to elicit emotionally meaningful stories using different media in participatory community research. I used storytelling as a medium to challenge the conventional approach to testing a particular technology in communities with different cultural contexts. This story culture framework will help researchers of the future face the practical challenges posed by cross-cultural studies. It can be considered as a design methodology that will: help designers/practitioners understand socioeconomic challenges and user needs; build a sense of trust between participant and researcher; and act as a platform for demonstrating auto ID technology. It will also provide a significant resource for emerging communities and help to weave new interrelationships between people within the existing communities.

3.7 Reflections

This chapter reviews how PAR methodology was developed for and deployed within three participating communities. It also accommodated numbers two and three from my list of objectives, namely:

2) to explore the story kit method and how it can add to the current cultural probe method;

3) to develop and demonstrate PAR methodology for integrating storytelling into technology and presenting a critical reflection of the methodological issues.

3.7.1 Reflection on the Field Study Phase

This initial stage of the research comprised a constructive conversation in the form of a semi-structured interview between the participants and myself as researcher in order to understand their social patterns, cultural significances and their perceptions of technology through emotionally meaningful stories. In this research, field studies helped me build trust with the participants and to identify mediators for each community.

During the field study phase, I took photographs of the communities absorbed in their regular activities and I conducted semi-structured interviews. From these photographs, I selected ones relevant to the context and presented them to the research participants via the story kit method in order to trigger emotionally meaningful stories.

I observed the following characteristics during the field study phase conducted within each community:

- *India*: there was very little effort invested in communication or co-ordination by the NGOs or by the community leaders in order to engage people within the community. Notably, too, there was very little time and motivation devoted to this task within the chosen community in India.

- *India, Portugal and the UK:* in all three countries participants from the chosen communities used technologies such as mobile phones, PCs and payphones as local communication tools. I observed infrequent use of smartphones and restricted Internet access within each community. In all of the three communities there were both people who expressed a keen interest in adopting new technologies and those who showed no interest in them at all.
- *India, Portugal and the UK:* from my participants' responses, I realised that in all three communities there was a growing socioeconomic problem because my participants considered fishing as an occupation to be in decline.
- *India, Portugal and the UK:* I widely observed that the main activities occurred during the early morning (from 6 am to noon when the fishermen return from sea). Therefore, the research process was carried out during this specific time and in locations where the participants felt comfortable with being involved in the research activities: the Scottish Fisheries Museum in Anstruther, the community centre in the Azores and the dockyard in Rameshwaram. It was important to identify these patterns during the observation stage so the appropriate research methods could be applied.

3.7.2 Reflection on the Digital Storytelling Workshops Phase

Beyond ubiquitous barcode auto ID, the participants were not aware of emerging trends in auto ID; in particular, they were not aware of QR and RFID. None of the three selected communities had used auto ID technology through QR codes before. From the questionnaires conducted in all three communities, I realised that, in general, most of the participants were not aware of such technology, although a small number were familiar with QR codes. Those who were aware of auto ID, primarily the participants in the UK, were not aware of the attendant process or how it worked.

When conducting workshops with the chosen participants, adopting role playing kept the participants engaged throughout the session. By adopting roles such as director, camera person or actor, the participants knew their responsibility from the outset until the conclusion of each session. This concept proved effective in stimulating discussion and engaging participants in a lively manner throughout each session.

Building on the findings of Barthel et al. (2011) I employed mobile devices in the workshops for sharing experiences. During the sessions, I observed that in all three communities it was easier to use mobile devices for digital storytelling both in terms of size and familiarity with the type of displays. However, I also noted participants were restrained in their use of this augmented reality tool.

In these workshops, participants discussed their stories and experiences and converted them to digital stories with the help of auto ID technology and social media. By using the auto ID technology as social media, I could identify the communication participants engaged in as shared and collective, thus providing a platform for the working groups to share their stories.

This outcome suggests the value of the structured workshop in using technology and personal objects reflecting an individual's perception of an emotionally meaningful story. In so doing, the scope and potential for involving technology such as auto ID for storytelling increases, moving away from the currently held view of its dubious usefulness. The feedback from the participants reflects both positive and negative aspects of the design features of auto ID technology and its effectiveness as a research tool in encouraging participants' involvement.

All three communities were not well equipped to support auto ID technology through broadband and smartphones. The unfamiliar technology was seen by the participants as problematic and cumbersome. However, it did prompt a certain type of 'social behaviour' in the workshops. For example, the UK workshops had participants of different age groups. The younger participants had a quick grasp of the technology compared to the older participants. Even though participants did not know each other, the younger participants helped the older ones by explaining the technology and helping them capture their stories. This triggered an interesting conversation among participants.

In line with Granqvist (2005), technologies represent a 'cultural invention', as they help to develop new cultural norms. However, these new technologies should be culturally and socially sensitive and not entirely based on technological advance.

3.7.3 Reflection on the Story Kit Phase

Regardless of the advantages and disadvantages of the cultural probes themselves, story kits offer an opportunity to highlight the epistemological commitments of HCI design methods. Based on Gaver, Dunne and Pacenti's (1999) original probe method, I modified the story kit in this research to be open-ended in nature and to encourage narratives from participants in three culturally different chosen communities. An important issue in this research method was the role of mediators in the chosen communities. During all three research stages, the mediators played a significant role in building trust between the participants and myself as researcher. I consider the mediators' role in introducing the story kit method as crucial because the method was deployed without my presence in the field. The mediators acted as intermediaries to distribute the story kits to the participants previously involved in the field study and digital storytelling workshops phases, and they were also used to invite participants, and for translation purposes. This was important, because the stories collected from the participants involved in all three stages of the research were essential to conduct a proper qualitative analysis.

In the past, researchers such as Gaver, Dunne and Pacenti (1999) and Crabtree and Rodden (2002) have used probes for empathetic engagement with participants for capturing data to provide inspiration for designers. However, in this research, my intention in utilising the story kit method alongside other participatory research methods was to understand the implications of auto ID technology and also for it to act as a catalyst to generate emotionally meaningful stories through empathetic engagement. During the process, the design of the story kit for each community in its own particular context encouraged the participants to share their stories. In addition, deploying story kits in communities such as India and Portugal added knowledge of cultural probes to the scholarly literature. Previous research has considered cultural probes to be a Western notion (Kanchana, Manohar and Rogers 2010; Koskinen, Battarbee and Mattelmäki 2003).

Unlike other research methods, such as field studies and workshops, story kits gave the participants the opportunity to respond to as many or as few questions as they desired. However, during the field study and digital storytelling workshops phases the participants were placed in a confined environment and they might have felt obliged to answer the questions asked. The advantage of using story kits as an additional and indirect method

was that participants' preferred methods and their reasons for these could be identified. On some occasions, participants found the sound recorders and cameras valuable for sharing their stories, but the story manual was of little use. Only two participants chose to use just the story manual for sharing their stories and none of the other methods at their disposal.

I chose this research approach because of its practical component that involves participants individually in methods for undertaking research remotely, such as the story kit. My rationale behind using story kits centred on observing social activity in the field studies phase. In this research, the story kit method enabled me to open up practice and engage *indirectly* with the materials. It gave the participants the opportunity to share experiences as personal biographies that presented themselves as emotionally meaningful.

3.7.4 Reflection on Participants

During my study, the participants were, on the whole, less convinced by the research when it was promoted as part of a student project and struggled to fully appreciate my commitment to sharing cultural understanding and future aspirations with them. However, from my experience in conducting similar research as a post-doc researcher, the presence of two or more designers helped create a rapport between the participants and the researchers. This reassured participants about the activity and also gave them the opportunity for consensual collaboration. However, from a sociocultural perspective, to a large extent I was not able to investigate the complexities of community wellbeing using my research design.

In working with three different communities, the study's limitations did not allow me to verify the analytical findings with the participants or to interrogate their parallel experiences further. As opposed to participating in an iterative cycle of input and testing, the aim of the research was to see how the data were triggered when images and objects are utilised as methodological tools, creating links to help the participants craft stories. It was also intended to consider the role of the researcher in such a context.

Working with three different geographically dispersed communities proved to be challenging when trying to build trust with the participants and mediators. As an outside

researcher, I spent a significant amount of time getting to know the community before I approached its members. It proved to be crucial that I got to know the key players in the community and their concerns and challenges early on in the study. However, due to geographical and financial constraints I was not able to spend enough time in India and Portugal to recruit participants. In these situations, mediators helped with recruitment, and distribution of the story kits. This might have caused a lack of trust with new participants.

While the mediators were present in all three communities for the purposes of translation, familiarity and trust, at times I experienced a hierarchical division between myself, the mediators and the participants. For example, in India, the head of the community was the mediator who was present at the workshops. Culturally, India is a hierarchical country and the participants were at times not comfortable expressing issues and concerns in front of the mediator. However, on the contrary, in Portugal, the mediator was a researcher from the University of Azores and participants in Portugal felt quite comfortable in sharing their concerns.

3.7.5 Reflection on Stories

There is an important difference between ‘emotionally meaningful’ stories as they are narrated and the performance of actually telling them out loud. Many of the stories are from the same context, involving traditions, family tales and historical narratives. However, two out of the seven digital storytelling workshops conducted in Scotland had professional storytellers as participants. Although the content of the stories was similar to that of the non-professional storytellers in India and Portugal, the professional storytellers’ style of narration was significant in this context. The professional storytellers presented the story with performance and acting, while the non-professional storytellers gave personal narratives of their stories. In line with Sandelowski (1991) the stories gathered from the participating communities can be categorised as descriptive. In ‘descriptive’ stories participants narrate their life stories and particular life experiences without any theatrical embellishments. Participants narrated two different types of stories, ‘first person stories’ and ‘second person stories’. ‘First person stories’ were stories experienced directly by the teller. However, ‘second person stories’, were stories passed through someone else such as a close family member or a friend. First person stories were observed to be passionate and felt authentic to the listener than the second person stories.

Methods such as story kit and digital storytelling workshop had written down stories. Even though the written down stories were thought to reach a larger audience they suffered disconnection from the teller. The use of more than one medium to narrate stories was seen to be useful as they allowed the stories to stay meaningful and reach larger audience. For example, the use of video recording helped to capture the unspoken nuances. This made the tellers knowledge more real to the listeners.

CHAPTER 4

Practice Analysis

4.1 Introduction

Chapter 3 discussed the methodology of this research, its design and, more specifically, the qualitative approach to research in the real world. Chapter 4 describes the participant responses to the story culture framework involving the three different research methods: field studies involving story interviews; digital storytelling workshops; and the story kit. In this chapter, I analyse and evaluate data collected from three participants, one from each of the three communities. I purposively chose the three people in question because they possessed the criterion of having participated in all three research phases and, therefore, in all three research methods.

This chapter reports on the way people responded to my story interviews, digital storytelling workshops and story kit. A short synopsis of my three chosen participants, namely Ram from India, Ana from Portugal and Jane from the UK, is followed by a focused description of their emotionally meaningful stories, each of which is developed through the chapter. These participants were chosen because they had utilised all three research methods and also because of the insights they provided in relation to my particular research methods.

4.2 My Response Analysis Process

Here, I analyse the responses obtained from my three purposively chosen participants. These responses helped me to ascertain whether my particular research methods were valid and what insights into the participating communities could be gained from the data. I reflect upon each stage of the study and demonstrate the application of my findings to my research questions. My research applied qualitative analysis to analyse data gathered through my story culture framework.

4.2.1 Field Study

To recap, the field study phase included observation and constructive conversations in the form of story interviews. These techniques helped me to understand my participants' cultural differences, socioeconomic issues and their perceptions of technology. During this phase, data were collected as photographs, video recordings and, predominantly, field notes, as well as in the form of answers to interview questions. Of the 53 participants in the field study phase, only 15 of them were comfortable with video interviews, the remaining 38 participants' responses to the story interviews being handwritten.

From the photographs taken during the field study phase in all three communities, I hand-picked 14 pictures for use in the story kit phase, incorporating them into the story manual. My intention in using the photographs from different fishing communities was to provoke my participants into recounting emotionally meaningful stories through the medium of images. The handwritten notes were transcribed and the video files were translated and then transcribed. All were then ready for qualitative analysis.

4.2.2 Digital Storytelling Workshops

My research illustrates a variety of research methods encouraging my participants to narrate emotionally meaningful stories through a creative lens and also utilise auto ID technology to create digital storytelling. The technique behind auto ID technology acknowledges and extends previous work by TOTeM (Leder et al., 2011). To reiterate, I requested each participant to narrate emotionally meaningful stories inspired by the photographs, objects or artefacts they possessed. Then, I collected, stored, and tagged data such as photographs, video recordings and handwritten texts through QR code. I scanned the photographs I had collected as jpeg files, I stored video recordings as mp3 files and handwritten texts were translated and transcribed. These files were uploaded to the TOTeM website (talesofthings.com) into their respective accounts created during the workshops. Thus, I gave the participants the opportunity to engage with research methods incorporating digital technology such as auto ID.

Building on the TOTeM approach to linking online content to physical objects through QR code I created a unique QR ID for each participant's object and photographs. I then used these as a way of replaying their responses using an iPod Touch given to the participants during the workshops.

4.2.3 Story Kit Method

The data collected through the story kit method consisted of various formats and each was processed individually. Photographs collected from the disposable cameras were developed and scanned as jpeg files, audio recordings collected through the sound recorder were stored as mp3 files and were then transcribed and translated and, finally, the handwritten texts were transcribed and translated.

I analysed the stories collected from the story kit method using the story narrative analysis method. From the analysis, I gained insights into the effect of the activity on my chosen participants from each community. I elaborate on the findings, explain the transcript data and determine the effectiveness of my research approach.

4.2.4 Overview of Research Practice

My analysis of the relationship between an object, its narrator's (owner's) story narrative and the listener or audience transcends the object's material qualities, including its functional abilities and aesthetic appearance. In line with Moksha (2013), I agree being a participatory researcher changes the way people respond to a given activity or task. I have mitigated this by my presence and absence while deploying research methods. During the research, I observed my presence as researcher in a controlled environment influenced the participants' answers far more than in an uncontrolled environment, such as during the story kit method, where I had not been physically present. By 'controlled environment' I mean the physical research location where I conducted the interviews and workshops. Here, I could control the research method and activity sequencing. The converse is true regarding the uncontrolled environment, in which I employed the story kit method. Here, I had no control over the direction of the research. My participants had the choice to respond to the questions they wished to answer and, alternatively, to decline to answer questions they did not wish to respond to.

During some of my research phases, the digital storytelling workshops, for example, I obtained positive participant responses, and the participants enjoyed their involvement in the research activity. This is evidenced by the feedback sessions which followed the deployment of each of the three research methods. Each participant responded in a unique way. Nonetheless, my participants did voice some anxieties at different stages of the research and these will be discussed further later on in this chapter.

The responses for each method gave me numerous data and contained a wealth of stories addressing a range of perspectives. The data were in the following formats: (1) written text; (2) video recordings; (3) audio recordings; and (4) artworks. There were 218 photographs, 42 video interviews, 260 written texts, 30 audio files and 2 artworks.

I employed qualitative analysis to examine every piece of data collected through my use of PAR methodology. In employing these design methods with participants from different age groups and different cultural backgrounds, I noted that responses reflected existing socioeconomic problems, technology concerns and design theories in relation to the auto ID technology. In this chapter I isolate the findings from my three chosen participants, and I conduct a comparative study of their story narratives obtained as a consequence of each research method.

Elements of my participants' individual perspectives are intended to be portrayed in this research in a concise and equally weighted manner. Figure 4.1 evidences the response distribution of the three chosen communities.

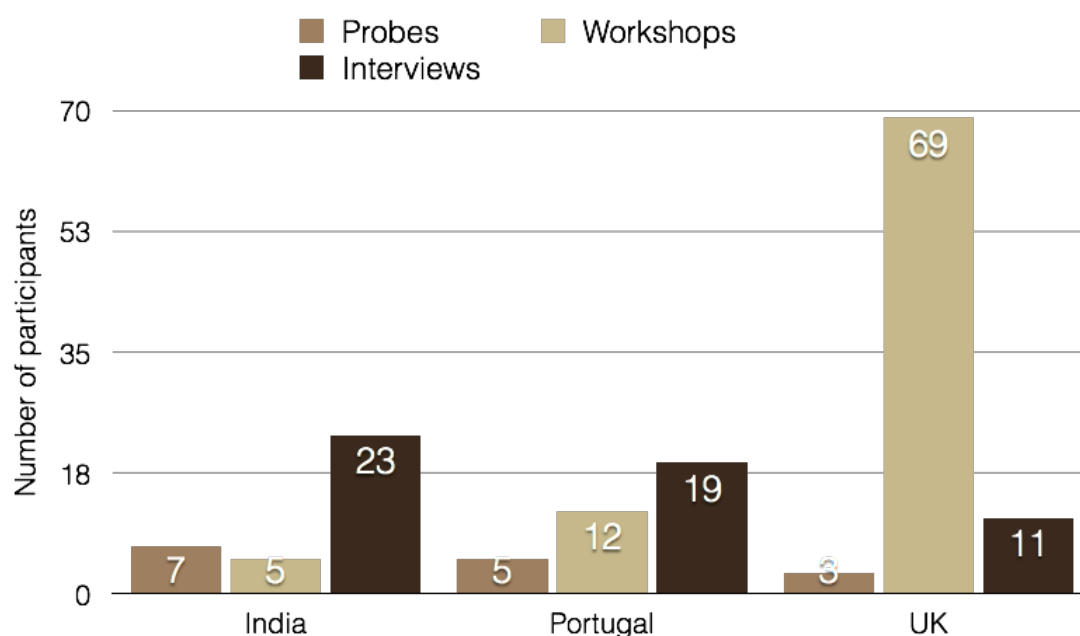


Figure 4.1: Research response distribution between the communities in India, Portugal and the UK.

4.3 Story Narrative Analysis

Based on Griffin (2014) story narrative analysis technique, the stories collected using PAR methods such as the story interview, digital storytelling workshops and story kits are analysed through three main questions (see below) to demonstrate how narratives can be interpreted and how they can be co-created by both the participants and the researchers. The analysis shows the degree to which people assign meanings to places, objects, actions and changes that happen in their lives over time. The analysis focuses on the way participants create and use emotionally meaningful stories to interpret their past 'unforgettable' experiences. Figure 4.2 illustrates the research analysis structure.

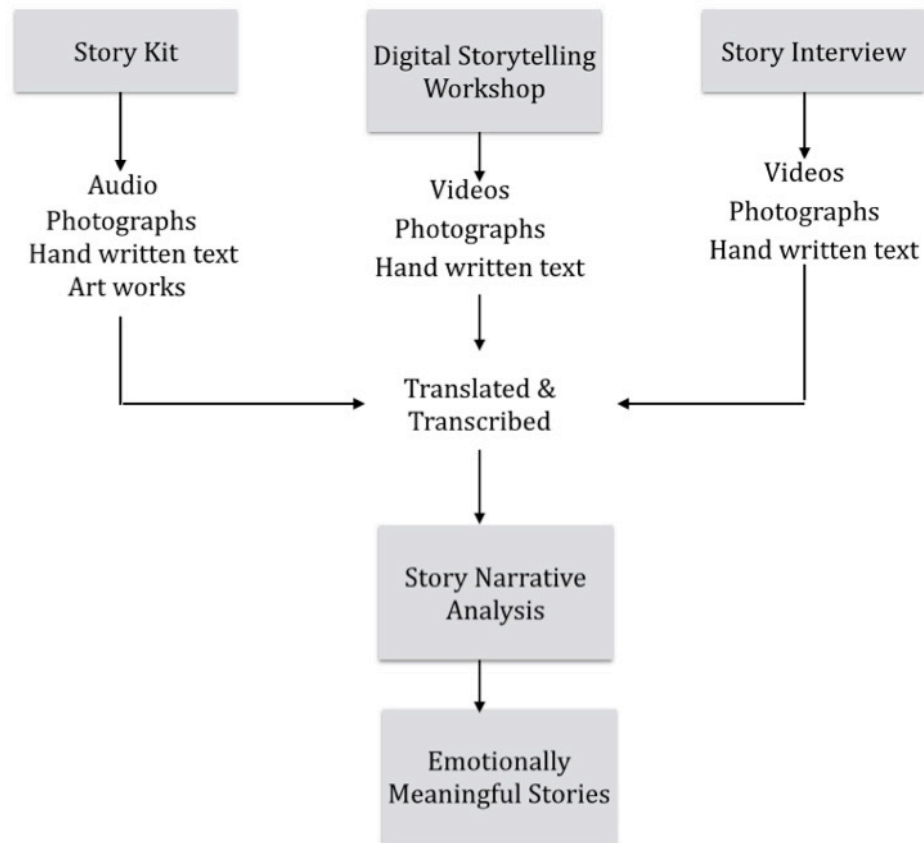


Figure 4.2: Research analysis structure.

In general, the analysis mainly looks at the stories collected from Ram, Ana and Jane initiated by objects and photographs. Specifically, the intention of the story narrative analysis is to elicit emotionally meaningful stories by answering the following questions (Figure 4.3):

1. Why is this story important to the narrator?
2. What information does the story convey? and
3. What feelings or emotions does the story narrative convey?



Figure 4.3: Story narrative analysis.

Emotionally meaningful stories evoke emotions within both the narrator and the listener. The analysis demonstrates the importance on the conversation between the participants and also the teller and the listener. In the analysis, for each story narrated by the narrator I analyse the story in relevance to the three questions shown in Figure 4.3 to understand the importance, information and emotions within the stories.

As Snowden (2000) points out:

Stories can be a very powerful way to represent and convey complex, multi-dimensional ideas. Well-designed, well-told stories can convey both information and emotion, both the explicit and the tacit, both the core and the context.

(Snowden, 2000, p.217)

Snowden (2000) states that a well-told story conveys both information and emotions. Stories are a way to express our emotions and talk about the things we value the most. My research reflected the latter point: my participants were inspired by their personal

objects, as well as photographs, to generate emotionally meaningful stories related to their unforgettable memories and/or past experiences. A common theme that emerged across all of the responses from the 169 participants was the narration of life experiences.

During my research, I observed the participant groups supported and encouraged each other's stories, whether tragic or happy. I also noticed stories from past memories were usually linked to one person, a group of people, a place or an object. According to Gilchrist, Bowles and Wetherell (2010), the connections formed through stories and memories contribute to the development of shared identity within communities.

All the stories collected during my research contained evaluation words or phrases, such as: 'It was good'; 'I really enjoyed it'; 'It was sad'; 'We felt happy at the end'; or 'It was an adventurous experience'. I noted throughout my work that such elements were common to all three communities, indicating my participants had their own opinions of their stories, which they delivered within a greater personal context.

4.3.1 Can Photographs Tell us Emotionally Meaningful Stories?

As the saying goes: 'A picture is worth a thousand words.' Akhter (2009) states that photographs tell powerful stories about those who have no voice and these stories can be moving and emotional. Golder (2008) states that photographs can represent family, friends, travel and special events; such photographs usually have an emotional connection to their owners. On the other hand, Wang (2005) used photographs as an action research tool to represent a person's needs and requirements in the community. In my research, I review photographs to explore story narratives by asking the following questions that fall into the emotive category: (1) content (what?); (2) purpose of creation; (who, when, how?); and (3) interpretation (why?) (Hall et al., 2007, p.3). By asking these questions, I identified why my participants took these particular photographs and what they actually represented.

Over the 30-month period I engaged a total of 169 participants in the research. Out of 23 participants in India, 2 participated in all 3 research phases, out of 19 in Portugal 3 participated in all 3 research phases and out of 69 in the UK, 1 participated in all three

research phases. I was required to narrow down the participants' responses and, therefore, I selected three participants, one from each community, from the total of 169 participants.

Italicised quotations provided in this chapter represent data gathered from the participants in the chosen communities during the interview sessions. I translated and transcribed verbatim all the data gathered throughout the research. (Appendices B, C, D and E).

4.4 Synopsis of Individual Responses to the Research Methods

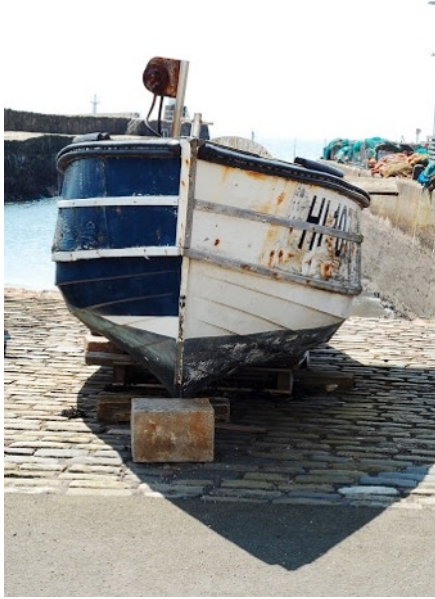
I present a synopsis of each participant's narrative response elicited from the three research methods representing the three research stages. I discuss some unique examples pertaining to each of the three communities. For the purposes of anonymising the data, I altered my participants' names.

4.4.1 Ram's Responses

Ram has worked as a fisherman in Rameshwaram in India for 22 years. Coming from a fishing family, he and his wife were introduced to me by the mediator (head of the village) in Rameshwaram. At first, Ram and his wife did not wish to participate. Following a brief explanation of the project and its primary objective, Ram participated in the interview session in December 2009, my digital storytelling workshop in Rameshwaram on January 2010 and in the story kit distributed by the mediator during December 2011.

I approached Ram and his wife near the Rameshwaram harbour where they were working near their boat among other community members after returning from sea. When the interview session began Ram expressed privacy concerns. He was hesitant to share his personal experience in front of the other participants. I took Ram and his wife closer to their boat (a semi-private area) where they preferred to continue their work of untangling their fishing net. Their work continued uninterrupted as I interviewed them and they felt secure in their comfort zone.

Ram's Response to the Story Manual



The boat in the picture looks like it's partly damaged and has been repaired now. The boat looks very similar to ours.

(Ram, Participant 1, story kit, India, Appendix B, page 245, line 9)

Figure 4.4: Depiction of the fishing community in Anstruther, UK.

In this example, Ram was looking at an image (Figure 4.4) of Anstruther, the UK community, and is simply describing what he interpreted from the photograph. He also mentions who or what is involved.

Ram's Response to the Digital Storytelling Workshop

Ram attended my digital storytelling workshop along with five other participants. As instructed, he brought a fishing object – a fishing net float – to assist him in narrating his story. He recounted a story remembering his father and how he had taught him to fish when he was a young boy. The object made him remember the times when he was new to fishing. He often used to be seasick when they were out fishing at sea together, and it took him years to overcome this. This made another participant laugh and it opened up a conversation between them. Even though Ram began the story by addressing their challenging lifestyles, when he recollected his memories from his past experiences his peers related to his story and contributed positively to it. Furthermore, while Ram was looking at his object during the workshop session, he narrated an emotionally meaningful story. See Figure 4.5.



Figure 4.5: Ram's fishing object in Rameshwaram, India.

This object reminds me of my day-to-day struggle to survive in the sea. I'm a fisherman in Rameshwaram. Even though fishermen here face a lot of problems due to the India/Sri Lanka border issues, we continue to do fishing over many generations. My father taught me to fish and this is something I enjoy doing every day. He used to take me fishing in the sea when I was eight years old and I often used to be seasick. It took me years to get out the seasickness.

(Ram, Participant 1, digital storytelling workshops,
Appendix E, page 303, line 1)

The story narrated by Ram initiated a conversation between Ram and Participant 3. Participant 3 was also a fisherman living in the Rameshwaram fishing community. Like Ram, Participant 3 also comes from a fishing family. During the workshop, it became obvious that Ram and Participant 3 knew each other and they seemed comfortable talking during the session.

Yes, I was very similar too. My brother taught me fishing and I sometimes go to the sea with him, even now I get seasickness.

(Participant 3, digital storytelling workshops,
Appendix E, page 303, line 7)

The story narrative analysis questions form the structure of my understanding of the stories collected. To understand and highlight emotionally meaningful stories from Ram's responses I used the following questions:

(1) Why is this story important to the narrator?

This story is important to Ram because his object encouraged him to recollect his memory of his father. The story is in fact an unforgettable experience for Ram, and happened when he was eight years old.

(2) What information does the story convey?

The story conveys the socioeconomic concerns evident in the Indian fishing community, and the fact that within the community fishing is a family practice and has been passed from generation to generation.

(3) What feelings or emotions does the story narrative convey?

In my interpretation, the story expresses hope and happiness.

Unlike with the story kit method, Ram's object encouraged him to narrate a personal recollection. The physical presence of people during the workshop also played an important role in provoking the story. From this particular response, the author (Ram) and the listeners (his peers within the community) gain a sense of familiarity and happiness in hearing about the storyteller's life.

Ram felt the digital storytelling workshop was something entirely new and he acknowledged its usefulness:

Such a platform would be useful to share stories and information; it could also be a place where people discuss their issues and also could find solutions. You know, something like that would be good.

(Ram, Participant 1, digital storytelling workshops,
Appendix E, page 303, line 32)

However, Ram considered technology to be cumbersome, although he discovered narrating a story with the help of his personal object connected him with his object personally and emotionally.

Ram's Response to the Story Kit Method

Figures 4.6 and 4.7 were taken by Ram as part of the story kit method using a disposable camera.



Figure 4.6: Ram's response to the question: What do you value most?



Figure 4.7: Ram's response to the instruction: Take a picture of your community.

These photographs taken by Ram represented what he perceived as an emotionally meaningful story depicted by a photograph.

Figure 4.6: Reflecting back on my analysis questions:

- (1) Content: The picture illustrates Ram's child sitting among the fish and looking at the camera.
- (2) Purpose of creation: the picture was taken by Ram as part of the story kit method to represent something or someone he values the most.
- (3) Interpretation: the content of the photograph reflects the fact that he values his family the most.

Figure 4.7: Reflecting back on my analysis questions:

- (1) Content: the picture shows a group of fishermen weighing the fish they had caught from the sea and it represents a day-to-day activity in Ram's fishing community.
- (2) Purpose of creation: the picture was taken by Ram as a part of the story kit method to represent what for him is meant by a community.
- (3) Interpretation: Ram's photograph reflects fishing and people involved in fishing as his community.

What are the Emotionally Meaningful Stories from Ram's Responses

Ram conveys both emotion and information in his stories. Through his unforgettable story in the digital storytelling workshop and his photographs he engages his audience and builds an emotional connection.

It was noted from Ram's response to the story kit method that narrating stories from photographs provided did not, initiate emotionally meaningful stories compared to the digital storytelling workshop. However, by introducing an object in the digital storytelling workshop session, Ram was prompted to produce what he interpreted as an emotionally meaningful story. The pictures he took himself using the disposable camera as a part of the story kit method strongly conveyed emotionally meaningful stories to the viewer.

4.4.2 Ana's Responses

Ana lives in the Azores, Portugal, and she comes from a fishing family. Her father, husband and sons are fishermen. She weaves nets and helps her family in their daily fishing activities. I was introduced to Ana by the mediator from the University of Azores during my field study visit. Ana was keen to be involved in the research study and she participated in the interview session. Later, I invited her to participate in the digital storytelling workshop conducted in the Azores during October 2011, involving 11 other participants. Working with the mediator who would be distributing the story kits in the Azores community, I ensured a kit would reach Ana in particular.

Ana was unhappy about her interview session being video recorded. To make her feel comfortable in participating in the study I took handwritten notes to record her story. Even though Ana showed interest in my research when approached through the mediator, she was reluctant to participate at the beginning. When asked for her reasons she replied she had never been part of any research activity before. However, towards the end of the interview session Ana was comfortable in answering my questions in the presence of the mediator, and he helped to translate my questions from English to Portuguese and vice versa for Ana's responses. Ana even expressed interest in being involved in possible future research activities. She was contacted again through the mediator and she attended the digital storytelling workshop with 11 other female participants from the fishing community.

Ana's Response to the Story Manual

Although Ana expressed no interest in the auto ID technology she did indicate her interest in the story kit method and provided emotionally meaningful stories using the pictures given in the story manual. It was noted that the stories collected from Ana described memorable personal experiences with personal associations and emotional meaning (Figure 4.8).



Figure 4.8: Depiction of fishing community in Rameshwaram, India.

This image makes me remember my dad when he used to come home back from sea with fish to sell. He always had a smile, which I can see here.

(Ana, Participant 2, story kit,
Appendix C, page 258, line 2)

The story narrative analysis questions form the structure of my understanding of the stories collected. To understand and highlight emotionally meaningful stories from Ana's responses I used the following questions:

(1) Why is this story important to the narrator?

This story is important to Ana because the photograph helped her to recollect her experience of her father as a fisherman and the fact that he enjoyed being a fisherman.

(2) What information does the story convey?

The story conveys the fact that fishing is a family tradition in Ana's family.

(3) What feelings or emotions does the story narrative convey?

In my interpretation Ana's story expresses happiness.

Ana's Response to the Digital Storytelling Workshop

Ana attended my digital storytelling workshop organised in the local community centre in the Azores. Ana did not wish her story to be video recorded during the workshop, so photographs and handwritten notes were used to document it instead. Figure 4.9 illustrates Ana holding her object and narrating her story.



Figure 4.9: Picture of Ana holding her object to narrate her story, Azores, Portugal.

I made this object when I was 16 for my father. This is a net to catch crab. I remember the days when he went to the sea even during bad weather. It can be very dangerous, but he will risk his life to feed his family. I always envied him. He was a brave man.

(Ana, Participant 3, digital storytelling workshops, Appendix E, page 305, line 23)

Reflecting back on my story narrative analysis questions:

(1) Why is this story important to the narrator?

The story is important to the narrator because the object triggered her memories about her father. Recollecting her past experience, Ana narrates an unforgettable story about her father.

(2) What information does the story convey?

The story conveys the information that fishing is a family practice in their family because Ana built the crab trap for her father. The story indicates that as a family

they support each other by making or repairing fishing objects. The story also conveys that Ana has craft skills which has been passed from generation to generation.

(3) What feelings or emotions does the story narrative convey?

In my interpretation, the story expresses courage and affection.

During the digital storytelling workshop Ana expressed her view that the auto ID technology was complex, and voiced her community's reluctance to use such technologies due to recent government legislation. Anderson, Carvalho, Contono and Virtanen (2012) and Pato, Neilson and Sousa (2011) state that the legislation passed by the Portuguese government has made certain technology, navigation equipment for example, mandatory for fishermen in the Azores coastal community. Ana also commented on the fact that such complex technology has made present life in her community more complicated. She added that the technology has, in fact, reduced face-to-face communication and human contact:

I find the technology cumbersome and confusing. If this device (mobile phones) with this technology (auto ID technology) allows me to share information through stories instantly, then it should be simple and straightforward.

(Ana, Participant 3, digital storytelling workshops,
Appendix E, page 306, line 9)

The above quotation indicates Ana's unwillingness to adopt the technology. Finding it difficult and cumbersome, she felt it might only hinder everyday lifestyles in her community. Such feedback reflected my observation that, on some occasions, participants such as Ana were indeed quite specific in their viewpoints.

Ana's Response to the Story Kit Method

These two photographs were taken by Ana during her participation in the story kit method using a disposable camera. See Figures 4.10 and 4.11.



Figure 4.10: Ana's response to the instruction: Take a picture of something you are proud of (could be a person or object).



Figure 4.11: Ana's response to the question: What object do you value the most?

Figure 4.10 Reflecting back on my analysis questions:

- (1) Content: the picture shows Ana standing next to her boat against a backdrop of the harbour.
- (2) Purpose of creation: the picture was taken by Ana as a part of the story kit method to represent something (an object) she is proud of.
- (3) Interpretation: in my interpretation, Ana views her boat as an asset and fishing is something she 'is proud of' as it is her family tradition.

Figure 4.11 Reflecting back on my analysis questions:

- (1) Content: the picture depicts family photographs in Ana's home.

(2) Purpose of creation: the picture was taken by Ana as a part of the story kit method to represent an object(s) she values the most

(3) Interpretation: in my interpretation, the family portraits in the photograph represent Ana's pride in her family and identity.

What are the Emotionally Meaningful Stories from Ana's Responses?

Ana's story conveys emotions such as courage, pride and affection. In her story, Ana gives subtle details, such as 'bad weather' and 'very dangerous' so that the reader can make his/her own interpretation of what she is saying.

Ana shared some very good personal stories in my research. The stories she narrated in my digital storytelling workshop with the help of her fishing object, her story manual and the photographs she took as part of the story kit method did indeed reflect emotionally meaningful stories.

4.4.3 Jane's Responses

Jane lives in Anstruther, Scotland, and she comes from a fishing family. Jane and her partner are artists in Anstruther. Jane came across the digital storytelling workshop invitation in the local fisheries museum and attended the workshop conducted in Anstruther in June 2011 together with 12 other participants. Following her interest in my research study I invited her to participate in my story kit method distributed to the participants in December 2011. A mediator was not involved in this particular example.

Jane's Response to the Story Manual

Jane felt both the digital storytelling workshop and story kit methods incorporating the auto ID technology helped her narrate emotionally meaningful stories. The stories Jane narrated through both these methods were categorised in relation to memories, associations with other people, places and experiences. Her stories were triggered through photographs (Figure 4.12).



Figure 4.12: Depiction of fishing community in Rameshwaram, India.

Like my mother when she was making or mending nets she appears very content within herself. Just like any other craftsperson. When the hands are busy and the minds can rest what more do we need.

(Jane, Participant 4, UK, story kit,
Appendix D, page 284, line 11)

The story narrative analysis questions form the structure of my understanding of the stories collected. To understand and highlight emotionally meaningful stories from Jane's responses I used the following questions:

(1) Why is this story important to the narrator?

The story is important to the narrator because the image enables her to recollect her past experience involving her mother who did similar mending to help with fishing.

(2) What information does the story convey?

The story conveys Jane is an artist and comes from a family of fishermen.

(3) What feelings or emotions does the story narrative convey?

In my interpretation, the story expresses satisfaction.

Jane's Response to the Digital Storytelling Workshop

During the digital storytelling workshop conducted in the Scottish Fisheries Museum in Anstruther, Jane did not bring her own fishing object. Instead, she chose a photograph within the museum's collection to narrate her story (Figure 4.13).



Figure 4.13: Jane's object used in the digital storytelling workshop, Anstruther, UK.

My family is not into fishing anymore. But my father used to bring me to the fisheries museum to tell me the story of my great uncle. The person in the photograph is my great uncle who was a fisherman; he worked in Penzance, a small town in Cornwall. He was killed during the war and he was buried in the same place, Penzance.

(Jane, Participant 2, digital storytelling workshops,
Appendix E, page 307, line 33)

Reflecting back on my story narrative analysis questions:

(1) Why is this story important to the narrator?

The story is important to the narrator because the photograph triggered her memories about her father telling her stories of her great uncle who was a fisherman. Recollecting her past experience Jane narrates a story passed on from her father.

(2) What information does the story convey?

Even though Jane comes from a fishing family, her story indicates they are not fishermen anymore. The story conveys information about Jane's great uncle, a fisherman in Cornwall who died during the war. The story also conveys that Jane has inherited creative talents from her mother.

(3) What feelings or emotions does the story narrative convey?

In my interpretation, the story expresses sorrow and grief.

Jane had already read about QR code and was interested to know how to share her stories through auto ID technology. A demonstration of auto ID technology at the digital storytelling workshop was followed by an in-depth discussion on how the technology could be adopted for everyday living. Jane made an important comment, reflecting the fact that the technology could be used in conjunction with her artwork and gave me a digital copy of her work along with the completed story kit. She proposed:

What if I own a QR reader in my house and the same QR code could be placed in the fisheries museum, next to the artefact. All I have to do is upload a story to the QR code and people who scan the same QR code at the museum can listen to the story instantly.

(Jane, Participant 2, digital storytelling workshops,
Appendix E, page 308, line 31)

Jane's proposition is noteworthy because it is a clear articulation of a developing, speculative design. The above quotation is a perfect example of her engaging with the participatory design process and generating insights into its development. The ideas were developed from initial studies conducted using the semi-structured interviews and workshops were further developed by the participants during the story kit phase.

Jane used her own mobile camera to take all the photos instead of the disposable camera provided as part of the story kit method. When asked for her reasons, Jane replied it was for convenience purposes. This was out of line with my overall design methods and the

story kit method in particular. The implication of this for my research was that all her pictures were focused close to the subject with anonymity as shown in Figures 4.14 and 4.15, unlike photographs taken by other participants (Figures 4.7 and 4.10) where the framing covered a wider context with more information.

Jane's Response to the Story Kit Method

These two photographs were taken by Jane during her participation in the story kit method using her own mobile camera. See Figures 4.14 and 4.15.



Figure 4.14: Jane's response to the instruction: Take a picture of yourself.



Figure 4.15: Jane's response to the question: What do you value most?

Figure 4.14 Reflecting back on my analysis questions:

(1) Content: the picture shows Jane looking away from the camera with a backdrop of pottery wares.

(2) Purpose of creation: the picture was taken by Jane as a part of the story kit method to represent herself.

(3) Interpretation: in my interpretation Jane reflected anonymity in her picture. She also intentionally used pottery ware in the background reflecting her identity.

Figure 4.15 Reflecting back on my analysis questions:

(1) Content: the picture shows one of Jane's family members holding his pottery ware in his hand.

(2) Purpose of creation: the picture was taken by Jane as a part of the story kit method to capture an image of something or someone she values the most.

(3) Interpretation: even in the second picture Jane still reflected anonymity of the person. In my interpretation, the photograph represents her esteemed value of both the person and the work portrayed in the picture.

What are the Emotionally Meaningful Stories from Jane's Responses?

Jane's stories contain emotions such as satisfaction, sorrow and grief. In my research, Jane shared emotionally meaningful stories through my story kit method and digital storytelling workshops. Even though she was not directly related to fishing as a trade, the objects and photographs helped her to recollect stories passed on to her from her father. Her photographs taken using her own mobile camera reflected her identity and interest by depicting her pottery ware in the picture.

4.5 Overall Findings

Analysis of my participants' responses focused on two major concepts: (1) my participants' perceptions of emotionally meaningful stories during the three research stages – story interviews, digital storytelling workshops and the story kit; and (2) my participants' perspectives on the idea of digital storytelling through their use of auto ID technology.

A common finding that emerged across all of the responses from the 169 participants of different age groups was that most of the participants considered their stories from adulthood (age 20–35) to be significant.

An important finding in my research was the crucial role of mediators within the chosen communities. The mediators contributed significantly towards building a unique sense of trust between my participants and myself as researcher during all three research stages. Their involvement in the workshops for translation purposes and as distributors of the story kits to the appropriate participants is reflected in both the qualitative and quantitative findings of my research.

During the field study phase and the digital storytelling workshops phase my participants' responses tended to reflect the socioeconomic problems within their respective communities. This was an interesting finding, although it did not reflect my research question. However, with the use of my story culture framework I was able to reorient my participants towards the foci of my research.

Another significant finding at the story interview stage was that the participants' stories were personal and private. Yet, during the subsequent stages – the digital storytelling workshops and the story kit – when my participants were utilising objects or photographs, their descriptive responses shifted to a shared context connecting the participants with people who were emotionally close to them.

I was a fisherman in Pittenweem for the past 35 years. I was a fisherman all my life and it was a family tradition.

(Participant, UK, field study,
Appendix E, page 300, line 29)

The same participant, when approached during the digital storytelling workshop session, commented:

This object reminds of my uncle who was a fisherman like me in Pittenweem. He used to take me in his boat some days and tell me great stories about fishing. I always loved the boat rides.

(Participant 6, UK, digital storytelling workshops,
Appendix E, page 308, line 10)

To summarise, the findings from each research method demonstrate my participants' responses. The participants cited the role of objects as catalytic for the generation of emotionally meaningful stories illustrating their intimate relationships. This particular context of introducing an object to elicit a story narrative helped my participants to move away from prior assumptions of what technology meant to them.

I use my mobile phone all the time, to make calls, text people and sometimes for mobile banking. But I have never thought of using this as a means to share my personal stories. It helped me to think about ways forward.

(Participant 3, UK, digital storytelling workshops,
Appendix E, page 309, line 1)

However, it is important to note from my three specially chosen participants, Ram, Ana and Jane, that Ana still preferred to use paper-based methods over digital technology, while Ram and Jane expressed their interest in the possibility of pursuing digital technology during the workshops. However, this was not reflected in the story kit phase when the participants were given QR code attached to story tags. Ram did not use the QR code to narrate his stories and Jane was the only participant out of 15 responses from the story kit phase who scanned the QR code and attempted to narrate a story. Thus, while my digital storytelling method had indeed accomplished a transformation of the majority of my participants' *initial* perceptions of technology, it had not completely persuaded them to adopt technology in their day-to-day lives.

4.5.1 Research Outcomes

My research methods encouraged my participants to reflect to different degrees on the possible usefulness of technology within their respective communities. For instance, Jane

immediately perceived a possible link between digital storytelling and her artwork (Figure 4.16). Not only this, she also realised by disseminating her stories through digital technology she could share her personal experiences with other artists. Jane had found a way of preserving her family's creative tradition digitally and she gave me a picture of her artwork along with the QR code to show *'how she would like to connect to people in the future'*, thus demonstrating the use of QR code in her day-to-day activity. Jane's response demonstrates the value of my research. It inspired some participants to contemplate how technology used in storytelling can help to maintain family traditions while simultaneously promoting social connections.



Figure 4.16: Artwork by Jane, showing the use of QR code on her lino print.

Note: This was produced after participation in the digital storytelling workshops. (Source: <http://www.butterwyndpottery.co.uk/search?updated-max=2013-01-15T23:40:00Z&max-results=7>)

4.5.2 Digital Storytelling Workshops – Technological Concerns

In conducting the digital storytelling workshops I instructed participants to bring their own personal objects they could use to prompt stories. Most participants used family-owned objects passed from generation to generation. The stories triggered by these objects were considered to have sentimental value. However, these stories were sometimes insufficient or imaginary; some details were lost or forgotten in time and they lacked adequate information.

During the digital storytelling workshops I noted auto ID technology in particular was not welcomed by every participant, particularly those from India and Portugal. These participants seemed especially preoccupied with the complex nature of the auto ID technology and were uneasy about using it.

In line with Lim's (2012) findings, my research indicated older participants believe today's technology divides them from other community members. On the other hand, those aged 25–50 countered that their sociability had actually increased as a consequence of it:

I try to connect to people by smiling as much as possible to everyone and follow this when appropriate with some lighthearted conversation. This somehow develops into having coffee together as an extension of the initial conversation. If I write to people I usually write a postcard or letters. I'm slow to switch to digital technology and prefer face-to-face approach (not Facebook).

(Participant 1, UK, age 64, story kit,
Appendix D, page 281, line 17)

Concerns about auto ID technology were quite specific. My participants were primarily apprehensive regarding privacy. Some of them preferred not to share their video or audio recordings in a public forum. One elderly participant from the UK faced problems accessing his respective accounts. This could be linked to issues concerning participants' lack of ease in using technology – difficulty in keeping track of the uploaded recordings or remembering their usernames and passwords. Specifically, security was a concern for my participants because they felt uploading audio or video recordings online, in which they talk of their personal and potentially valuable objects or artefacts, would render

them a target for thieves. However, the privacy control on the TOTeM website allowed the participants to control their privacy settings, letting them share the recordings only with a preferred group. Once I had explained this to the participants, they were comfortable in sharing their recordings.

My participants also expressed cost concerns. Not all of them could afford smart devices or a computer to use the auto ID technology in their everyday lives. Some participants from India and Portugal and elderly participants from the UK did not have a fixed income. They had concerns about whether they could afford maintenance and support for such technology.

Additional problems concerning technology innovation within the Portuguese and Indian communities were identified. Participants were instructed by their local authorities to use GPS on their fishing boats. This was one example of the difficulties they encountered from lack of guidance on utilising government-implemented modern technology in their daily activities. Moreover, their government had compelled community members to use modern technology needlessly and this had caused some participants to fear and dislike using it. Current problems were discussed in relation to specific technologies. This opened up new discussions on whether these digital technologies are necessary and, if they are, how the users could adopt them more effectively.

I'm not comfortable with technology anymore. When the government made technologies in boats compulsory they did not understand the practicality of using technology in an open boat where natural occurrences such as rain could easily spoil the device. I will not encourage technology that will bring hindrance to our everyday life.

(Ana, Participant 3, digital storytelling workshops,
Appendix E, page 306, line 13)

In the UK, I discussed technology with participants who were storytellers by profession, and who attended the digital storytelling workshop. The workshop activity led to discussions about how their perception of digital storytelling has changed since the development of technology, and how it has been adapted through tagging technologies

such as QR codes. Some people thought there was the potential for there to be a real use for these tagging technologies (QR codes) in digital storytelling, yet there were those who did not perceive its relevance to the storytelling world:

The technology seemed cumbersome but it looked easy when someone else does it. At the moment I am concentrating on becoming more skilled in developing direct and straightforward storytelling techniques, after a career which has involved many different art forms (art, writing, drama, puppetry, music, etc). Taking on digital storytelling at this stage is perhaps too soon. However, I am very open-minded about it, and with encouragement, could become keener to be involved.

(Participant 4, UK, digital storytelling workshops, Appendix E, page 309, line 4)

The digital storytelling workshop conducted in India had only five participants who attended with the help of the mediator. Only one out of the five participants owned a smartphone and showed keen interest in the technology. Others, however, were interested in the activity side of the method, such as narrating the story, recording the videos and listening to stories through an iPod. When I asked my participants for their thoughts regarding the workshop, one said he was not keen on the digital technology, but had enjoyed the process and viewed the workshop as an activity-based approach to engage his community. This participant states:

I am not a fisherman, but I come from a fishing family. I have lived in Rameshwaram all my life and also feel part of the community. I don't think the technology can particularly help. But we do not have group activities as such but having activities like this workshop run locally can help keep our community active and could make a difference.

(Participant 2, India, digital storytelling workshops, Appendix E, page 304, line 13)

Other difficulties faced while accessing stories from the TOTeM website were: (1) tracking uploaded video recordings on the website; (2) creating an account; (3) remembering usernames and passwords for access. Such issues were resolved towards the end of the series of workshops. I received critical feedback from my participants and I realised the research methods I had used with them had played a role in helping them reflect on whether or not such technology is useful in their everyday lives.

The story kit method followed the digital storytelling workshops. Out of the 30 kits distributed, there were 15 responses. Among the 15 responses only one UK participant attempted to scan the QR code for telling her story digitally. This outcome shows such technology did not encourage participants to do this for story narration. Such an outcome served as a reminder that new ideas like auto ID technology were considered unconventional among the participants.

I discovered the benefit of working with communities is being able to see and understand the impact of my research during face-to-face communication. I also noted digital storytelling workshops form an effective platform from which to observe participants using digital technology, especially in relation to different age groups. Older participants of 60 years of age or more expressed interest in narrating stories without the involvement of digital technology; however, younger participants under 60 were interested in narrating stories and exploring digital technologies simultaneously. One of the common concerns expressed during the workshops was that older participants felt the text on the mobile screens was too small to read.

4.6 Reflections

This chapter reviews how PAR methodology was developed and deployed within three participating communities. It also accommodated objectives 4 and 5 from my list:

4) To explore the extent and limitations of auto ID technology in generating emotionally meaningful stories.

5) To analyse and evaluate the effectiveness of my story culture framework in generating emotionally meaningful stories using story narrative analysis.

4.6.1 Reflection on the Story Kit Phase

The story kit helped to create a rich collection of stories from the participants. The participants were influenced by the method to consider different forms of capturing stories, such as handwritten text, audio recordings, visual images and QR codes, and this provided me with a range of detailed perspectives of the participants' life experiences.

According to data (Census of India, 2001) Rameshwaram has an average literacy rate of 48%. This was low compared to Scotland (73.3%) (Clair, Tett and Maclachlan, 2009) and Portugal (94.5%) (UNESCO Institute for Statistics, 2013). This literacy rate was evidenced in my participants' handwritten stories, especially in the story manual section. Possibly, a non-written story design approach would have encouraged more of my participants to be fully involved in my research. This hindered the participants from conveying emotionally meaningful stories.

My contextual review of the literature reveals distance research methods such as probes generally had a turnaround period of between 1–8 weeks for their return (Table 3). In my research, it took between 14–20 weeks for me to receive my participants' responses to the story kits. Of the 10 story kits sent to India, 7 were returned to me within 10 weeks. Of the 10 story kits sent to the Azores, 5 were returned to me within a period of 12–14 weeks. However, with regard to the UK, even though only 3 kits out of 10 were returned, they only took 4 weeks to arrive. The return rate and timeframe of my story kits in the UK was in line with other comparable studies (Mamykina, Mynatt and Kaufman, 2006). Although the distribution of story kits was aimed at engaging participants who had already been

involved in the story interview and digital storytelling workshops phases, I had minimal control because the mediators in India and Portugal distributed the kits. In these cases, the story kits were distributed to mostly alternative participants. It was necessary to be flexible with participants due to the difficulty in recruiting them in the first place and the limited alternatives.

In the process of testing the story kits within the different cultural contexts of these communities there were a few problems with regard to maintaining my participants' interest in completing them. Out of 30 kits sent to the communities 15 were returned. Two reasons for non-return could have been distance, and the fact that the researcher was not present during the process. This meant the participants had a lack of belief in my research. Possibly, some participants did not believe my research could make a difference to their lifestyles, or they were not able to visualise the outcome, so they did not try to connect. In this instance it can be said the perception of connectivity was crucial. Out of the 15 kits received, 2 of the ones from India were incomplete, and some images taken using the disposable cameras were dark because the participants had forgotten to turn on the flash. Concerns with regard to the story kit method were the time lapse between the kits being distributed and their return, and the accuracy of data. Working with cross-cultural communities meant the completed kits arrived at different times, making it difficult to evaluate them concurrently. One kit from India was half complete with poor data making the translation difficult. Such inaccuracies and time delays were major concerns in adapting the story kit method.

Supplementing the work of Crabtree et al. (2003), the story kit deployed for distance research complemented the ethnographic study. The core observation made in this particular research study was that each community responded uniquely to the story kit method. Figure 4.1 indicates my story kit method was well received in the Indian and Portuguese communities, especially in view of the fact these communities had initially voiced their unease with such methodology. However, in the UK, of those participants whom I approached to take part in the story kit phase through the university network and the Scottish Fisheries Museum, two out of the ten were familiar with the research method. When asked about their familiarity, these two participants explained they had been part of a cultural probe study in the past. Familiarity with the method ensured these two participants were encouraged to participate in the story kit phase but, unfortunately, some

of the others expressed their disinterest in this particular research method. This could have been because the participants considered it an undesirable interruption in their daily work, which was naturally their priority for obvious reasons. Nevertheless, in the Indian and Portuguese communities, the story kit method was predominantly new, which heightened the participants' curiosity and interest in my research. This was reflected in the number of responses received from each community.

Such a cross-cultural study between India, Portugal and the UK utilising story kits as a research method is not evidenced in academic literature. Therefore, my research study adds new knowledge to this field.

4.6.2 Reflection on the Story Culture Framework

Reflecting on my research study as a whole, my generic approach has been to attempt to employ participatory research methods to generate emotionally meaningful stories and to implement a creative use of technology, such as auto ID technology, to fit with these. Although there are many technologies I could have adapted, I chose to use auto ID technology, since my PhD research formed part of the TOTeM project. This project explored social memory using auto ID technology to track physical objects in the real world. I chose to focus on the experiences personally meaningful to each participant with (digital storytelling workshops) and without (story interviews and story kit) the presence of technology to try and enrich these. Interestingly, the three participatory research methods I utilised throughout the study became meaningful when woven into the context of the personal, emotionally meaningful stories participants associated themselves with.

My research contained a subjective perspective on my practice, as well as an objective view of the participants via my engagement with them throughout my research. The involvement of my participants in all three stages of my research helped me to gain insights into how the participants felt the research methods would influence their lives. The participants' responses were centred on suggestions as to how each method could help them and feedback as to how they had been helped to provide meaningful stories that might also assist with their gaining personal recognition in their lives through narrating their stories. Notably, my participants' responses to each sequentially deployed research

method gave me a deeper understanding of each method's appropriateness for the participants' storytelling techniques.

For example, Jane, who was involved in all three research methods, initially participated in the story interview phase where she was asked a series of questions. From the interview I understood she had a fishing background and lived in the fishing community. During the interview, she recognised QR code and was interested in taking part in the subsequent digital storytelling workshop. During the workshop Jane familiarised herself with the auto ID technology and later went on to reproduce a QR code in her artwork tagging her personal story (Figure 5.16). By participating in the third phase, the story kit method, Jane expressed emotionally meaningful stories through photographs (Figures 4.14 and 4.15) and attempted to scan the QR code given to her as a part of the story kit method. This level of understanding was only possible due to the sequence of the methods employed.

The fact that the research procedure emphasised the use of participatory research methods to engage participants in research activities is important. In this research, by extension, the empathic and emotional senses elevated design as an important practice for creating positive experiences for people through telling of their personal and emotionally meaningful stories.

During my research I discovered strong parallels and connections between objects and auto ID technology. As a whole, my research constitutes a collaborative effort to describe the synthesis of objects, stories and technology. These perspectives have contributed to the articulation of the value of applying creative practice to design, with and without technology utilisation.

The quality of responses elicited from the participants varied throughout the study. For example, Participant 2 from India responded well in the face-to-face interaction during the story interview phase (Participant 2, Appendix E, page 307). However, the interaction did not reflect an emotionally meaningful story. The conversation only helped me to understand his lifestyle and cultural background. In the digital storytelling workshop, the same participant narrated an emotionally meaningful story when introduced holding his personal object, a photograph (Participant 4, Appendix E, page 315, line 9).

The role of the mediator helped build trust between the participants and myself. Suffice it to say that trust in the relationship between the researcher, the mediator and the participants was of vital importance in this research, both because I needed to make the participants feel comfortable about telling personal stories and because of having to conduct some of the research at a distance with the help of others. As a researcher, it is crucial to have initial trust which, in turn, provides the opportunity to create value and improve participants' knowledge of the research approach.

When my participants used objects such as photographs and artefacts they could describe experiences that triggered emotions such as trust, joy and optimism. Such elements were observed in all three communities throughout my research, indicating my participants felt free to express their own opinions with regard to their stories, and meaning their story delivery was embedded within a greater personal context.

4.7 Conclusions

The focus of my work was to test the methodological approach of storytelling as a way of understanding communities and their relationships with technologies. The research portrays storytelling as distinctive in permitting participants to reflect on their cultural identity through story narration. Such a cross-cultural element proposed new ways of enabling design researchers to connect to communities through storytelling. My research methodology has benefited me both as a design researcher and an active participant in that it has enabled me to reflect on its value.

Predominantly, this chapter has addressed research objectives 4 and 5 from my list.

4) To explore the extent and limitations of auto ID technology in generating emotionally meaningful stories.

Introducing auto ID technology within the participating communities where people have restricted access to technology led to limited successful findings. From the outcome it can be concluded such a technology was not welcomed by all participants.

5) To analyse and evaluate the effectiveness of my story culture framework in generating emotionally meaningful stories using story narrative analysis.

From the outcome of the story narrative analysis, it can be concluded the story culture framework had the potential to generate emotionally meaningful stories. However, adapting appropriate technologies for community participation could have given a more positive outcome than the use of auto ID technology.

As the author of this research, I hope the opportunity provided by exploring storytelling through different mediums has created a potential framework for engaging with communities in future research projects. The story culture framework helped me to align the study to deliver the research objectives. I have tested this framework with three different communities and gained valuable insights benefiting me as a researcher. I anticipate the opportunity provided by my own research will enable other communities to contemplate further varied multiple themes and subjects using a comparable approach in similar research. The research approach signals a significant resource for benefiting transforming communities and it will help to develop new ways of community engagement.

CHAPTER 5

Conclusions and the Future

This chapter explores the conclusions reached after studying the participants' responses to each research method. The enquiry revealed the story culture framework and its practice-led approach are suitable for research in the field, for enabling technology and for design communities. Chapter 5 considers how my research furthers academic knowledge and how it informs future research.

5.1 Introduction

This research aimed to investigate the implications of using PAR for generating emotionally meaningful stories. This was done within three geographically dispersed communities, took place between December 2009 and January 2013 and involved 169 participants. I evaluated the story culture framework situated within the PAR methodology with the primary objective of exploring how community members narrated emotionally charged stories. Using this framework, my investigations in these geographically and culturally diverse communities provided an opportunity to synthesise storytelling through auto ID technology. This enabled my participants to narrate emotionally meaningful stories while simultaneously reflected on their cultural identity, way of life and social issues within their communities.

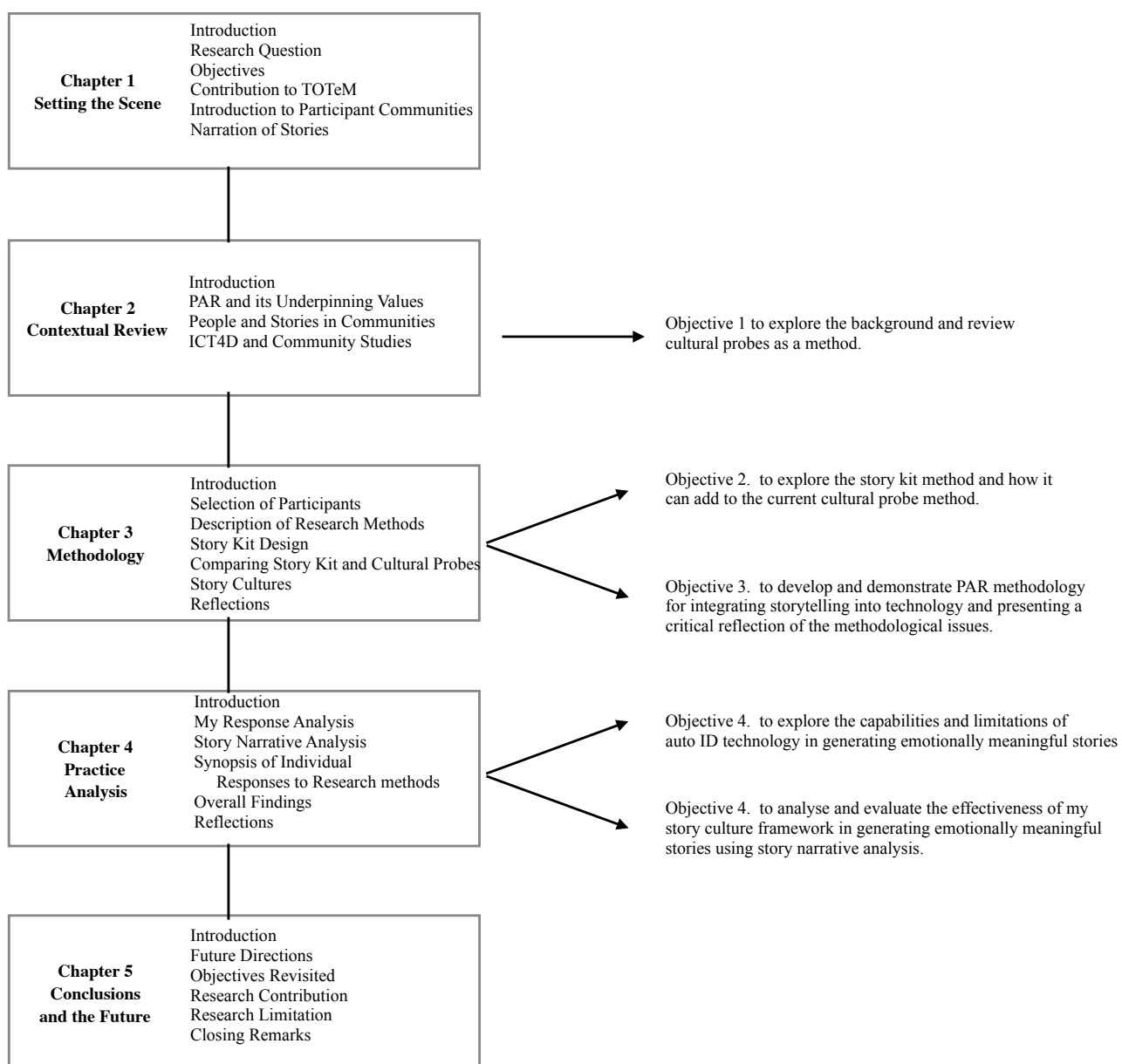
I sought to develop and test research methods to find creative means of engaging participants in order to enable successful data gathering. Introducing participatory research methods within different cultural contexts, including audio recordings, images and objects, unexpectedly helped to overcome cultural and language barriers. The story kit method I adapted as a part of the story culture framework demonstrated storytelling was a useful research method for gaining critical storyteller perspectives. It also serves as an invaluable technique for providing participants with opportunities to explore their cultural identity through their uniquely self-reflecting narratives and shared moments. Analysing the participants' data from the story kit method via a story narrative analysis method demonstrated the impact of participants' cultures on their communities. The research using these methods offered unique opportunities within the communities. For example, a cross-cultural exchange was made possible through photos in the story manual and sharing their thoughts on stories through talesofthings website in the workshop sessions. This enabled participants from the target communities to be fully engaged. It also offered a means of creating further opportunities, as well as ways of thinking, framed by the research questions.

Nevertheless, the research cannot be generalised across geographically and culturally dispersed communities, I would expect the methods of the story culture framework to help build healthy relationships within and across a range of communities. The story culture framework provided the participants with a way to share their knowledge. My research suggests that the opportunities provided by the story culture framework enabled people within the participating communities to share and discuss multiple varied themes and subjects. Therefore, the story culture framework provided a significant resource for enabling emerging communities to communicate.

5.2 Research Objectives Revisited

The aim of the research is 'To explore the value of storytelling as a research approach to understand the use of technology within the participating fishing communities of India, Portugal and the UK'. Five objectives were devised (see Table 11) to accomplish the aim. The result was the story culture framework based on the three methods (story interviews, digital storytelling workshops and story kit) deployed in the three communities.

Table 11: The objectives of the research addressed in the chapters of this thesis.



Objective 1: To explore the background and review cultural probes as a method.

Chapter 2 discussed the background, use and development of cultural probes as a method for gathering information from participants. The chapter explores cultural probes adopted as a research tool for inspiring design. I critically reviewed different types of probes and different interpretations of these and this led to various adaptations. The review concluded with a discussion of what could be expected from a method that deliberately aims to expose ambiguity. The ambiguous results it yields would also create ambiguity in its very use. My contextual review suggested there have been some good adaptations of cultural probes (Gaver et al., 2004b), but others

(Vetere et al., 2005) have been problematic. The latter seem to deviate from what I understand a probe to be.

Objective 2: To explore the story kit method and how it can add to the current cultural probe method.

Building on objective 1, the intention of objective 2 was to make use of a probe-style approach adapted and re-framed through the story kit. Such an approach enabled me to focus on the emotion and meaning of the impact of technology on participants' lives, rather than on design insight and ambiguity. The story kit method is a narrative approach that helped me to comprehend participants' cultural identity and their perception of current and future technology through narrative story expression.

Objective 3: To develop and demonstrate PAR methodology for integrating storytelling with technology, and presenting a critical reflection of the methodological issues.

Building on objective 2, the intention of objective 3 was to explore emotion and meaning in technology. I focused my approach on the use of auto ID technology, because a part of the TOTeM project explored social memory through utilising this. My participants' responses helped me to gauge to what extent the method suited the narration of stories.

Objective 4: To explore the capabilities and limitations of auto ID technology in generating emotionally meaningful stories.

Auto ID technology was adapted as a part of the story culture framework to facilitate digital storytelling workshops. However, from the findings it can be concluded such a technology was not welcomed by every participant, particularly those from India and Portugal. This was because of the relatively complex nature of the technology, and the lack of smartphones and Wi-Fi within the communities.

Objective 5: To analyse and evaluate the outcome of my story culture framework in generating emotionally meaningful stories using story narrative analysis.

Story narrative analysis was adapted to evaluate emotionally meaningful stories gathered using story interviews, digital storytelling workshops and the story kit method. These were documented as handwritten notes, audio recordings, video

recordings and photographs. I sought to interpret the participants' memories of 'unforgettable' experiences.

The overall conclusion that can be drawn from deploying the story culture framework is that it has the potential to encourage emotionally meaningful stories by creatively engaging participants. However, using an appropriate technology already established in the community being studied could produce a more positive outcome than using auto ID technology.

5.3 Research Limitations

This PhD research is limited by a number of factors. First, research biases and subjective interpretation are difficult to avoid. The research relies largely on qualitative approaches, and my work was conducted in an independent environment. Therefore, these factors may affect the outcome of the research findings.

Second, with regard to the choice of technology, only the auto ID technology from the TOTeM project was available to me. More appropriate technology could be adapted for future research.

Third, the testing throughout the research was undertaken with relatively small sample groups. I considered the limited sample size acceptable for several reasons. First, having enough time to engage with participants in three different locations was difficult; and second, using smaller sample groups is not uncommon and can be found in many studies, e.g. (Formosa, 2009; Goffin, Lemke and Koners, 2010).

Fourth, during the study it was observed that convincing community groups to alter their existing approaches or take up new methods was difficult unless the benefits were apparent and evidently worthwhile. This limitation will be an ongoing issue; as with other frameworks, the story culture framework can only fully integrate into the process with continued use and if the researchers update it regularly with appropriate digital technologies. As the participants and the contexts it is used in continue to increase in number, so the content will have further reach.

Finally, since this study was conducted among fishing communities, the results could be affected by factors unique to it alone. Thus, future research should investigate the

influence of other factors, such as the organisational culture, or occupational groups, on knowledge-sharing strategies.

5.4 Future Directions

The study proposed a story culture framework for assisting researchers trying to understand the cooperative nature of human activity. It is acknowledged the framework, along with PAR methodology, cannot be applied to all research studies. However, this methodology can be adapted to distance research with diverse communities. It could potentially allow community stakeholders to engage and empower community members. The methodology could be co-designed with communities to enable them to evaluate new tools and approaches to consultation.

Through a discussion with Clive Gillman (Director, Dundee Contemporary Arts) on community engagement, I was able to see my work through the lens of a gallery/arts centre with a large number of public visitors. Dundee Contemporary Arts (DCA) has approximately 30,000 visitors per year. This highly used resource emphasised the role of a gallery/arts centre/museum within communities such as Anstruther. I then pursued my discussion with Andrea Sayres (Chief Educational Officer, Scottish Fisheries Museum) at the museum. The framework could benefit these community stakeholders in being used as a tool to help with community planning and community engagement, ultimately instigating beneficial changes in the different communities.

While testing auto ID technology through the digital storytelling workshops, I noted participants expressed discomfort with using technology. They felt technology complicates as much as it facilitates and voiced their fears with regard to adapting to new technologies. This might be the reason there has been little, or no crossover between technologies in the field of storytelling. To incorporate technology, there has to be a substantial benefit in order to motivate people to adapt it for their everyday lives; they have to believe technology is indispensable. There is likely to be some feature of technology that would enhance the way we tell and share our stories.

I consider the different ways research can adapt digital technologies to influence community participation, including the challenge of adopting auto ID technology within communities without the necessary resources to support it. Therefore, I

conclude researchers (including interdisciplinary researchers) and designers need to adapt appropriate digital technologies for connecting people. We also need to be creative in using existing technologies.

The story culture framework was only tested within the chosen geographically separate fishing communities. Therefore, in the future, the framework could be further adapted and applied to other communities to gain a deeper understanding of user groups. This could potentially help build participants' social relationships within and across communities, using auto ID and other technologies appropriate for digital storytelling. As a part of the framework, the TOTeM website (talesofthings.com) acted as an online platform. It can be accessed remotely by different communities to share ideas and stories. My research also identified issues relevant to designers. When proposing novel technologies be adopted in geographically separate communities, care should be taken to use appropriate methods to first understand the cultural sensitivities within the potential user groups. This will minimise resistance and, hopefully, lead to approval and engagement. During the TOTeM project, the online platform was developed through a further grant focused on their client (Oxfam) as part of the (EPSRC) Research in the Wild project. In this research, the story culture framework could be used to further understand and frame communities.

The story culture framework can be applied to any discipline where user experience plays a key role in design. During one of the digital storytelling workshops conducted in June 2011 with UK participants and involving designers at the University of Dundee, it was identified that such frameworks could also be applied in 'design thinking' as an approach to promoting wellbeing in people's lives. Since the research process focused on engaging participants, adapting such a framework could be beneficial in bridging the gap between designers and users, as one workshop participant observed:

I think storytelling is a powerful tool. And having been based in a design environment I have never come across design thinking and storytelling put together, this could open up many possibilities.

(Participant, UK, digital storytelling workshops,

Appendix E, page 303, line 3)

The story culture framework could be used as a platform for future studies, including collaborations between disciplines such as design thinking, storytelling and digital storytelling. During the use of the story culture framework within the Azores fishing community, results were published in their local journal by UMAR. Local community stakeholders were, therefore, made aware of the creative methods being used and how they could help provide a better understanding of the community, especially before proposing the introduction of mandatory technologies.

Integrating physical and virtual elements with stories and new technologies could be an avenue for effective future research. Such novel integration of these domains would certainly create challenges for technologists, researchers and designers. Yet, exploring such a comprehensive framework could help them to better understand user groups. A key aim would be to facilitate and open discussions between the groups. The SSL did something like this when it conducted workshops with design researchers. It is evident from the digital storytelling workshops and story interviews conducted with the three chosen communities that storytelling and technology have a substantial connection. The story culture framework could be used with different sets of cross-cultural participants as a 'conversation partner', and in different settings with groups or individuals. We could gain further insights into how a variety of story narratives could be drawn from participants and, consequently, we would be able to recommend successful techniques for researchers.

Overall, the findings from this research could be considered as a starting point. The research has identified the importance of using multiple methods to extract emotion and meaning from stories, in a robust way. In addition, the story kit was a way of involving participants' photographs in their stories. With additional data from the digital storytelling workshops and story interviews, I was able to harvest focused narratives around emotion and meaning. Participants were keen to engage with the creative research methods to support their community's development. There is considerable potential for this work to be developed further in terms of engaging different communities using appropriate digital and paper-based research tools.

5.5 Research Contribution

My research has made an original contribution to expanding academic knowledge through its challenges and findings. Throughout the project there were number of challenges I faced in organising, recruiting, executing and analysing the research. Although there are some success stories within the process, the challenges have provided a real contribution to new knowledge.

- One of the significant contributions of the research was realising the importance of the role of mediators in the study. Identifying and recruiting mediators in all three communities was crucial to establishing a sense of trust in the researcher–participant relationship during the deployment of my distant story kit research method. The role of the mediator helped to address one of the significant challenges: the geographical diversity of the participating communities. However, on occasions, the role of mediator proved to be counter-intuitive. For example, in India, when the mediator was present at the interviews and the digital storytelling workshop I observed there was a hierarchical division between myself, the mediator and the participants. However, apart from the obvious challenges such as the language barrier, recruitment, building trust and organising workshops, the presence of the mediators in the communities helped to build rapport with the participants. This was reflected by the data gathered in Portugal and India.
- Through the data gathered and analysis done as part of the story culture framework, this research shows such an approach can be effective. Findings show using storytelling as a tool showed a significant increase in community participation. However, it has also become evident such an approach does not work as a fast and easy solution for community problems. My findings have demonstrated that working with communities requires sensitive and culturally appropriate intervention. For example, introducing auto ID technology did not generate emotionally meaningful stories with the participants. However, designing story interviews and the story kit method to trigger past experiences was shown to work well in this study.

- The most important outcome from the study was that participants felt they could have an influence on the lives of people in situations similar to their own, i.e. other occupational communities. This was observed by incorporating creative research methods such as the story kit and digital storytelling workshops within and across the participating fishing communities. Such methods engaged participants, encouraging them to exchange stories and experiences describing their values, culture, beliefs and environment. The participants would not have had the opportunity to communicate these things without the use of storytelling and technology.
- The successes, challenges and failures in this research aim to inspire design students and researchers when making the leap from education to professional practice and academic research. I present a personal account of PAR exploration and communicate the hurdles I faced when executing the methods to gather data and engaging with the participants in a cross-cultural context. I also had to deal with uncertainty in both analysis and interpretation.
- The research makes academic contribution with the use of auto ID technology in a cross-cultural context. The research looks at critical issues within the use of auto ID technology through storytelling and contributed to the body of auto ID technology literature by integrating the technology (barcode) in the design of the research methods. The research also provides a theoretical base on which future auto ID section and implementation can be built appropriately.

Qualitative explorations with cross-cultural participants within the three chosen communities helped to develop the story culture framework, enhance my design process and affected the way I engaged with the participating communities. I hope, as discussed above, that this research will have benefits reaching beyond my personal study.

5.6 Closing Remarks

The findings of this doctoral work have highlighted the use of digital storytelling and the story kit method as a framework within community research for engaging communities from different cultural contexts. The research has provided an opportunity to build and test this framework with these selected communities. The findings have been peer-reviewed through national and international conferences and community articles, including those by Kanchana Manohar and Sousa (2012) and Kanchana Manohar, Birnie and Rogers (2013). The digital storytelling workshops method utilised in my research has been endorsed at conferences as having had good feedback. Therefore, my research methods have been acknowledged by my peers and participating communities. My research enabled me to identify the value of both the PAR methodology and emotionally meaningful stories. I discovered there is potential for engagement with cross-cultural participants through story interviews, digital storytelling workshops and the story kit method. Ongoing discourse in academic publications and presentations as well as research blogs has continued to raise awareness of these research methods.

In conclusion, through my collaborations with community partners, I have identified that there is scope for further work, such as exploring the dynamics of working with cross-cultural communities and introducing participatory research methods to engage and empower diverse communities. Furthermore, the research demonstrated that the framework developed through this practice-led approach helped to identify the need and potential for design research, including looking at the interface with emerging technologies to understand user groups from different cultures. Additionally, through the use of PAR and digital technology, this research study contributes to the repositioning and reframing of storytelling as a tool to investigate *value* and impact. Consequently, I am now in a better position to conduct and evaluate future research on how people can harness alternative tools to benefit communities globally in emerging directions of interest.

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CHAPTER 7

Appendices

7.1 Appendices A: Ethics Application

7.1.1 Ethics Form:

UNIVERSITY OF DUNDEE
SCHOOL OF COMPUTING ETHICS COMMITTEE APPROVAL FORM

Title of project **TOTeM, Tales of Things and Electronic Memories,**
(Student PhD) - Arthi Kanchana Manoha

Name of Lead Investigator (Student in case of project work)
PhD Student: Arthi Kanchana Manohar

Module Code if applicable **N/A** Module Name **N/A**

Research Supervisor / Other Academic Staff involved **Co I Dr. Jon Rogers**

Email address **A.KanchanaManohar@dundee.ac.uk** Funding Body (if applicable)
EPSRC/ Design in the Digital Economy

Estimated start date **26/03/2010** Estimated end date **26/03/2013**

Date submitted **17-02-2010** _____ SoCEC Ref no. (LEAVE BLANK)

DECLARATION:

I have read and understand the University of Dundee Guidelines for ethical practices in research and the School of Computing Code of Practice for Research involving Human Participants. I confirm that my research abides by these guidelines.

Print Name : **Arthi kanchana manohar.....** Date **17-02-2010**
(Student)

PART A

The declaration above confirms that you will:

- Provide an information sheet to participants which describes the main procedures to participants in advance so that they are informed about what to expect;
- Tell participants that their participation is voluntary (both in information sheets and consent forms);
- Obtain written informed consent for participation and provide participants with a copy;
- Ask participants for their consent to being observed, should the research be observational;
- Ensure that participants are able to read and understand the participant information sheet;
- Tell participants that they may withdraw from the research at any time without penalty and for any reason;
- Give participants the option of omitting questions they do not want to answer if a questionnaire is used;
- Tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs;
- Tell participants that all recordings, e.g. audio/video/photographs, will not be identifiable unless prior written permission has been given by the participants;
- Debrief participants at the end of their participation (i.e. give them a brief explanation of the study).

PART B

Please answer the following questions:

		YES	NO
1	Will your project involved deliberately misleading participants in any way?		X
2	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort? If Yes, give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).		X
3	Do participants fall into any of the following special groups? Note that you will also need to obtain satisfactory Disclosure Scotland (or equivalent) clearance when working with vulnerable people.	Children (under 18 years of age)	X
		People with Intellectual or communication difficulties	X
		People in custody	X
		People engaged in illegal activities (e.g. drug-taking)	X
		Non-human animals	X
		NHS Patients	X

If you have ticked YES to any of questions above, you must provide the information listed below as a separate attachment:

1. Title of project.
2. Purpose of project and its academic rationale.
3. Brief description of methods and measurements.
4. Participants: recruitment methods, number, age, gender, exclusion/inclusion criteria.
5. Consent and participant information arrangements, debriefing.
6. A clear but concise statement of the ethical considerations raised by the project and how you intend to deal with them.
7. Information and consent forms (See code of practice for examples).
8. If external ethical approval has been granted, please attach approval letter.

PART C

If you have ticked NO to all the questions in part B above, you must attach to this application *copies of the information and consent forms which you will intend to give to participants (See code of practice for examples)*. You must also complete the box below.

I consider that this project has **no** significant ethical implications to be brought before the Ethics Committee.

Give a brief description of participants (recruitment, inclusion and exclusion criteria) and procedure (methods, tests used etc.) in up to 150 words

15 participants, 6 Male and 9 female are recruited for the study aged between 18 to 75 years old. The participants will be in sound health. All the participants are mostly members of my family. The recruitment is done such that the participants are primarily resident of India and those who travel and live most time of the year in two or more different places within or outside the country.

The following methods will be used in the study,

1.Cultural probes: Cultural probes will consist of cameras, postcards, diaries that will be given to the user to record events and interaction in order to understand the culture and values.

2.Semi structured interview:

A series of questions are formed to ask the participants in order to collect the stories and memories of objects and spaces, objects associated with memories and the people who share in the stories.

3.Videos and photographs:

Photographs and videos will be used to record the events, participant's interaction, and story narration.

The time taken for the study is expected to be approximately 2 hours, which will include interview, cultural probe and video recording. The study will take place in a process that 3 to 5 people will be involved at a time, each of them will be asked to answer the questionnaire and use the cultural probe to record the data and events.

Questionnaires:

1. A brief introduction about the participants and their network of family and friends in their community
2. What are the objects the participant possesses that brings memories and stories to them?
3. Are there any ritual objects those participant possesses? (Grandmother and great-uncle)
4. What does the object mean to the user?
5. What do the user associate the object to?
6. Do the user have any places or location that he/ she relates the objects to?
7. How often do the user travel outside the city?
8. What objects do they carry and leave behind when they travel?
9. What are the different emotional stories that the object reminds the user about?

There is an obligation on the lead researcher to bring to the attention of the Ethics Committee any issues with ethical implications not clearly covered by the above checklist.

Email this form and accompanying attachments as a zip file with your name and date submitted to ethics@computing.dundee.ac.uk

7.1.2 TOTeM Photo and Video Release Form

I _____ give my permission for the TOTeM team to
(first and last name of participant)

photograph/video and audio record or (otherwise record) me, while participating in this research for the TOTeM project. I also give my consent for this work to be published in research documentation for academic and educational purposes. This includes web-based publishing, which can be viewed by the general public.

I understand that any such photos/videotape/audio or other digital recording will be the property of the TOTeM research group, which is a pan-university project funded by the EPSRC sandpit, Design for the digital Economy, and may be used for the purpose of academic research, to inform student work or for teaching and research purposes, or documenting or publicizing the TOTeM Project.

I understand that the outcomes of this research will be available to the public and may eventually lead to commercialization of a range of products by the TOTeM team. As a participant in this research I will not gain commercially from this.

I can contact the TOTeM team, at any point in this project, to discuss any concerns I may have about the use of the research and its publication.

I understand that I may limit my participation, or withdraw my consent at any time and for any reason, by contacting any member of the TOTeM team.

Signature of participant

Participant contact details email/ phone number

Signature of TOTeM research member

TOTeM research member contact details (email & phone number)

Date

Important: The researcher and the participant must each retain a copy of this document.

Jon Rogers
Innovative Product Design
School of Design
Duncan of Jordanstone College of Art & Design
University of Dundee
Perth Road
Dundee DD1 4HT
Tel: +44 (0)1382 388871
Email: j.rogers@dundee.ac.uk

7.1.3 TOTEM PROJECT INFORMATION SHEET

What is 'TOTeM, Tales of things and electronic memories'?

The TOTeM project researchers are interested in memory and value of 'old' objects.

It has been suggested that people surround themselves with between 1,000 and 5,000 objects. Of those thousands of objects many of them are probably not truly cared for and end up in rubbish bins or in storage. But for every owner, in almost every household, there are a selection of objects that hold significant resonance, and will already connect them to an Internet of memory and meaning. An intrinsic human trait is the process of imbuing meaning onto objects so that they provide connections to people, events and environments. Artifacts across a mantelpiece become conduits between events that happened in the past, to people who will occupy the future. These objects become essential coordinates across families and communities to support the telling of stories and passing-on of knowledge.

The purpose of the project is to revolutionize existing social and business processes, using technologies available to us through the digital economy. The digital economy is defined by the Research Councils as “the novel design or use of information communication technologies to help transform the lives of individuals, society or business”.

How will we do this?

The first stage of the project has focused on designing and building a system which can let us tag our belongings electronically. This means that ordinary objects can have an 'electronic memory'. The system is currently in the early stages of development. We are still building features and testing, but when it is ready for release, it will be open for the public to use.

The current stage of the project is to collect stories and memories of objects from people, objects that are associated with their memories and the people who share in the stories.

Few methods like cultural probes; Interviews and photographs will be used to collect data like stories and memories of objects from the participants who are resident of India and participants who live in one or more places, within or outside the country.

The data collected are later analyzed and will be developed into a product. The product will be tested on different communities and it will be an attempt to understand the cultural influence that will be generated with these communities.

What are the forms?

Participants will be asked to sign a form saying that they are willing to participate in the study. The consent form will explain what will be asked and what will happen to any information, which is collected. The participants will be given a copy of this form to keep.

How can I find out more?

If you would like to know more about this research and/or you have questions that cannot be answered by the researcher, please feel free to contact the principal investigator, Morna Simpson, The Queen Mother Building, University of Dundee, Dundee DD1 4HN. She can be contacted by phone at 01382 384807 or by email at morna@computing.dundee.ac.uk

Understanding the role of Digital media systems in Culturally interactive and responsive Urban Transit Spaces

Abstract:

During the recent years developed countries like UK and in developing countries like India the night-time economy have greatly expanded to the extent that the cities like London and Delhi has now become a 24-hour city. But the sense interaction is not seen in all categories of people. To make the social space more interactive and responsive, the author proposes a space with new interactive and digital technologies that creates a social impact in a cultural context which will make the city more at ease with itself, where all public and the tourist have the opportunities to enjoy the best of the city has to offer. The project aims to understand the relationship between the culturally responsive environments and the current implications of digital media systems in urban transit spaces.

Transitional spaces are considered to be as intermediate spaces consisting of movement of people, those transiting from one place to the other places such as the streets, pedestrian spaces, plazas, and squares. Currently, in developing countries like India there has been significant concentration on urban planning with the aim to improve infrastructure and achieve international standards as a response to the growing middle class constituency that has been finding its voice within a liberalised policy framework (Heitzman, 2008). There has been a growing concern towards the redevelopment of the existing transitional spaces or in some cases building up the new transit hubs in order to accommodate the changing spatial needs of diverse groups and the growing economic needs.

In the recent decades, various architectural professionals have initiated some efforts to enhance the usage of digital media systems for creating interactive transitional spaces in cosmopolitan and metropolitan cities such as London, Berlin, Mumbai and Delhi. Because such systems helps to perceive the transitional spaces as a dynamic and adaptive surface and further allows the architectural space to act in response to the surrounding environment.

Much of literature study on the implications of the digital systems in the urban transitional spaces especially in the developing countries reveals that the sense of interaction quality in such transitional spaces does not adequately accommodate the cultural interests of diverse groups, those come from different corners of the world for many economical reasons by Carolina Briones, Ava Fatah gen. Schieck, Chiron Mottram (2008)

According to Lucy Bullivant (October 2006), the interactive social environment is such a space that interacts with the people who use them, pass through them or by them - have in a very short space of time become ubiquitous. These interactive social environments will be an approach that will be of huge value to the transitional spaces that are striving to open

up to more participatory way of engaging the public. These interactive responsive environments are bridges between the physical and the virtual space. It is at this point that architecture and virtual systems converge and in the process, the distinction between 'real' and 'virtual' becomes less clear. Architects use the digital technologies and sensors systems to bring architecture literally closer to media by transforming it into real time medium. Such digital media practices include, 'Urban Carpet' an interactive urban installation by The Bartlett, University College London, which uses a body input as a form of a non traditional user interface. In another case 'See Drum' which is a visualization tool created to enhance rhythm based performances by linking temporal auditory patterns to visual counterparts in real time. Using sensors, See Drum interprets drum hits from a kit and, in real time, creates matching visuals to be projected or displayed on screen. Similarly 'Dance Floor Moves' is a colourful installation that is projected as an interactive floor that can be installed anywhere. When a person moves over the floor, it reacts accordingly.

From the above stated examples, we can notice that public are engaged within the interactive system and also interacts with the surrounding urban space. They have been very successful in engaging the public with the interactive system and however so far in the field of interactive social environments it is voiced that there has been considerably little or no attempt made to address such behaviours for accommodating the given cultural contexts (Carolina Briones, Ava Fatah gen. Schieck, Chiron Mottram (2008), Kerstin Dautenhahn (2002)

Moreover, in developing countries context, despite of recent developments of sensor and monitoring systems for safety and security of the public in transitional spaces, there have been still many kinds of issues of safety and security especially during the night times (Roberts, M 2007). It is considered as a challenging issue for the built environment professionals such as architects and designers for integrating the issue of night time activities and to address the cultural interests of different groups in the development of the digital solutions for creating interactive urban transit spaces. Therefore this research proposal is aimed to understand the various behaviour patterns of digital installations in urban transit spaces and how they respond within different cultural contexts. This study argues that the present and recent digital practices in built environment sector for creating interactive social environments in the urban transit places overlooks the cultural interests of diverse groups.

Research Question:

What is the role of current digital media practices in creating culturally responsive environments in urban transit spaces?

Sub Questions:

How to understand the relationship between the culturally responsive environments and digital media systems?

How to identify the role of current digital media practices in creating culturally responsive environments in urban transit places?

How to develop a methodological approach to integrate cultural responsiveness in the development of digital technologies?

Aim of the research:

The proposal aims to identify the role of current digital media practices in creating culturally responsive environments especially in urban transit places of developing countries context.

Objectives of the research:

To develop literature study for understanding the relationship between the culturally responsive environments and the current implications of digital media systems in urban transit spaces.

To develop a methodological approach to investigate the role of current digital media practices in creating culturally responsive environments in urban transit places.

To evaluate the developed methodology in different cultural contexts taking the case study approach as the primary investigation tool.

To analyse the findings of the primary study by using compare and combined analysis of different case studies.

To inform the design practice on how to integrate the cultural contexts in the assimilation of digital systems for creating culturally responsive environments.

6.1.4 Case study Approach and Research methodology:

This study aims to test its hypothesis by adopting an empirical case study approach. A few urban transit spaces in both developing and developed nations varied with different cultural contexts will be selected during the research process for testing the hypothesis. The following method which is derived from the authors master's dissertation will be further developed during the actual investigation process. Methods include Installing an interactive system in the social space will create an ambiguity within the people to use the system regarding to how to interact with the system. The interactive system will focus on the floor or wall space where the people are encouraged to walk over and congregate around it in a socially organized and beneficial way. An interactive system installed in a common space will generate social interaction and awareness around them. And situating them in different locations and social environments, diverse behaviors and reactions will emerge from the public. Portable interactive urban installation will contain Arduino sensor board, small projector, fixed camera recording people's movement, laptop connecting the camera and the projector. It is an approach for generating light patterns to be used in a spatial light modulator to make the space responsive and interactive. Interactive system will be looking at reflecting the social life in the city by reformulating the shadows that are artificially created by the projectors. The interactive system which creates certain kind of social interactions within the people where each user will have certain control over their own performance space. A pattern of lights is generated dynamically follows the people movement in the space. With this dynamic light patterns different common emergent patterns expected to be noticed in the interactive system.

Proposed Digital Technologies to be used in case studies:

A certain method is followed to analyzing the movement of the people by auto tracking through Max Msp software. Using this method the movement of an individual and movement of group of people will be tracked and mapped accordingly. The analysis will be also based on time basis using the software more precisely.

Mapping will be done in such a way classifying the speed of the peoples movement and different type of output generated analyzing various movement with the public. Each person's movement is unique and distinctive; the body language is different for each person, which the software will reflect in its output.

The working model can be achieved through the 'Processing' software. The prototype will have a camera which captures the movement of people and transmits the data to the computer which reads the data through the Max Msp software; the software manipulates the data and sends it to the Arduino board and the program is been processed after which the output is put to the screen which can be projected back to the space. The architectural impact of the system is the rhythm of light patterns that are produced in the space that responds to the people's movement and speed. The factors that determine the quality light patterns will be the artificial light source and its positioning. In the Night time lighting patterns will enhance the quality of space making the space more interactive and responsive.

Expected outcomes of the research:

By conducting the described experiment, it will be an attempt to study the influence of new technologies on forming human behavior and observe the ways in which people's performance in public mediated space defines a digital culture. Many factors may influence these responses as it became evident by the mixed and sometimes ambivalent reactions with the use of digital media, socio-economic status, and other factors.

7.2 Appendix: B

7.2.1 Story Kit: Story manual Translations:
India Participant -1

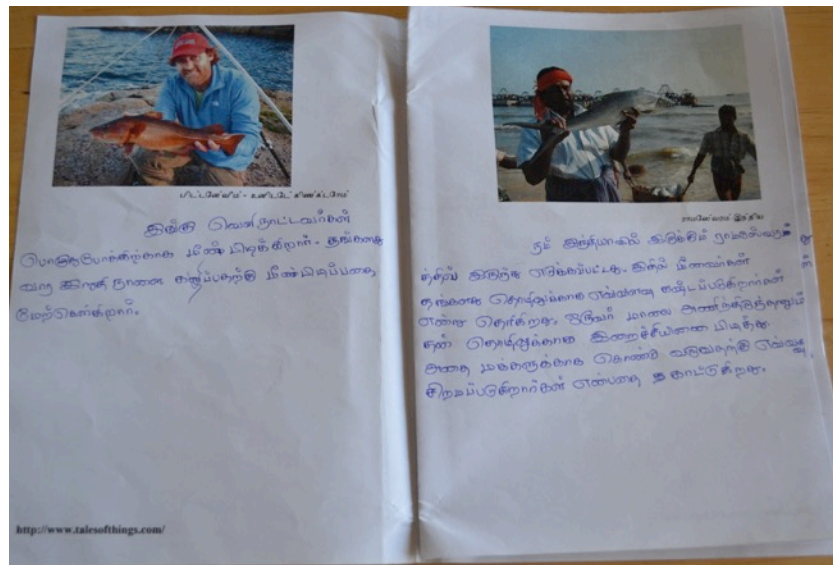


Figure (left) The person in the picture looks like he is fishing for pleasure. He looks like he is fishing to while away his weekend time and not for business.

Figure (left) I can tell that this picture was taken in India Rameshwaram. It's is clearly seen that the fisherman has struggled hard to catch that fish and he looks very proud. Even though he seems like a religious person he is catching Fish for his daily survival.

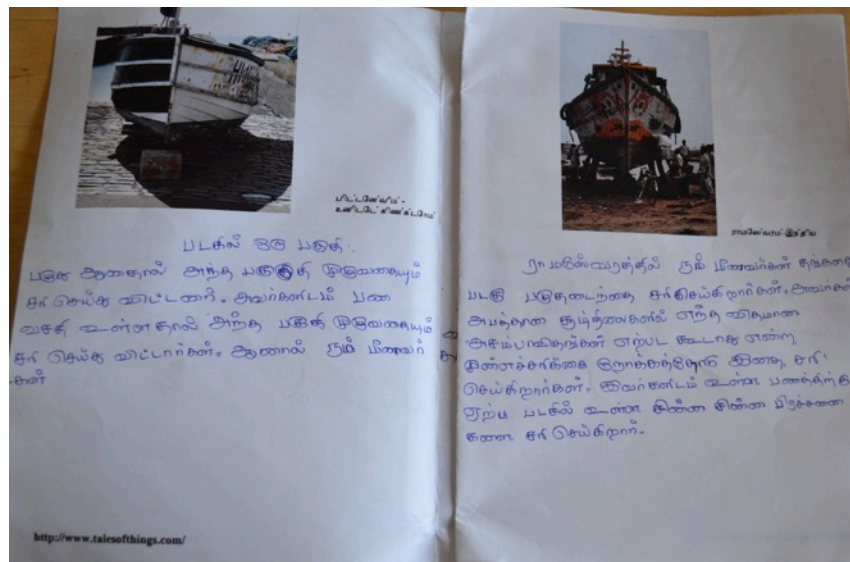


Figure (Left) The boat in the picture looks like it's partly damaged and has been repaired now. The boat looks very similar to ours.

Figure (Right) In this picture a Boat in Rameshwaram is undergoing refurbishment. The fishermen are working to make sure there will be no danger in the sea the next time they sail. Also, it is noticeable that they are not financially viable for major renovations

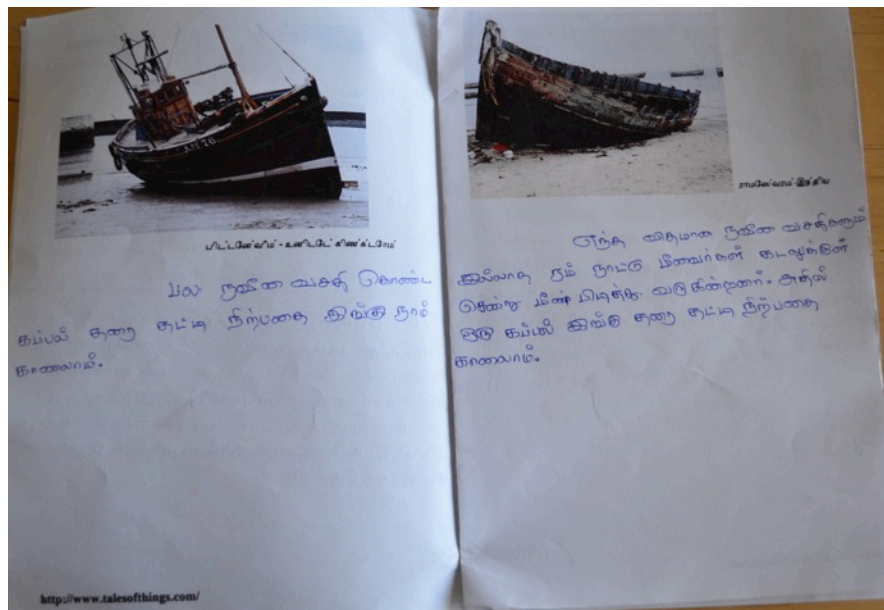


Figure (Left) In the ship in this picture seems to have equipped with modern facilities and is docked in the shore.

Figure (Right) However in this picture the boat has no technical or modern facilities, this shows that the fishermen in Rameshwaram go fishing risking their lives.

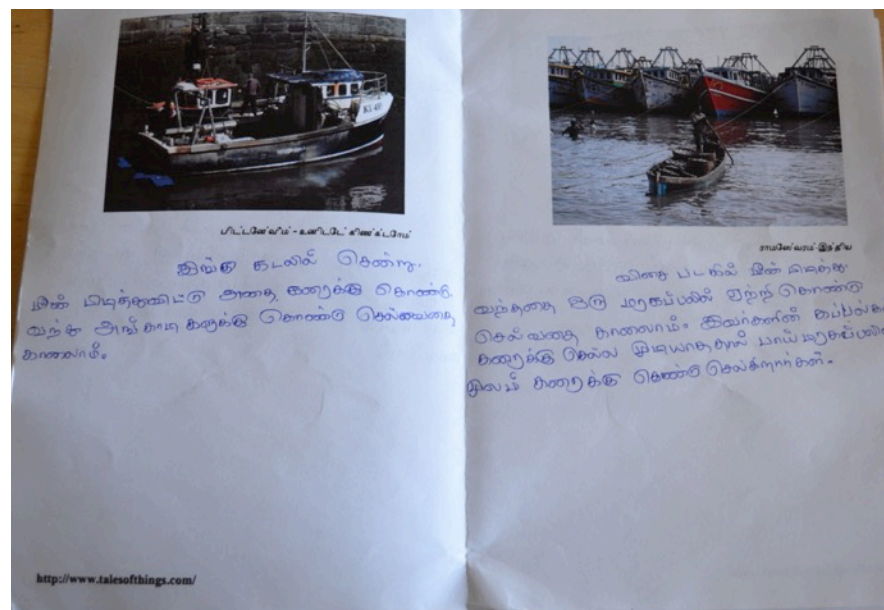


Figure (Left) In this picture I can tell that the boat is returning to its harbour after fishing and the fishes are about to be transported to the market.

Figure (Right) In Rameshwaram, fishermen go fishing in speed boat and then transfer the fish baskets to a smaller wooden boat (rowing boat) which makes it easier for them to transport fishes to the shore.

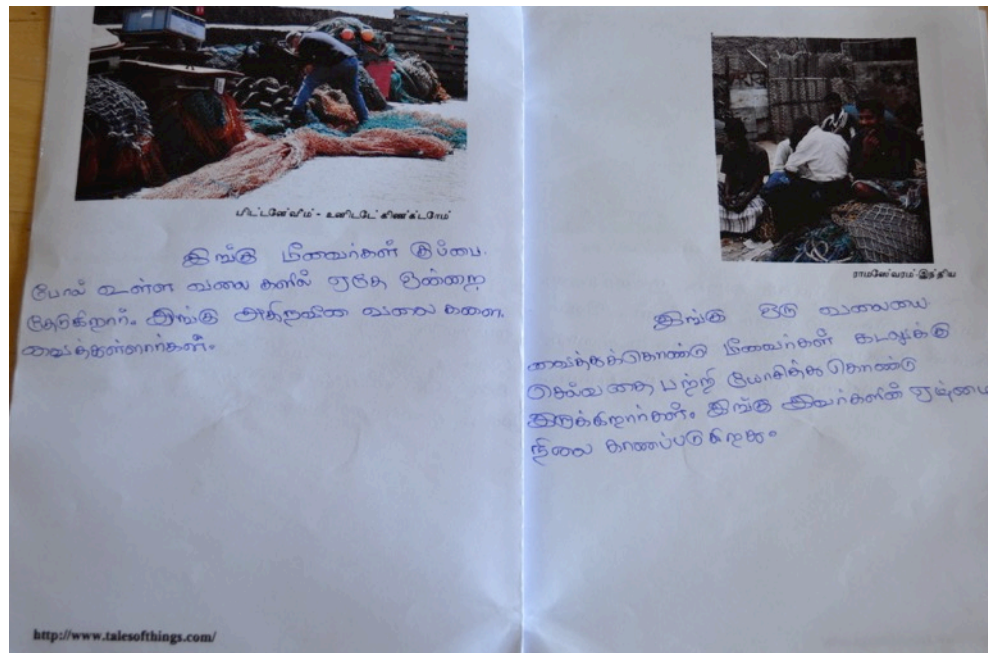


Figure (Left) In this picture the fishermen seems to have a high quality fishing nets and it appears that he is searching for something in the pile of net.

Figure (Right) However, in this picture the fishermen are sitting around the fishing net and chatting. Especially with a thatch roof houses at the back ground this picture shows the poverty in the fishing village.

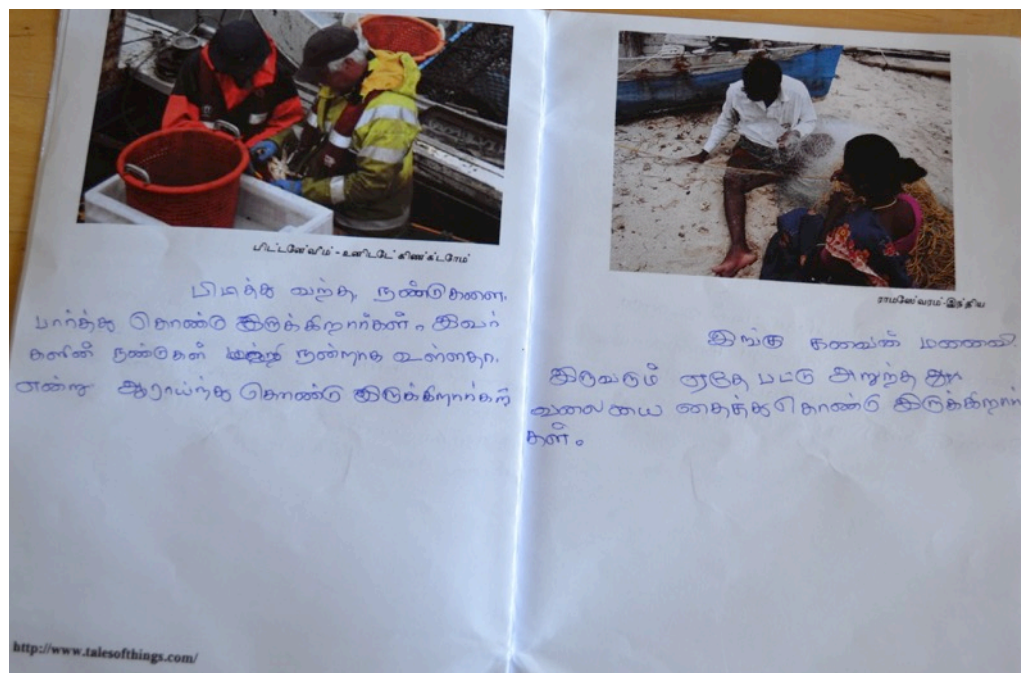


Figure (Left) In this picture the fishermen have crabs in their baskets. They are examining if the crabs are in good condition to sell them in the market.

Figure (Right) In this picture it's a husband (fisherman) and his wife untangling the fishing net at the end of the day, so they can go fishing again the next day morning.

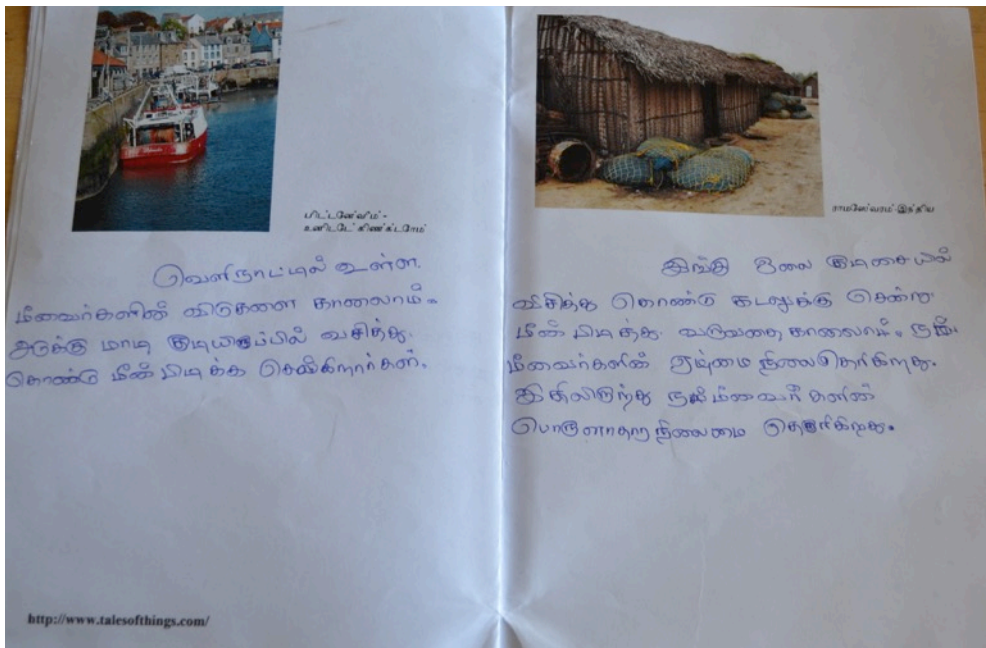


Figure (Left) The picture shows the architecture of the fishing village in the UK. They seem to have good facilities for fishermen to live close to the sea, I can see it to be very convenient for the fishermen.

Figure (Right) In this picture it is noticed that fishermen in Rameshwaram live in thatched roof huts. This picture represents the poverty in Indian fishing villages.

Participant 2

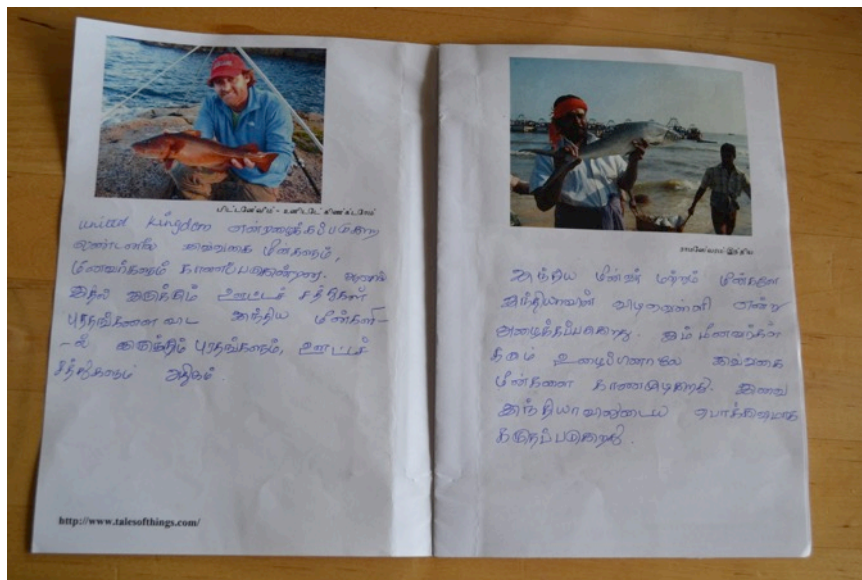


Figure (Left) In this picture I can see how fishermen in the UK look and what kind of fish they catch for living. I think the fish in the India are more nutritious than the fish in the UK.

Figure (Right) The picture shows that Rameshwaram fishing village does more variety of fishes and the fishermen are considered to be the biggest assets in our country.

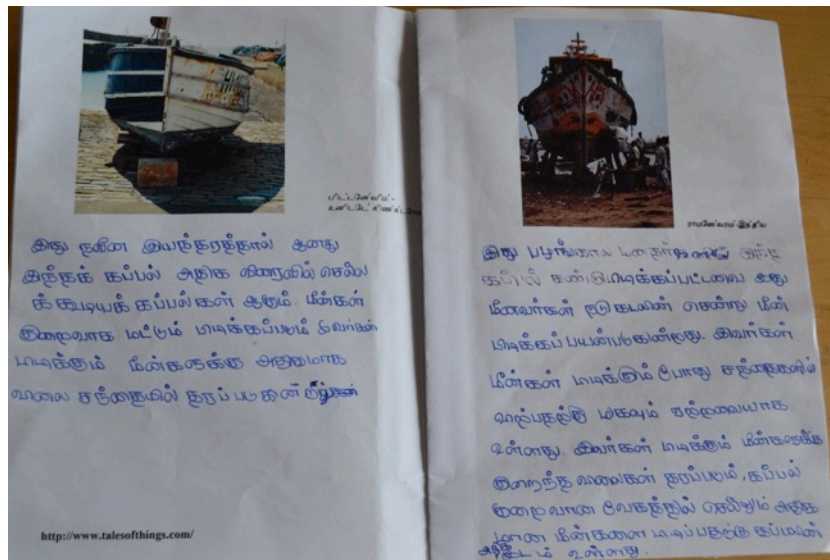


Figure (Left) The boats in the UK appear to have modern facilities and it seem to travel much faster than our boats in India. I have also heard stories that they sell fishes in the UK for more price than in India. This could also be because they could be catching less number of fishes.

Figure (Right) The boat in Rameshwarm appears to be very old and needs lot of restoration before it sets off to the sea. The boat doesn't appear to have any modern facility to go faster and they fishes been caught by the fishermen are sold for very low price in the markets.

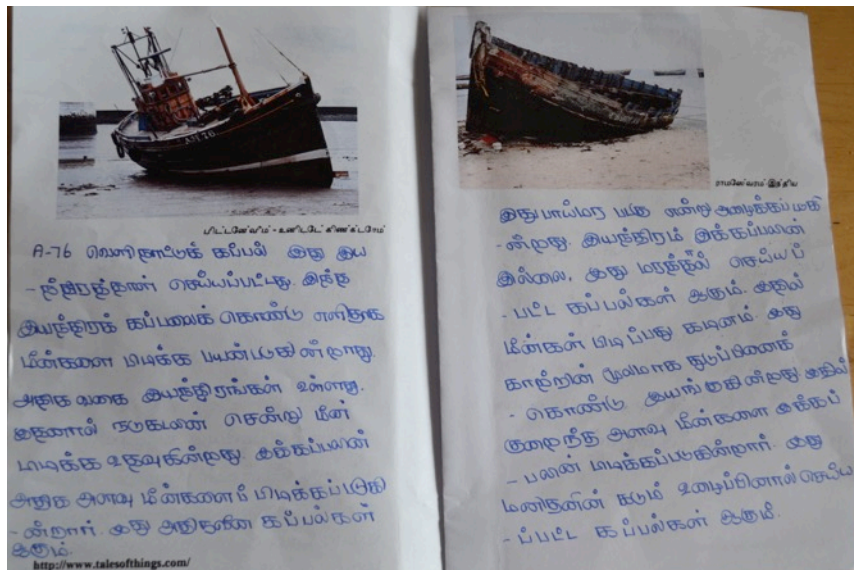


Figure (Left) A-76 the boat looks like a modern boat in the UK with lots of facilities to go fishing into the middle of the sea despite the harsh tide and rain. The boat looks like it can capture lots of fish and bring it back into to the shore to make more money.

Figure (Right) The boat in Ramsehwarem harbour looks like it has no modern equipment to sail deep into the sea. It appears to be a difficult process to catch fish in these boats. The boat has no motors or any other facilities to sail; it needs to be manually sailed into the sea with the help of ores. This involves a lot of hard work by the fishermen himself.

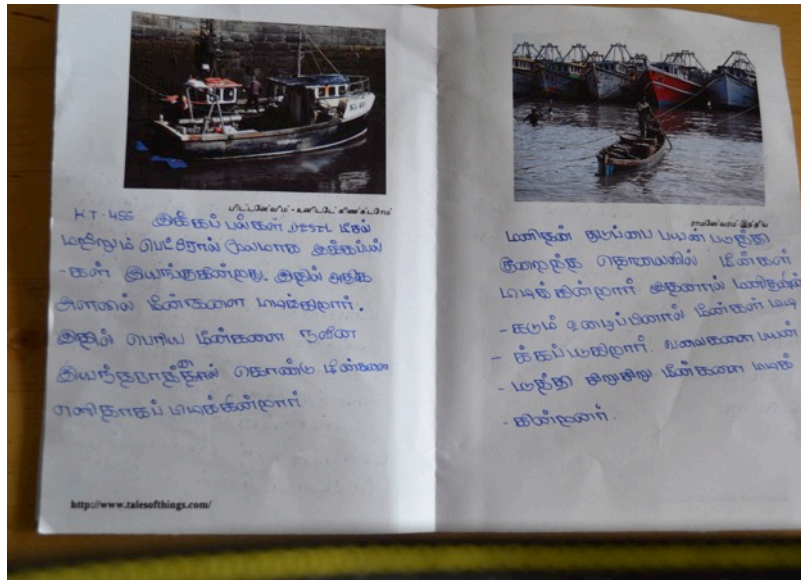


Figure (Left) KT 455 ship looks like they run using diesel or petrol. Such speed boats help them to catch many fish then the normal manual boats. Such boats also have the facility to used machines and nets to catch big fishes using modern techniques.

Figure (Right) The fisherman in the picture is usual a manual ore and the boat doesn't appear to have the facility to go deep into the sea. There is only a limited amount of fish he can catch using this boat.

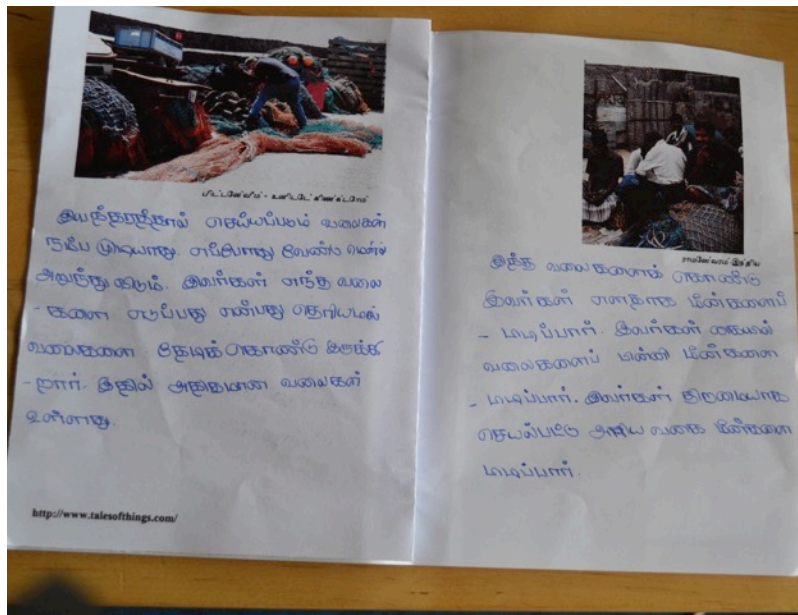


Figure (Left) The machine made net is always unreliable. It might wear off anytime. And the fishermen seem to be lost and don't know what he wants in the pile of net.

Figure (Right) The fishing net seems to be manually knit and I think they are stringer and helps to catch many fish. The fishermen appear to be talented and hard working in both the context.

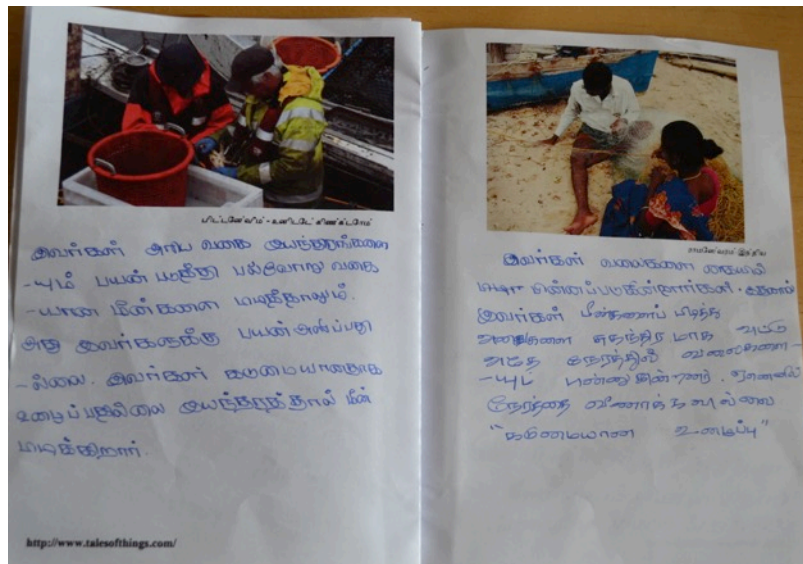


Figure (Left) The picture tells me that the fishermen in the UK use lot of modern equipment to catch different kinds of fish including crabs as shown in the image. It also appears that they fish with great ease.

Figure (Right) The picture represents a typical Indian setting where the couple untangle the net manually , which shows that it takes a lot of hard work and complexity to do the same things compared to fishermen across the world.

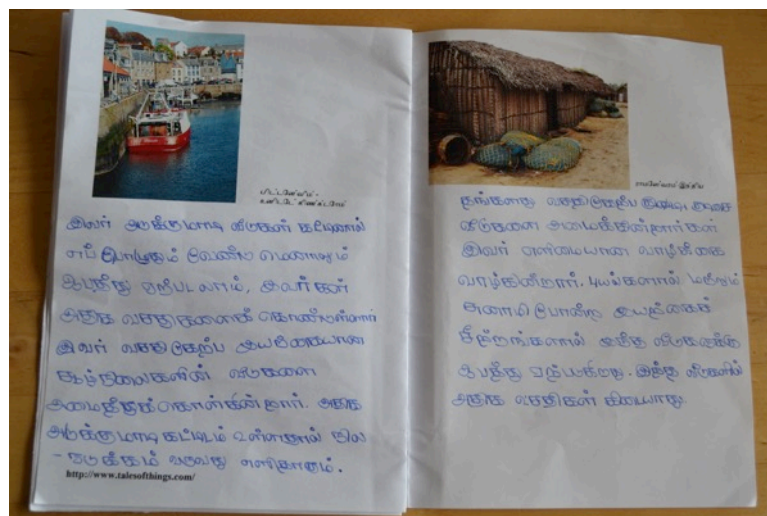


Figure (Left) The image tells me that fishermen in the UK have a safe place to live and are protected from the natural disasters.

Figure (Right) The picture shows that the fishermen in India live in poverty. They village is more prone to be affected by natural disasters such as Tsunami.

Story tags

What would you do to make your community feel connected?

I would promote courses and information mainly among the young people, because there are still lot of youngsters that don't know anything about fishing.

Participant 6

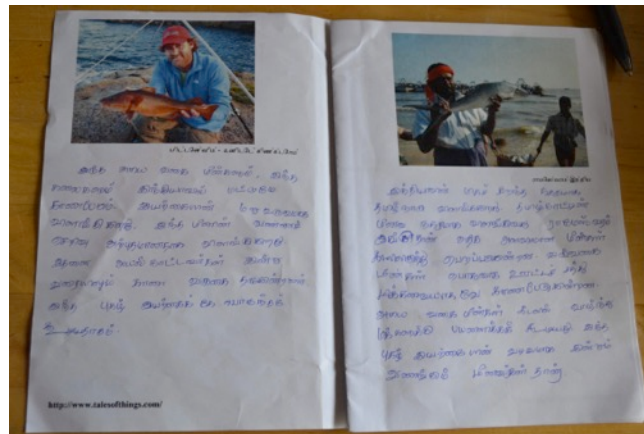


Figure (Left) It looks like the fish is of a rare variety. Such kind of variety could only be seen in a foreign land. They seem to have such wonderful collections of fishes. And the man seems very pleased with this fish.

Figure (Right) The picture shows that wealth of Rameshwaram fishing village. It is one of the biggest fishing villages in the country. The fisherman is very proud of his work at the end of the day. The fish seems very healthy and is ready to be sold in the market.

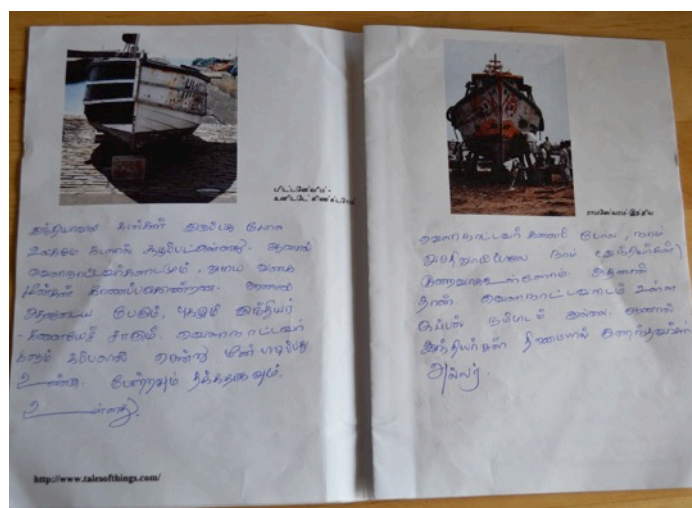


Figure (Left) The pictures reminds of the Indian fishing village. It tells me how similar lives on the other side of the ocean. It appears to me that they have a lot of hard work and difficulties just like us.

Figure (Right) Looking at the picture from Rameswaram it can be understood that we have a very similar lifestyle to the UK fishing village. However, the picture tells me that we have fewer facilities available. Nevertheless, our men are motivated and hardworking.

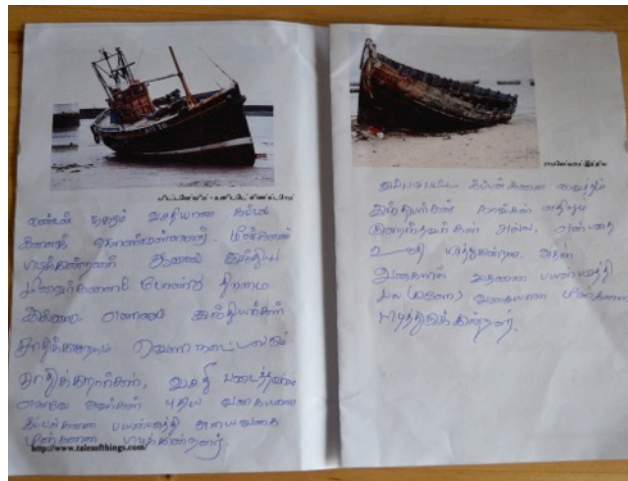


Figure (Left) This stunning looking ship docked somewhere in the shores of UK tells me that the fishermen there have so much facility to catch variety of fish. They seem to be using new facilities to catch these rare fishes.

Figure (Right) The picture tells me that Indian fishing village has less facility to catch fishes. However, the fishermen show that things can still be done manually and there are many varieties of fishes that are caught while fishing throughout the year.

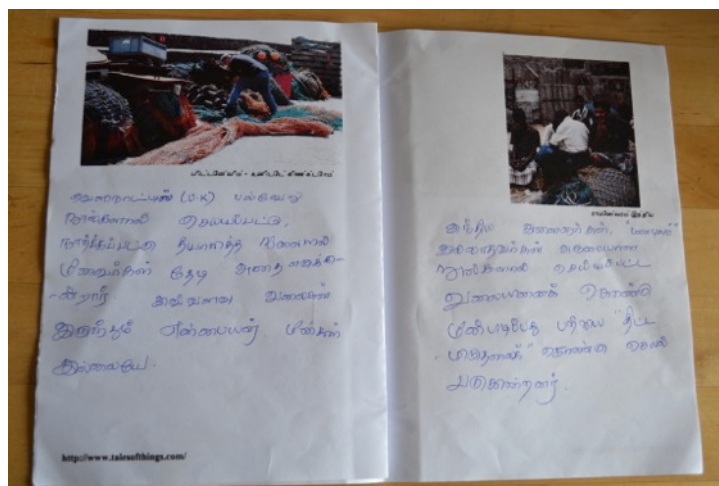


Figure (Left) This reminds me of a story that my father used to tell me, that the fishing techniques that we use now has been taught by the Europeans in 1600 AD and since then we have improved our fishing skills and now we are able to catch many varieties of fish in so little time.

Figure (Right) This is such a great picture showing the youth in our Indian fishing villages. They look like they are tired after a busy day and are sharing stories among each other.

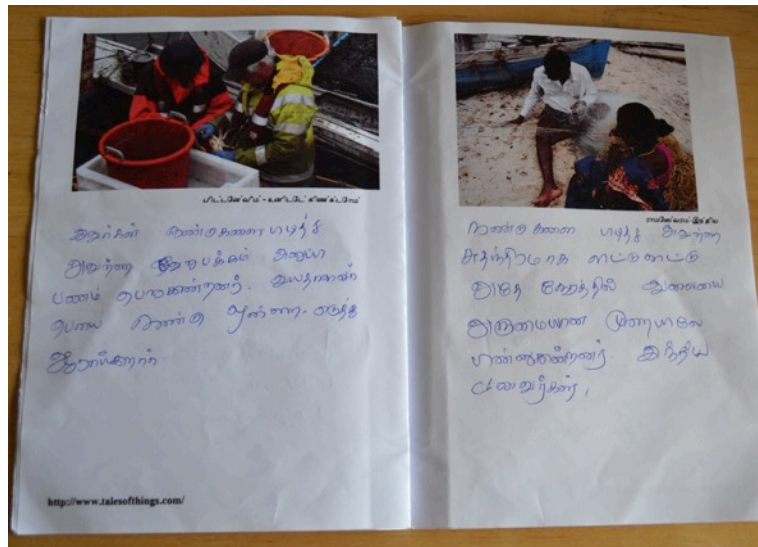


Figure (Left) This picture tells me that they have caught crabs and the fishermen are examining the crabs quality. It looks just fine to me.

Figure (Right) This picture tells many stories. Especially the couple working together shows how closely knit our families are in Indian culture. We support each other in all activities.

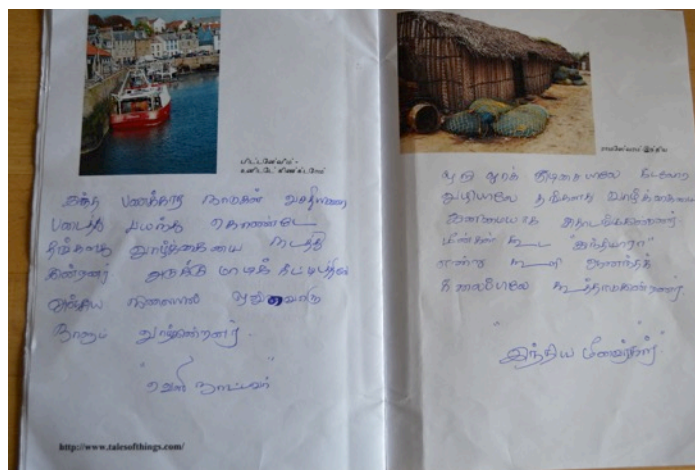


Figure (Left) The picture tells me that fishing villages in the UK are very unique and different unlike the Indian fishing villages. I wouldn't have imagined such developed fishing villages existed in the foreign land.

Figure (Right) This is a typical fishing village setting in India. Though it seems to have less facilities compared to the UK setting I think it has its own beauty and charm.

Participant 7

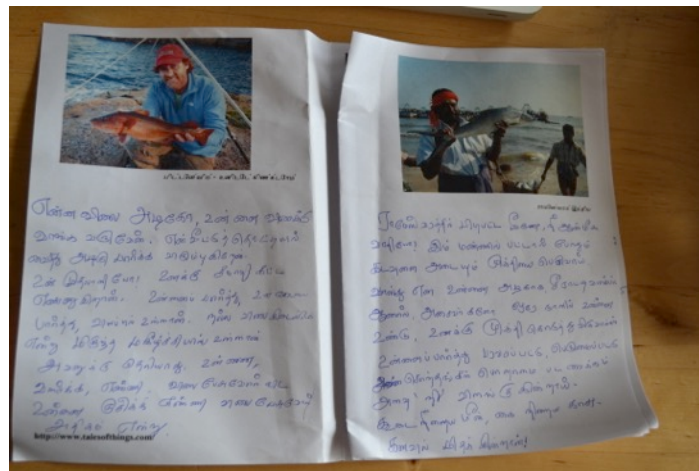


Figure (Left) This picture reminds me of the time my father is to teach me fishing when I was a kid. It made me happy every time he took me to the sea. It was adventurous and exciting.

Figure (Right) Looking at the picture I can tell the fish looks tasty and the fisherman looks proud to be in the picture.

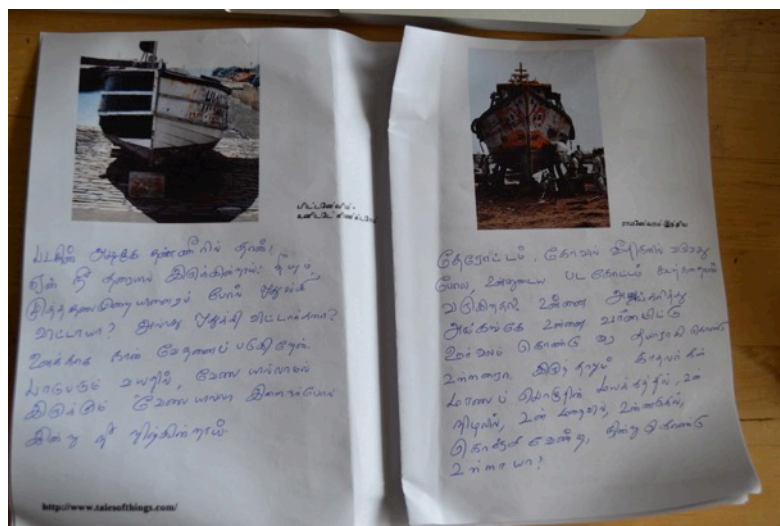


Figure (Left) The picture tells me that the boat is back to it harbour after a busy day. The scene looks very similar to the Indian fishing villages.

Figure (Right) This picture reminds of the daily hard work the fishermen in Rameshwaram go through. Even though we have less facilities in the village we still manage to do our duties every day.

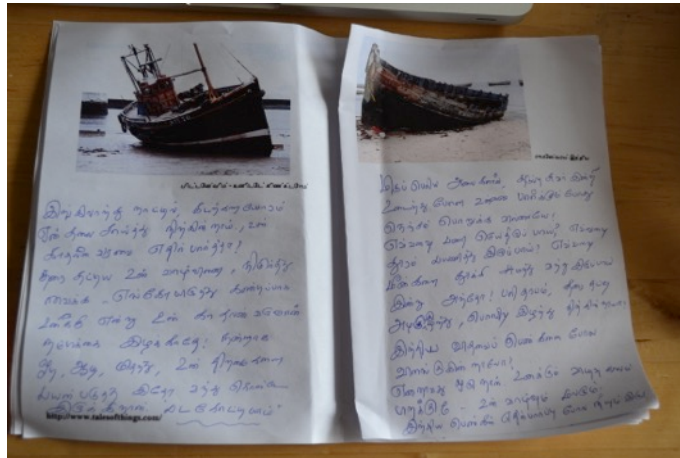


Figure (Left) The harbour seems to have dried out of water. This represents sadness to me. And this scene also reminds of the time when there was drought in the area and there was not enough fish caught during the season. It was a difficult time.

Figure (Right) The picture is very similar to the one in the UK fishing village. However, this doesn't bring sadness, it represents calmness. This could also be because the sea seems quite and the boat looks like it had a productive day and is resting at the harbour.

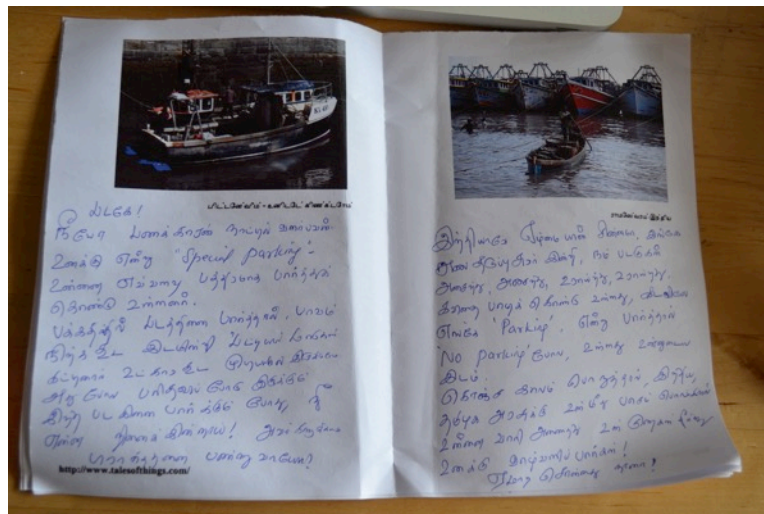


Figure (Left) This ship carried a white person in the ship reminds me of the one I saw few years ago, the ship came somewhere from Europe and it carried goods transporting to India and it had lot of white men. This is very unusual in Ramesharam as we don't see many foreign boats.

Figure (Right) This is a colourful setting of Rameshwarm fishing village. It shows a hard work of one man, his only intention is to serve his family for that day. He is coming back to the shore with a hope of selling his fish in the local market.

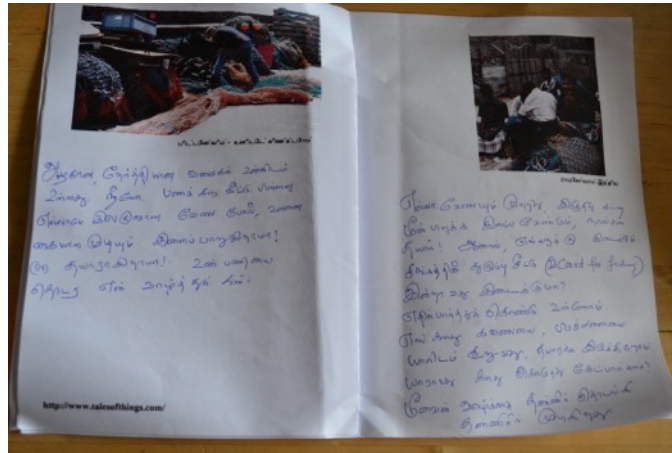


Figure (Left) This is again a similar setting of what I see in India but for me it seems like the man has no help with his daily work and he has to do his work all by himself. This is unusual as we always see more than 3 people working at a time and helping each other in Rameshwaram.

Figure (Right) This picture says a lot about our village. The men are always together and they gather after their daily work to chat and drink. It's their favourite pastime. Some are happy with the work and some don't seem to be happy. But they stick together.

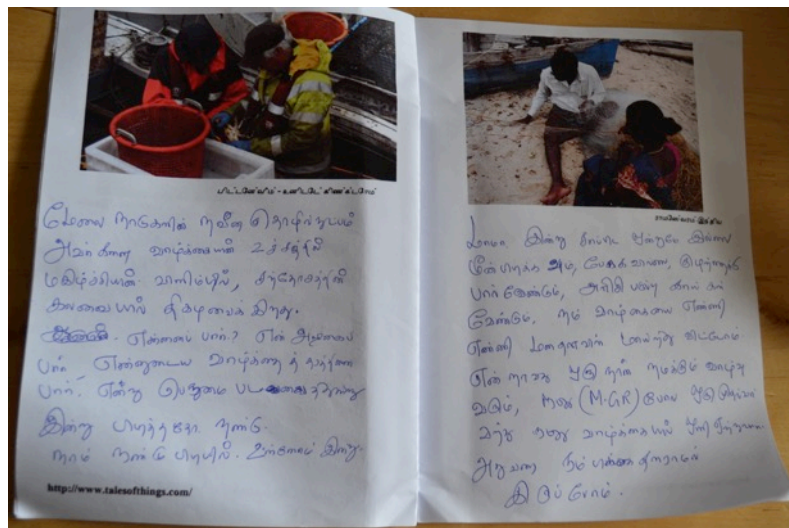


Figure (Left) This picture shows how meticulously the fishermen select their crab or fish after the fishing, before selling it to the market. Seems very professional!

Figure (Right) This picture is a informal and casual setting that shows a couple, husband and wife working as a family to help each other. The wife is helping her husband with this end of day work.

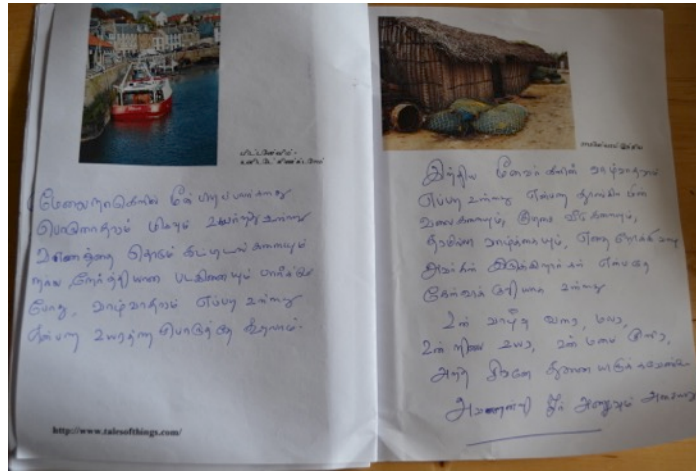


Figure (Left) I have never seen s fishermen village outside India. And this is so different from what I have imagined.

Figure (Right) This for be is not the exact comparison for the fishermen houses. As these huts are only used as ware houses by most fishermen for drying nets and fishes after work. This is a natural setting for the fishermen to build and detaches the huts anytime they want.

Participant 8

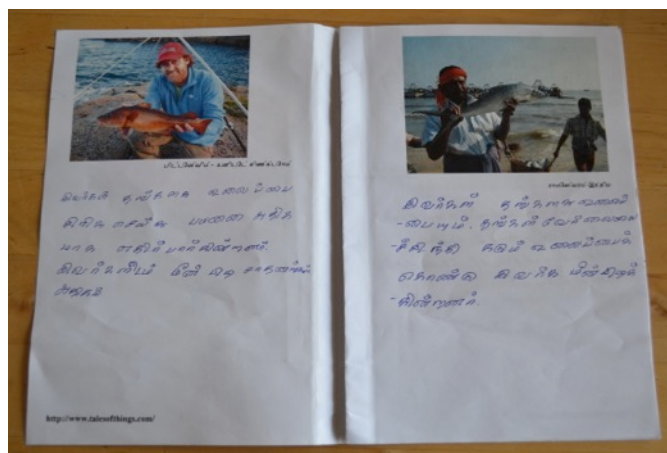


Figure (Left) The fisherman seems to be very content with his job. I can tell there is lot of facilities their government provides to have a easier lifestyle.

Figure (Right) This Indian fisherman looks like he has had a difficult day, however he looks like he is proud of this achievement.

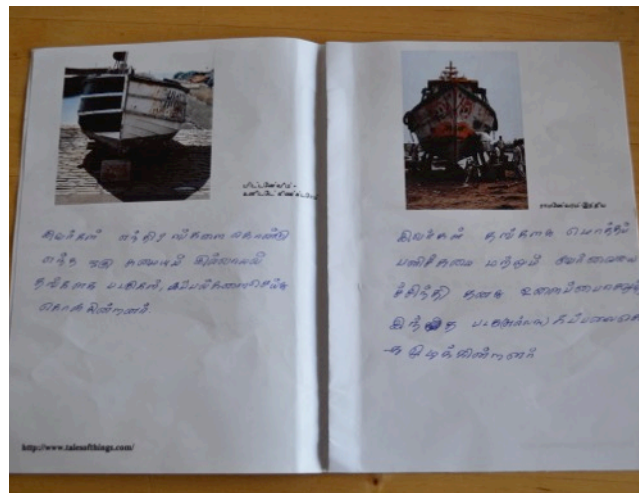


Figure (Left) The fishermen's life is difficult all over the world. However, the picture tells me that they have a calm and peaceful life than the ones living in India where there is lot of social and political issues we face everyday.

Figure (Right) The picture shows that the men in the Indian fishing villages are hard working and they don't have enough support from the government however they still struggle and survive.

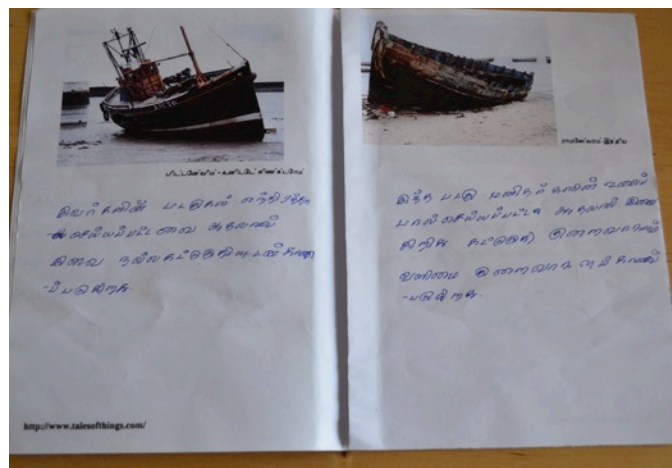


Figure (Left) The boat in the picture appears to be robust and capable of surviving high tide and rain. It looks like it has had a good day and resting at the harbour.

Figure (Right) The boat in the picture taken in Rameswaram looks feeble and weak. Even though the boat doesn't appear to be as strong as the one in the UK, the picture speaks a lot for the hard work the fishermen has been through.

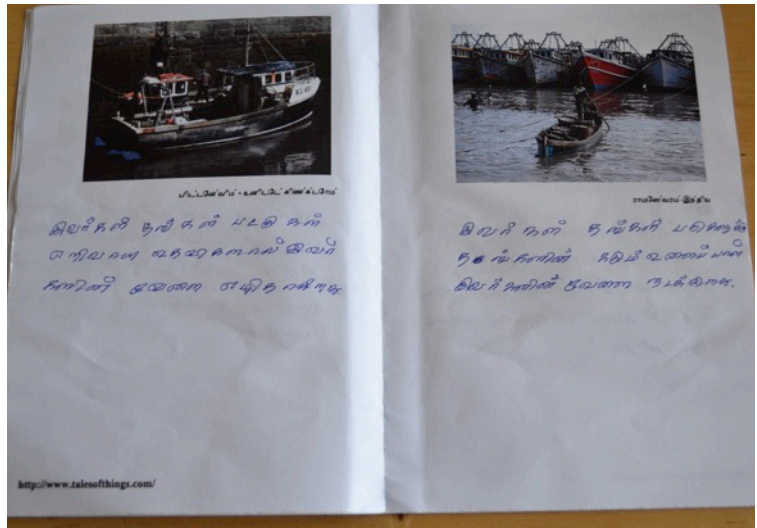


Figure (Left) I can tell that they are motor boats and they use diesel which makes the process quicker and easier, which is similar to the ones in Rameshwaram fishing village.

Figure (Right) Even though we use motor boats most of the time, in this picture the fisherman is transporting the fish baskets from bigger boats to the small manual boats, this process is easier to help bring the fishes to the shore.

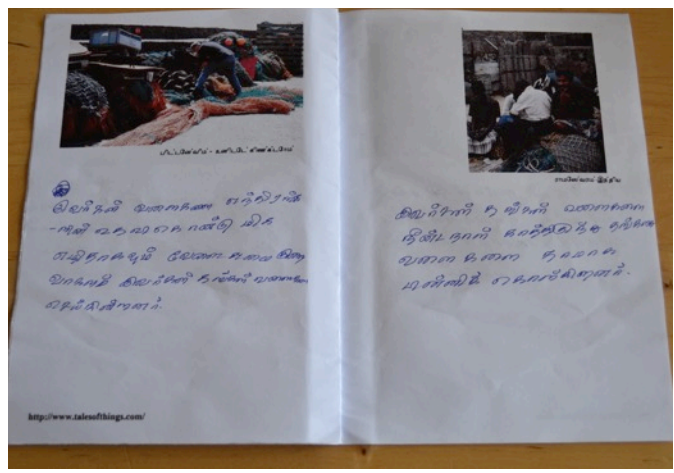


Figure (Left) It seems to me that the fishermen in the UK fishing village use the same process to stake the fishing nets and the material appears to be similar as well. It shows how techniques have travelled across the ocean so quickly.

Image 10

This a fishing net we use in Rameshwaram is plastic so it is easier to dry and doesn't get heavy while in the sea. In the past my father and grandfather used to use cotton as a material for fishing net, which was difficult for drying and using it the very next day.

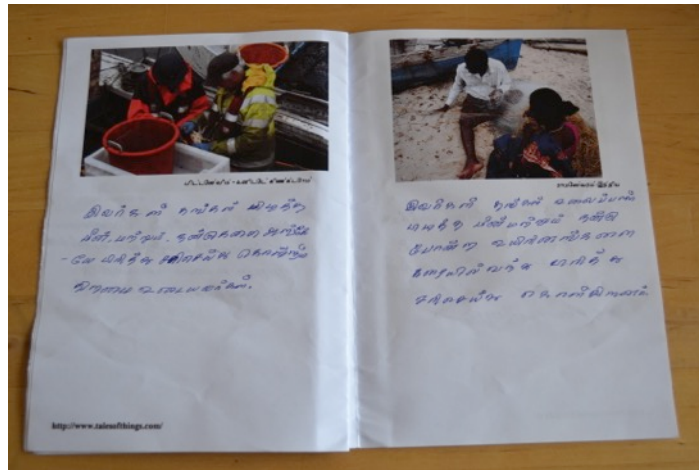


Figure (Left) The fishermen in the picture appear to be talented and equipped; they are carefully choosing the best crab soon after fishing.

Figure (Right) However, in this picture the couple seem to be same thing but in the shore, may be they don't have the facility as the fishermen in the UK.

Participant 10

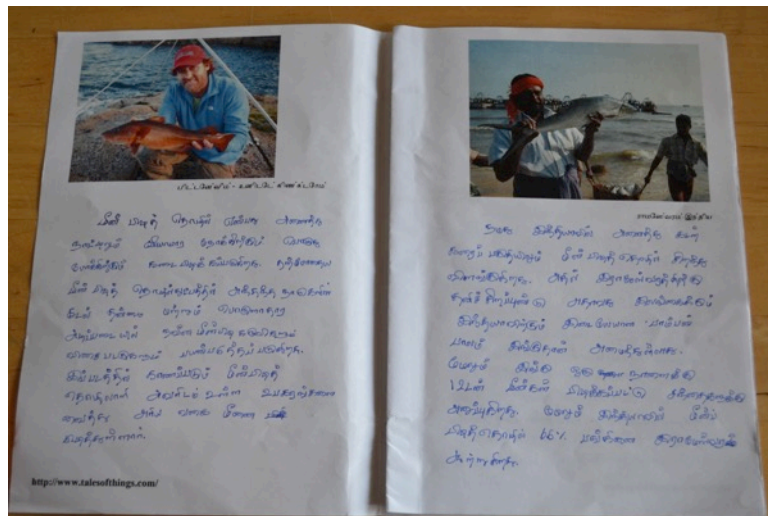


Figure (Left) Considering fishing to be done both commercially and as well as for pleasure/ tourism these days, It can be widely noticed in both the fishing communities that latest technologies like the gps and other modern equipments are used for better results.

Figure (Right) As for my knowledge most of the cities in India along the sea prosper with fishing industry. Especially Rameshwaram is famous for its biggest fishing industry in the south India apart from the city being a pilgrimage for the Rameshwaram Hindu temple. In a day Rameshwaram sells almost about 12 tons of fishes to other markets for export, which is 66% of Indian fishing in total.

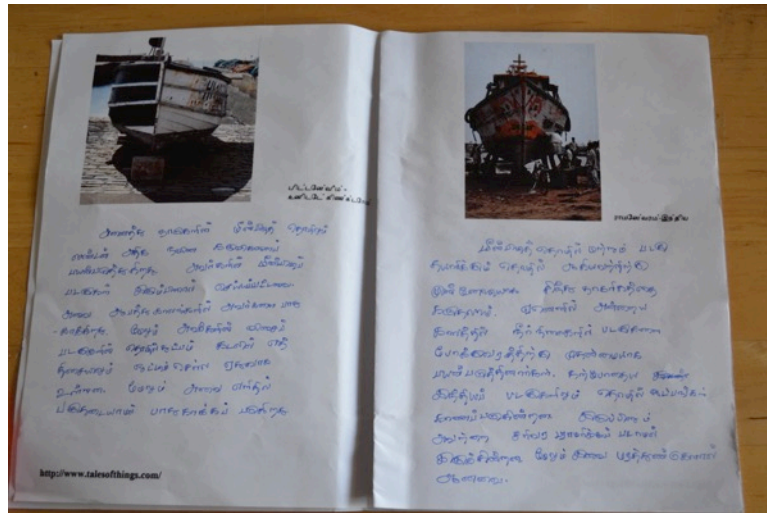


Figure (Left) Compared to most of the fishing community I would think UK fishing community will be using the most modern fishing equipment among all. Looks like their boat is made out of iron, which makes it sturdier than the ones in Rameshwaram.

Figure (Right) Rameshwaram fishing village also has the facility to build and repair huge boats, considering it to be one of the biggest fishing communities in India. Nowadays, we find all modern techniques and facilities to be present in India as much as we find it in foreign lands.

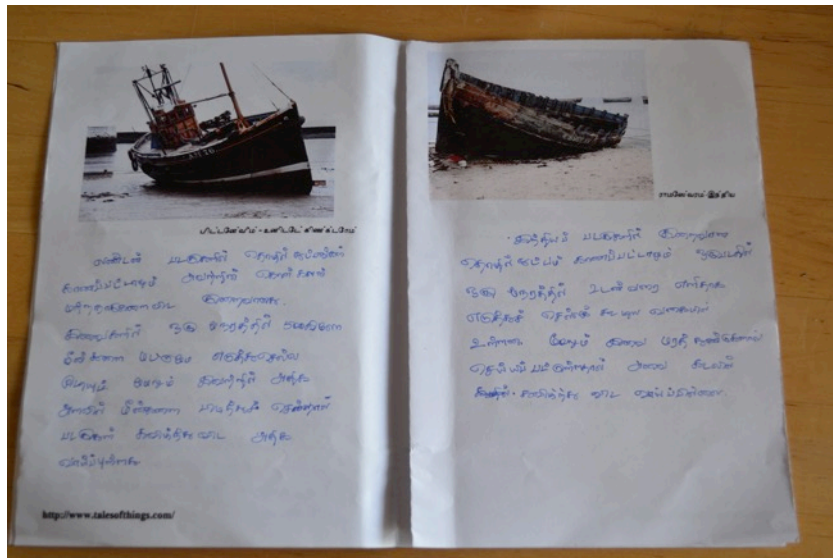


Figure (Left) This boat in the picture seems to be capable of carrying tons of fishes and looks to me that it is one of the fastest boats in the village.

Figure (Right) The picture in Rameswaram is made of wooden planks and it can be taken into the sea very easily. The boat doesn't have any modern equipment like the gps systems which restricts its functionality.

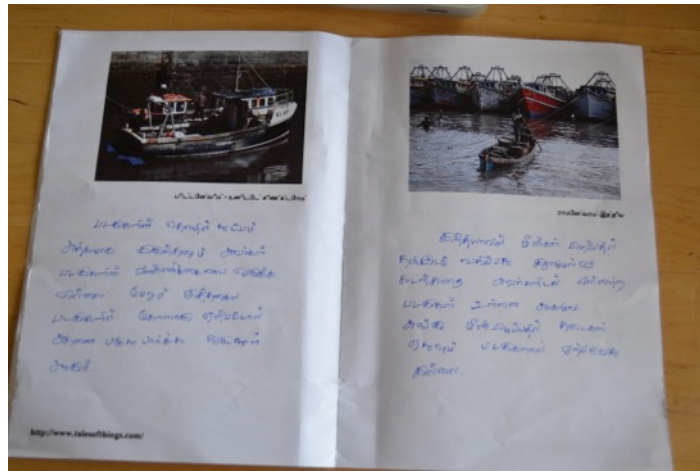


Figure (Left) The picture reminds me of the story my grandmother used to tell me that during her days when they saw more development in modern technology taking over the manual labour there was a decline in the number of fishermen. This lonely boat tells me that could be the reason it's not accompanied by any other boat.

Figure (Right) However, this picture shows that there are many boats standing next to each other. And they person sailing manually to the shore speaks for itself that the reason there are more fishermen in the village is because there is not much intervention of technology and people still rely on others for help.

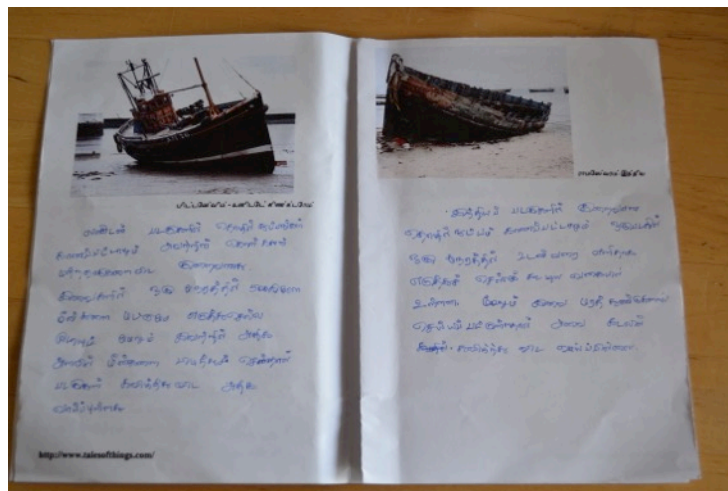


Figure (Left) The fishing nets used in the UK seems to be the same nylon and plastic as we normally use in Rameshwaram. This material is easy to dry and reuse for the future.

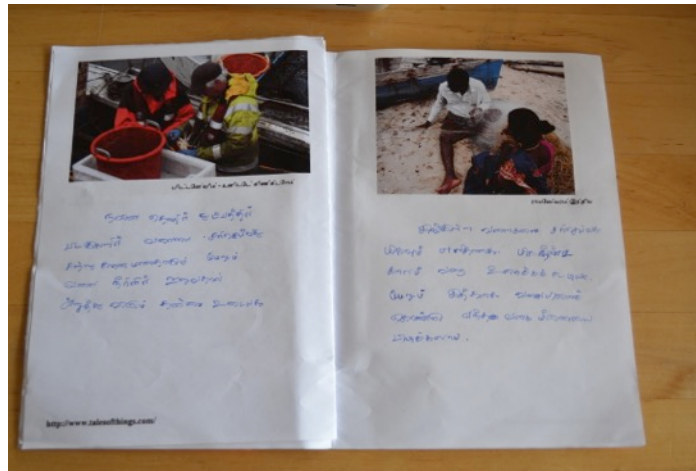


Figure (Left) This picture reminds of my own experience in using fishing nets while fishing in a speed/ motor boat. Using such fishing nets while driving a speed boat is tricky as it has the tendency to get cut as it goes deep into the water.

Figure (Right) The fishing net, the couple are using have to be used manual and moreover it is very easy to maintain. Using such fishing nets one can catch any type of fish.

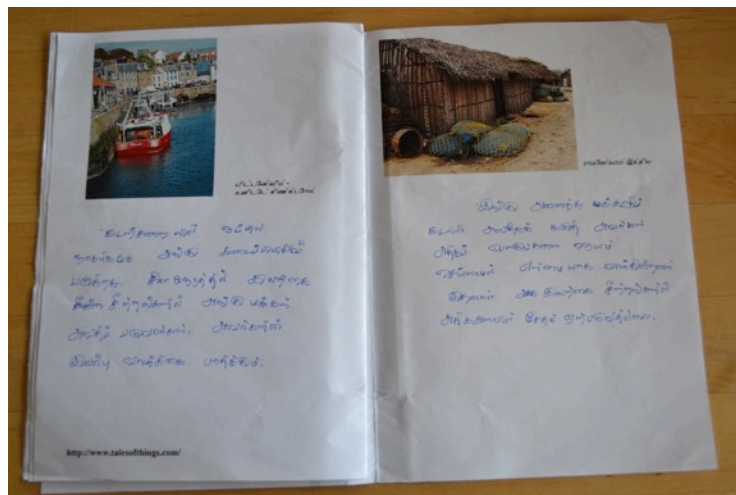


Figure (Left) From the picture I can tell that the artificial harbour built along the shore protects them from heavy tide. So people are fearlessly living next to the sea.

Figure (Right) However, in India fishermen and their family live few miles away from the sea, especially after the Tsunami.

7.3 Appendix: C Story Kit: Story manual Translations:

7.3.1 Story Kit

Portugal Participant -1

How do you connect to people?

Recordings A: I connect to people through the new communication media, for example the social networking websites namely Facebook and through the mobile phones, videoconference, through the television, or more concretely through news.

How will you connect to people in the future?

Recordings B: In my opinion in the future people will communicate through technologies like information and communication.

People are more and more encouraging face to face communication through the new communication device/media.

Living and working as a part of the fishing community, how do you think you can change your community into a better place?

I would create an organisation whose work is to inform the community about the most relevant facts in our country, debating new methods and options to create an informed and civilized community, so that the community would fight more for their rights.

What would you do to make your community feel connected?

Find common objectives in the community, fight for them, giving them as much information. End up with the characteristics of fish handlers. Make fish a "gourmet" food to increase money in the community.

Story Manual

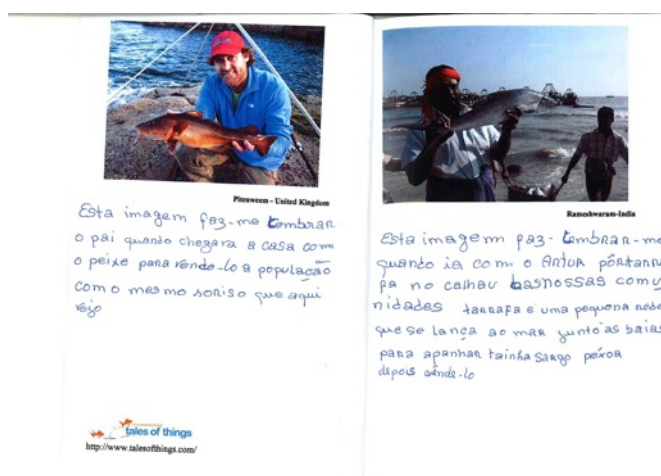


Figure (Left) This image makes me remember my dad when he used to come home back from sea with fish to sell to the people with some smile, which I can see here.

Figure (Right)

'This image reminds me of the time when I used to go with Athur to put 'Torropa' in the community. Torropa is a small hut that we build near the sea, so the boys can catch fish and sell it afterwards. We spent a lot of time in the hut telling stories about the sea.'

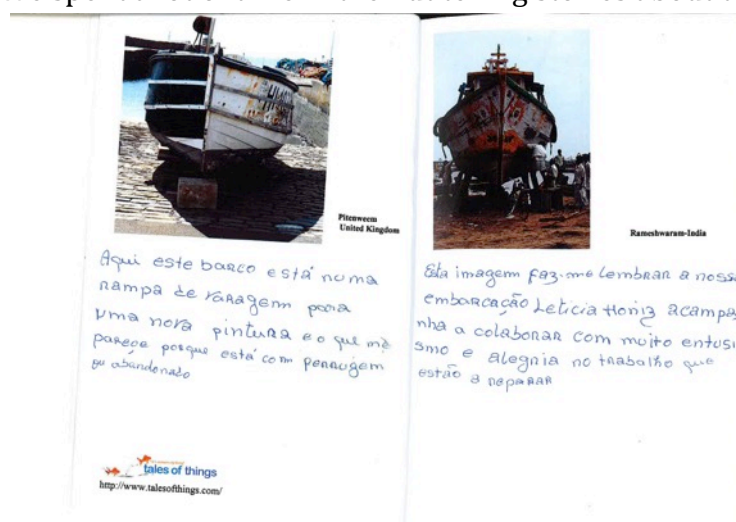


Figure (Left) This boat is on a breaching slope to receive a new paint that is what it seems to me. Because it is rusted or abandoned.

Figure (Right)

This image reminds me of our vessel, Leticia Htoniz, collaborating with enthusiasm and happiness in the work of those who are repairing it.

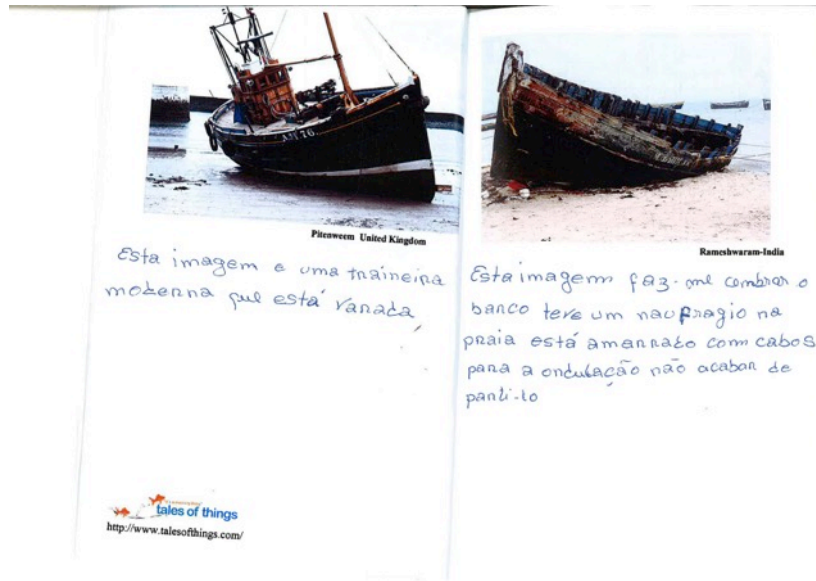


Figure (Left) This image is a modern 'trainure' which is boarded.

Figure (Right)

This image reminds me of a ship wrecked on the beach, which is freed with cobbles to avoid the waves to break it completely.

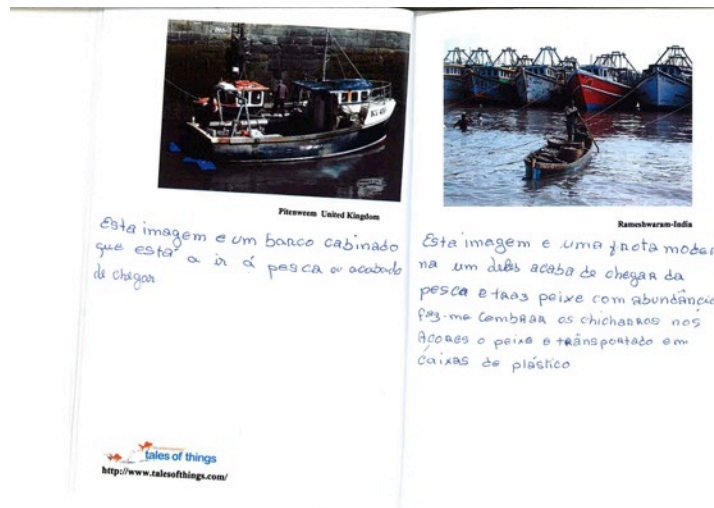


Figure (Left) This image is of a combined boat, which is about to leave to fish or just, come from it.

Figure (Right)

This image is a modern fleet, one of them just arrived, brings abundant fish. It reminds me of the chicherrros. In the Azores the fish is transported in plastic boxes.

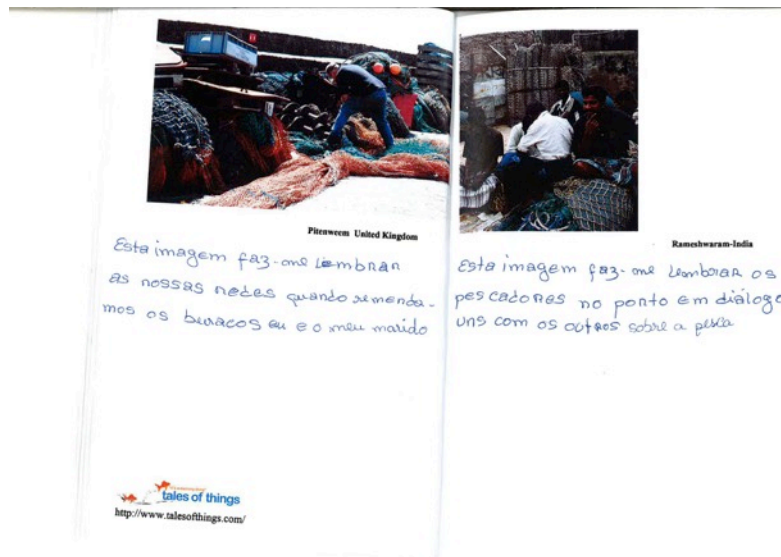


Figure (Left) This image reminds me of my husband and myself, our nets when we fix their holes.

Figure (Right)

This image reminds me of the fisherman in the harbour (port) who talk to each other about fishing.



Figure (Left)

This image reminds me of shell fish and other kinds of fishes we catch here.

Figure (Right)

This image reminds me of the women in the fishing practice, when I go with Arthur to other sites to help him fix the nets. Arthur is my husband.

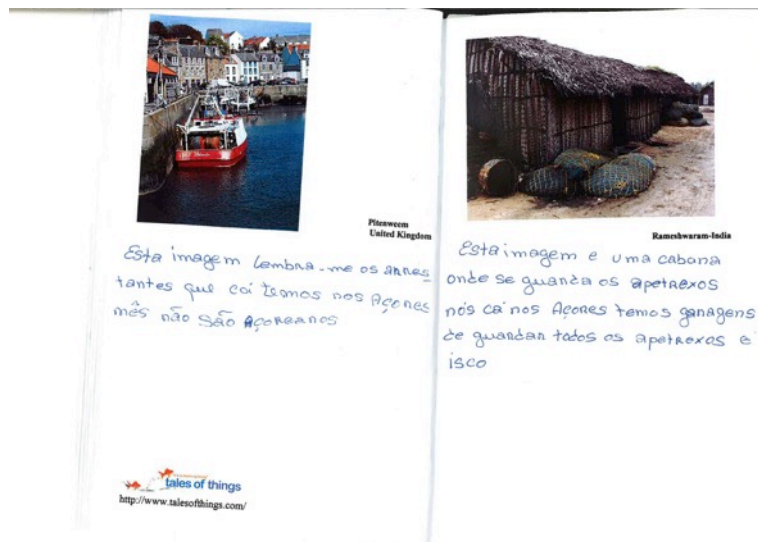


Figure (Left)

This image reminds me of 'annestantes' that we have in the Azores but they are not azoreanos (from azores).

Figure (Right)

This image reminds me of our tent where we keep the artefacts. Here in the Azores we have garages to keep the equipment's and boats.

Story manual - Portugal Participant -2



Figure (Left)

Reminds me of my husband when he comes from fishing day and takes his 'piscado' (kind of fish) from the basement.

Figure (Right)

This image makes me remember my dad when he used to come home back from sea with fish to sell to the people with some smile, which I can see here.

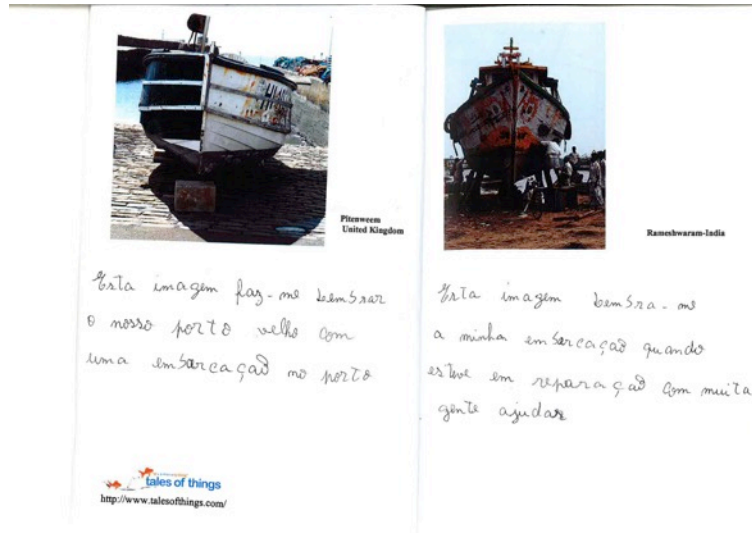


Figure (Left)

This image reminds me of our old port with a boat in the port.

Figure (Right)

This image reminds me of my boat. When it was being repaired with the help of a lot of people. (might be better translating for 'embaroc')

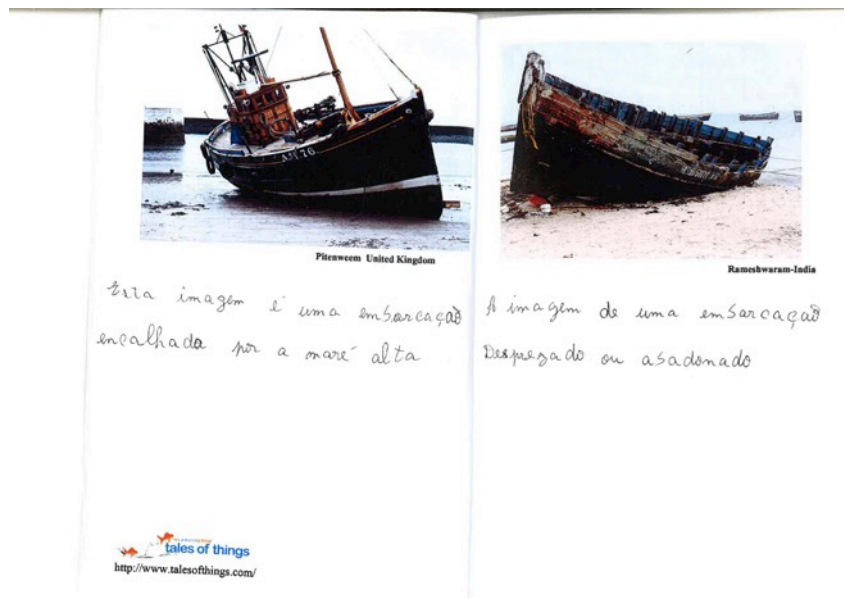


Figure (Left)

This image is a boat stuck because of a high tide.

Figure (Right)

This is the image of an abandoned or disregarded vessel

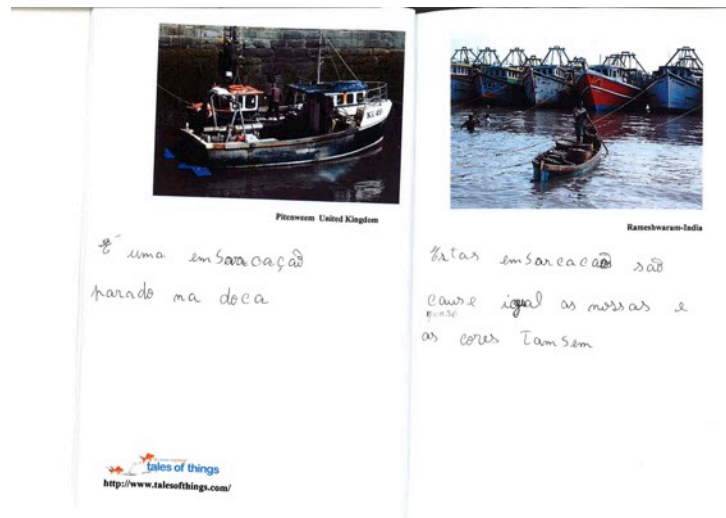


Figure (Left)

It is a vessel anchored at the dock.

Figure (Right)

This vessels are almost the same as ours and the colours are similar too.

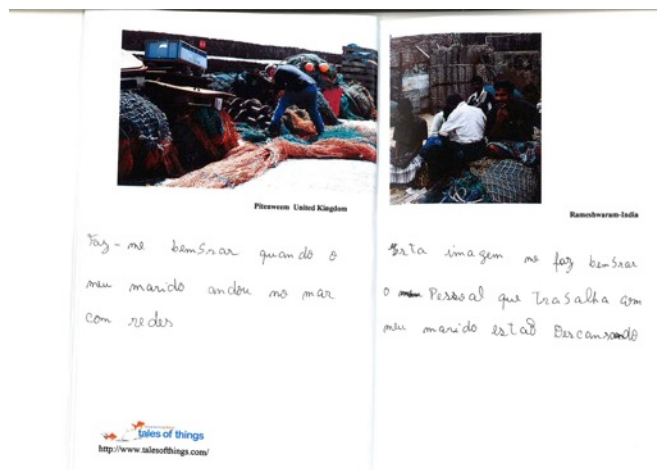


Figure (Left)

Reminds me when my husband went to the sea with the nets.

Figure (Right)

This image reminds me of the people that works with my husband they are resting.



Figure (Left)

This image reminds me of my husband when he caught crabs, lobsters and other kinds of fish.

Figure (Right)

This image reminds me when my husband used to go to the sea with nets similar to these.

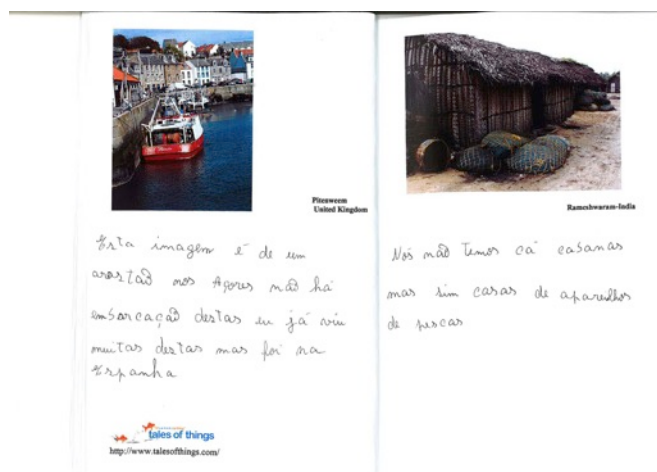


Figure (Left)

This is the image of an 'arrate' in the azores these are no vessels like these but I have seen one of those in Spain.

Figure (Right)

We don't have tents but we do have houses to keep the fishing equipment's.

Tell me how you connect to people.

Connect to people through Telephones and mobile phones.

Tell me how you will connect to people in the future.

In my opinion in the future people will communicate through the messages, email and new communication technology like the QR code.

What would you do to make your community feel connected?

I intend to organise an association that could help children to get out of the streets and do activities such as the football, walking strolls so that children could know their island better and to help them with school activities among others.

Living and working as a part of the fishing community, how do you think you can change your community into a better place?

I for instance an (actiguste) I teach the bible to children. Which almost all of them are part of the fishing community where I live. I try people when they grew up and that they always do the good to their community.

Questionnaire:

3. *Age:*

4. *Occupation:* Fisherman's wife

5. *How long have you been involved in Fishing?*

Since I' have got married, 22 years ago.

6. *How often do you go/ used to go Fishing in a week?*

When it is needed.

7. *What kind of Fish do you usually get and from where?*

My husband's boat fishers in ponte delgada and the kind of fish we catch is cherm,..

8. *Are they seasonal? If so what type of fish are found in a particular season?*

Throughout the year

9. *Tell us about your unforgettable experience while fishing?*

My experience happened 19 years ago, 3 weeks before Christmas, my husband and my mothers almost died in the see close to the port.

10. *Do you have any particular fishing techniques if so please explain?*

The techniques I use in the 'palagre' lines and hools.

11. *Do you follow any particular tradition or custom in fishing?*

My dad's tradition

12. *Do you visit the Fisheries museum? If so, why do you visit and how often do you visit?*

I have never visited a fishing museum.

13. *Do you posses objects or artifacts that are related to fishing?*

If so can you narrate the story behind the object?

Yes, I have a miniature boat of (opened mouth?) Which was my first vessel which I've sold and brought a closed boat.

Portugal Participant -3

Story manual

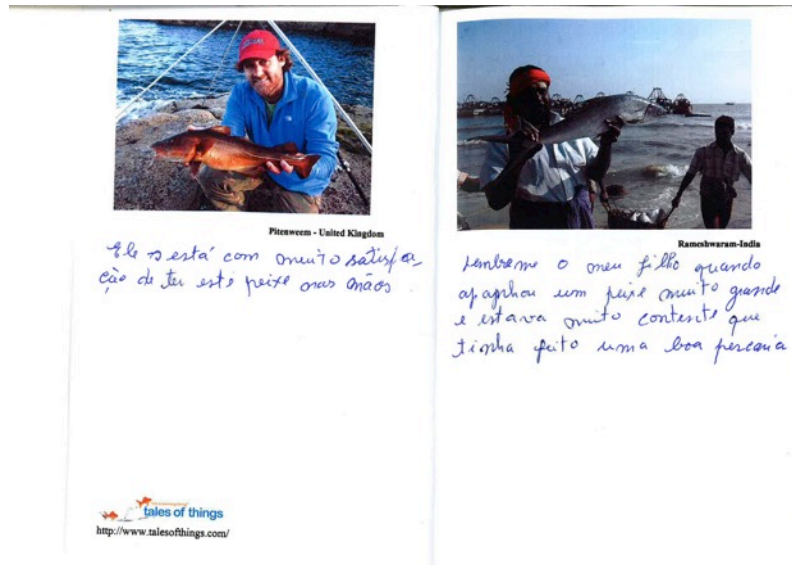


Figure (Left)

He is very satisfied about having his fish in his hands.

Figure (Right)

It reminds me of my son when he caught a huge fish and was very happy about his fishing day.

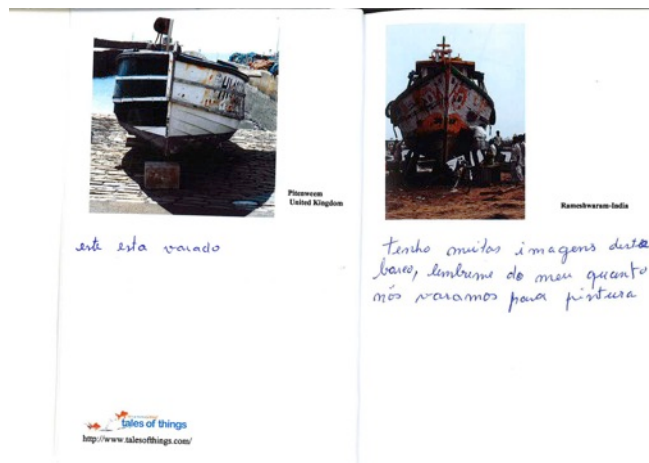


Figure (Left)

It is branched.

Figure (Right)

I have many images from this boat, it reminds me of my boat when we took it out of water (branched) to paint it.

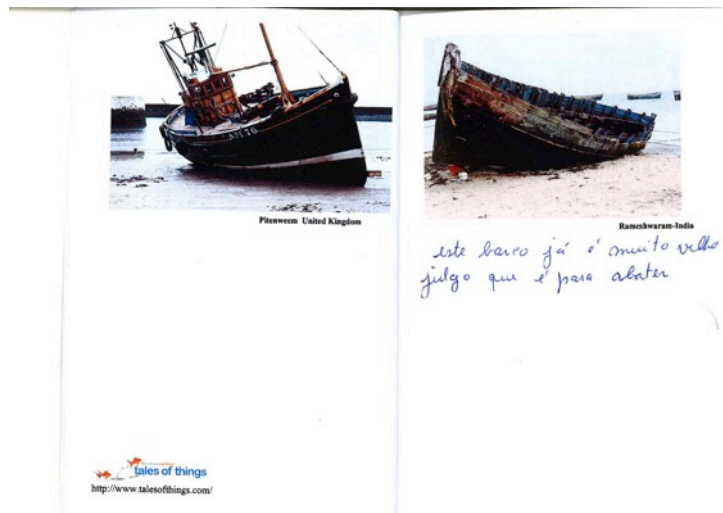


Figure (Left)

Figure (Right)

This boat is too old. I believe it is to be broken apart.

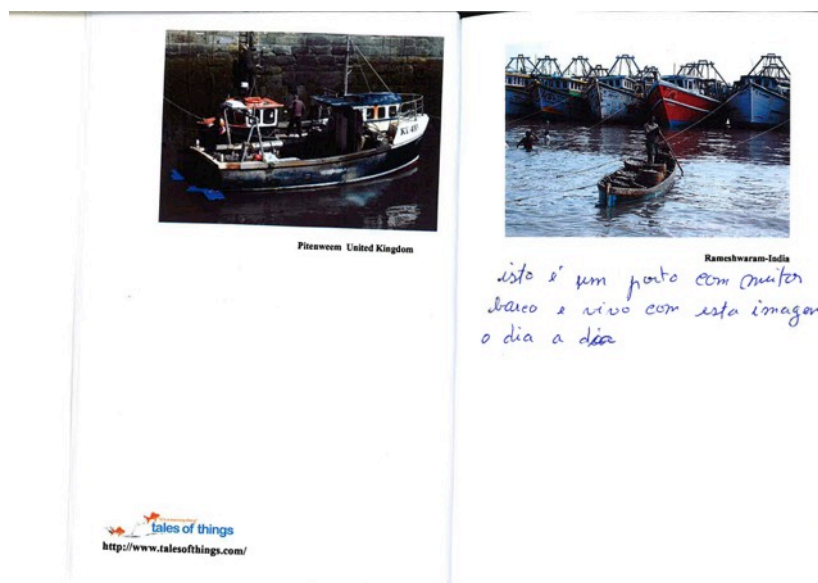


Figure (Left)

This is a port with many boats; I live with this image every day.

Figure (Right)

This picture is looking where to start the work, because my husband is the same.

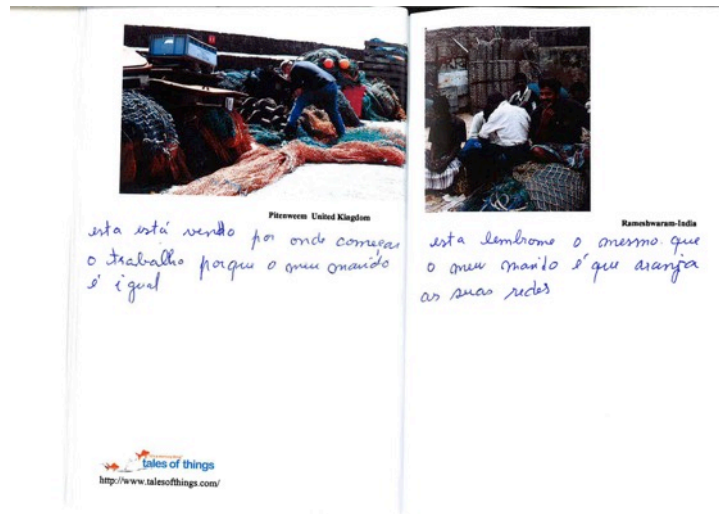


Figure (Left)

This reminds me of my husband who arranges his nets

Figure (Right)

This is scaling off the fish



Figure (Left)

Again arranging the nets

Figure (Right)

It reminds me when my boat is anchored to the dock

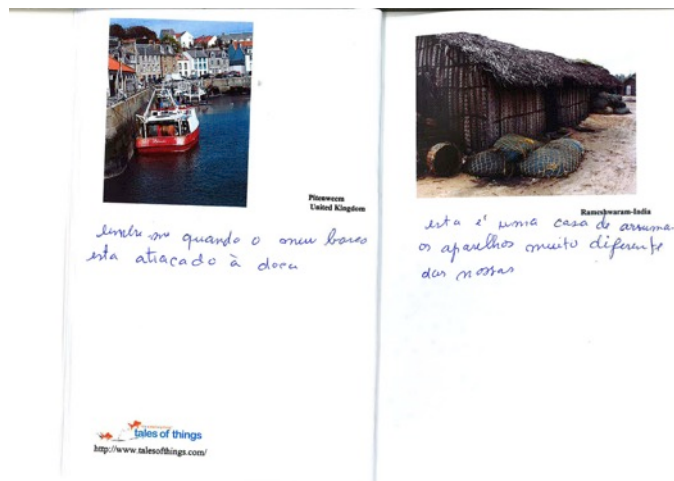


Figure (Left)

This is a house to arrange the equipment, which is very different to ours.

Figure (Right)

Questionnaire:

1. *Name*

2. *Age: 54*

3. *Sex: Female*

4. *Occupation: I administrate the boats.*

5. *How long have you been involved in Fishing?*

I don't fish, but I work in the field since I got married, when I was 20.

6. *How often do you go/ used to go Fishing in a week*

Fishing happens throughout the year as long as the weather is good.

7. *What kind of Fish do you usually get and from where?*

In the Azores sea: Abrotco, Akfousin, Dark motuh, Ilhor, Pixo group centre

8. *Are they seasonal? If so what type of fish are found in a particular season?*

A bit of everything. It depends on the futos.

9. *Tell us about your unforgettable experience while fishing?*

For the first time in July this year (2011) I went to fish Tuna with a live bait. I liked small tork. It requires a lot of patience. But I think you really need to like this life.

10. *Do you have any particular fishing techniques if so please explain?*

My boat uses the --- art which is lines and hooks.

11. *Do you follow any particular tradition or custom in fishing?*

No because now everything is more modern,

12. *Do you visit the Fisheries museum? If so, why do you visit and how often do you visit?*

I don't use to visit it. But in my neighbourhood there is a fisherman with old artefacts, such as photographs or the older fisherman. I go there very often because it makes many boats like the .. and other things for the fisherman.

Living and working as a part of the fishing community, how do you think you can change your community into a better place?

To live together with all the community in harmony, to talk and exchange ideas, listening to the people and also giving our opinions

Tell me how you connect to people.

I communicate with other people through landline or mobile phones

Tell me how you will connect to people in the future.

In the same way as the landline and the mobile phones

Portugal participant -4

Story manual

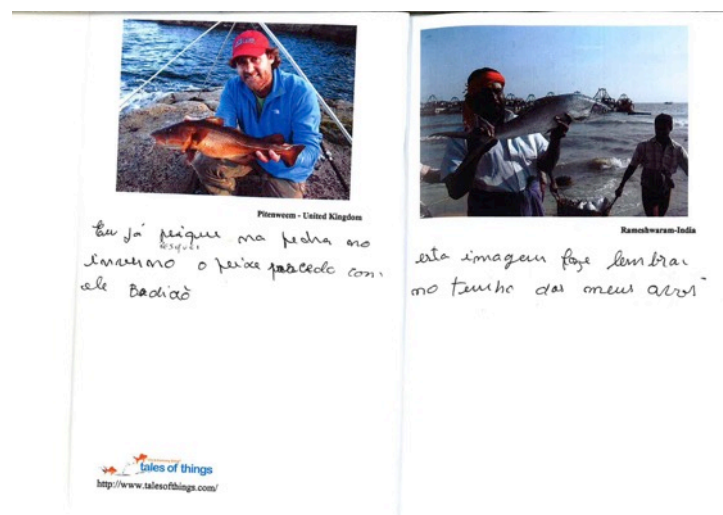


Figure (Left)

I have directly fished in the rocks in the winter that which with it bodies.

Figure (Right)

This image reminds me of the time of my grandparents.

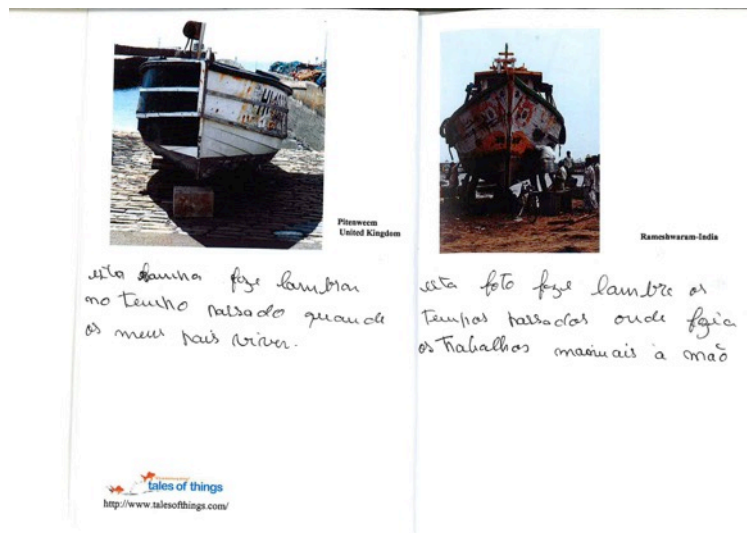


Figure (Left)

This boat reminds me of the past time when my parents were alive.

Figure (Right)

This photo reminds me of the past times when I used to make manual works with my hands.



Figure (Left)

This reminds me of my boat when we go to Ribeir port.

Figure (Right)

This boat is in a very bad condition.

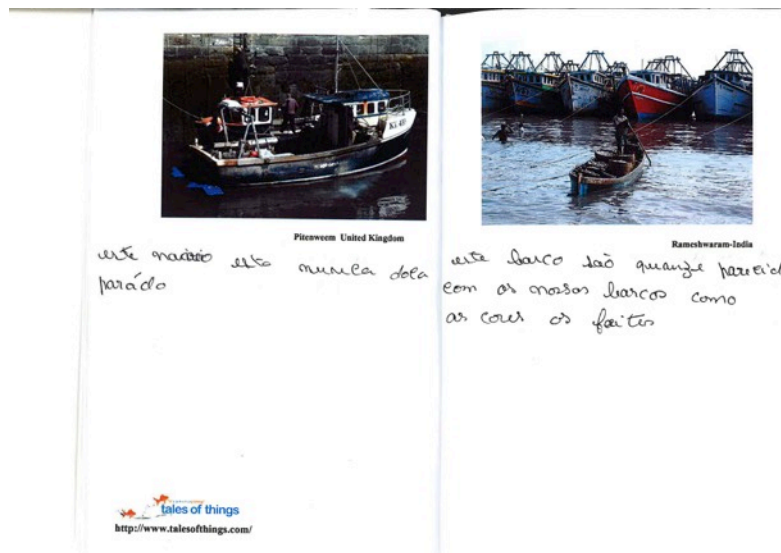


Figure (Left)

This boat is in a dock, stopped/still without being used.

Figure (Right)

These boats are almost similar to our boats as the colours are same.

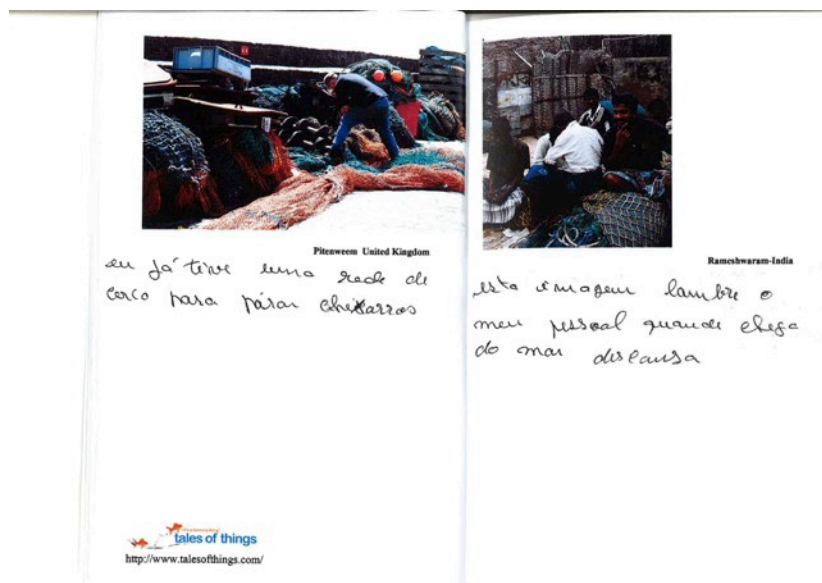


Figure (Left)

I had once a net of _ to stop.

Figure (Right)

This image reminds my people when they come from the sea they rest.



Figure (Left)

This image is like ours traps for the crabs.

Figure (Right)

I have already done the same here like shown in the photo. Fixing nets. When I used to go to the place ()

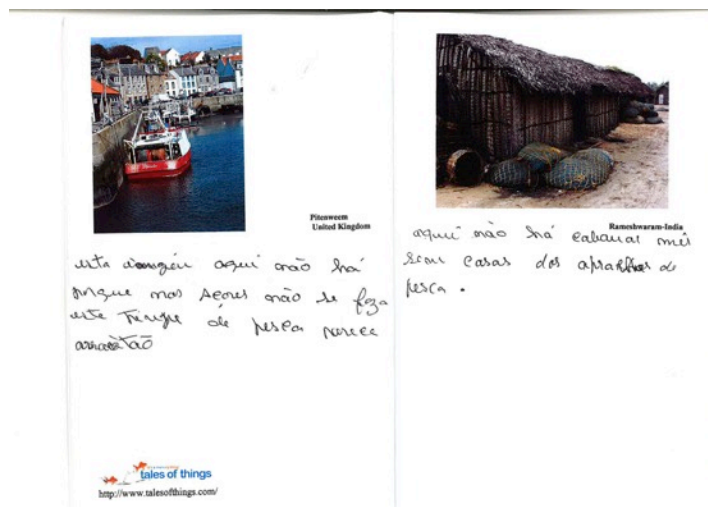


Figure (Left)

This image does not exist here. Because in the Azores we don't do this type of fishing. It looks like arresto.

Figure (Right)

Here there are even tents or house to store the fishing equipment's

Questionnaire:

1. Name:

2. Age: 32

3. Sex: Female

4. Occupation: Sitting (in the sense of preparing for fishing) a boat

5. How long have you been involved in Fishing?

I was 11 when I started fishing

6. How often do you go/ used to go Fishing in a week

I work every day

7. What kind of Fish do you usually get and from where?

All kinds of fish

8. Are they seasonal? If so what type of fish are found in a particular season?

We catch all kinds of fish throughout the year

9. Tell us about your unforgettable experience while fishing?

This is my experience: to go to the sea, work on the land, when I go to the sea to get a fear, be afraid even in the next day when I used to get ready to go to the sea again.

10. Do you have any particular fishing techniques if so please explain?

Lines and hooks.

11. Do you follow any particular tradition or custom in fishing?

I follow the traditions of my parents and grandparents even with new techniques.

12. Do you visit the Fisheries museum? If so, why do you visit and how often do you visit?

Yes I have been to the museum in my neighbourhood

13. Do you possess objects or artifacts that are related to fishing? If so can you narrate the story behind the object?

Yes I visit museum often because I like to do artefacts out of silk line every day.

Audio Recordings:

Tell me how do you connect to people?

The first is mobile phones. The last work is the sound recorder in informatics (communication).

Tell me how will you connect to people in the future?

I connect myself through new modes of communication for instance, social networking sites Facebook and through mobile phones.

What would you do to make your community feel connected?

In my opinion in the future people will communicate through the messages/ email/ new communication technology.

Living and working as a part of the fishing community, how do you think you can change your community into a better place?

Create an organisation whose aims would be to inform the community about the most relevant events more information and courses that gives more information.

To find out common objectives in the community, right. Stop with the power abuse. Take part in the women association in the web. I love to be in touch with them to communicate from the islands of Azores.

Portugal Participant 5

Questionnaire:

1. *Name*

2. *Age:* 53

3. *Sex:* Female

4. *Occupation:* Fisher 'in land' I also help with my husband's boat and 6 daughters

5. *How long have you been involved in Fishing?*

Since I was 20

6. *How often do you go/ used to go Fishing in a week*

I help every day

7. *What kind of Fish do you usually get and from where?*

All the kinds of fish that my boat gets. Congro, pixco, goroz, arraic, moreic etc

8. *Are they seasonal? If so what type of fish are found in a particular season?*

Throughout the year

9. *Tell us about your unforgettable experience while fishing?*

My experience is the fear that I got when my husband and children are in the sea, with a broken boat.

10. *Do you have any particular fishing techniques if so please explain?*

Lines and hooks.

11. *Do you follow any particular tradition or custom in fishing?*

Yes, the tradition of my parents and grandparents

12. *Do you visit the Fisheries museum? If so, why do you visit and how often do you visit?*

I have been to the museum in the whole factory on the lail and in the agua de port.

13. *Do you posses objects or artifacts that are related to fishing? If so can you narrate the story behind the object?*

I make the nets fro which is what I like most. The cofres and artefacts to catch. Mussel, lobster and other things

Tell me how you connect to people.

I communicate to other people through the mobile phones or telephones.

Tell me how you will connect to people in the future.

Through the computer and new communication and technology.

What would you do to make your community feel connected?

I would promote courses and information mainly among the young people, because there are still lot of youngsters that don't know anything about fishing.

Living and working as a part of the fishing community, how do you think you can change your community into a better place?

In one association we learn more , we know more and value more.

Story Kit:

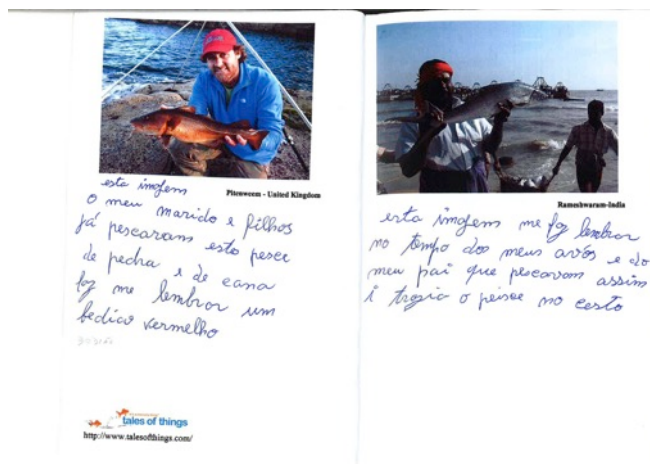


Figure (Left)

It reminds me of the time when my husband and sons directly fished this rock fish in pixe de porte.

Figure (Right)

This image reminds me of my grandparents and dad's time who used to fish in this way and used to bring the fishes in a basket.

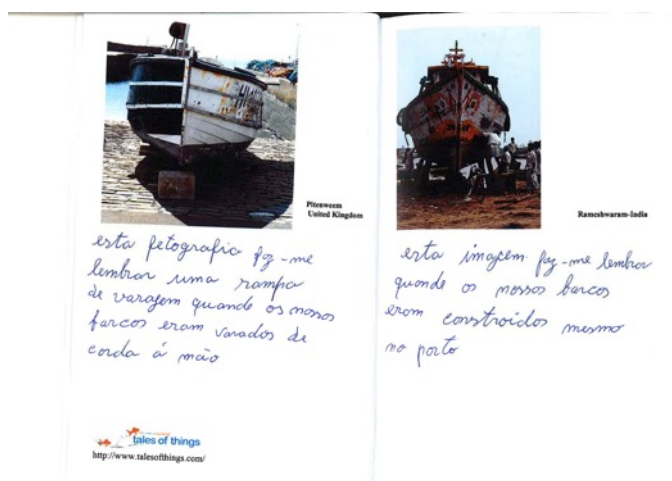


Figure (Left)

This photographs reminds me of a 'voregum' slope when our boats used to be brought outside the water manually with a rope.

Figure (Right)

This image reminds me of the time our boats were built in the port itself.

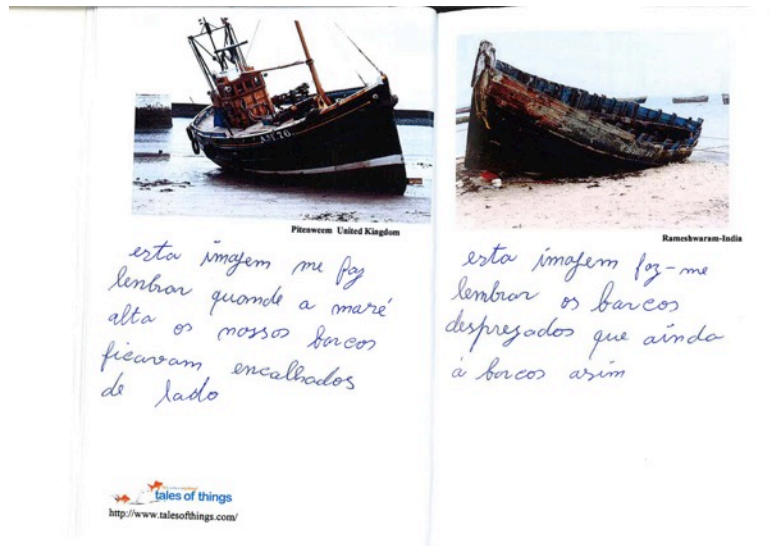


Figure (Left)

This image reminds me of the time in which the tide was high and our boats got stuck laying on the other side.

Figure (Right)

This image reminds me of the loose boats and that there are still some boats like that.

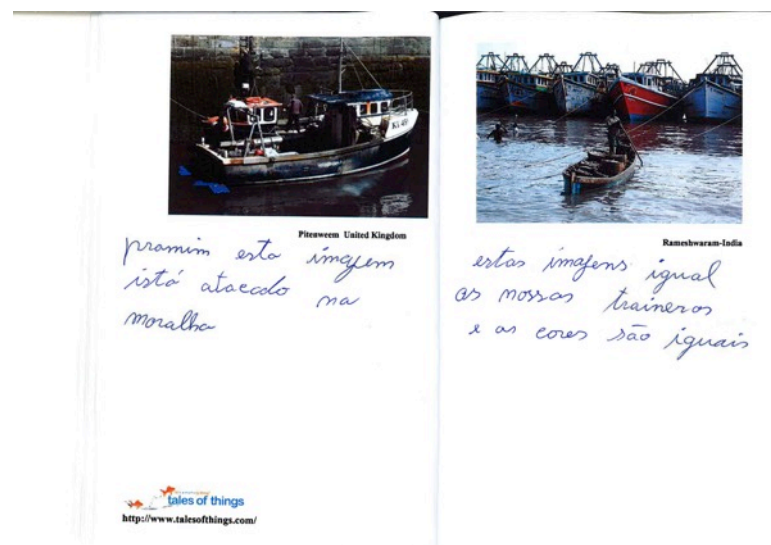


Figure (Left)

For me this is the image of a boat moved at the wall.

Figure (Right)

The images are like our vessels and the colours are the same.

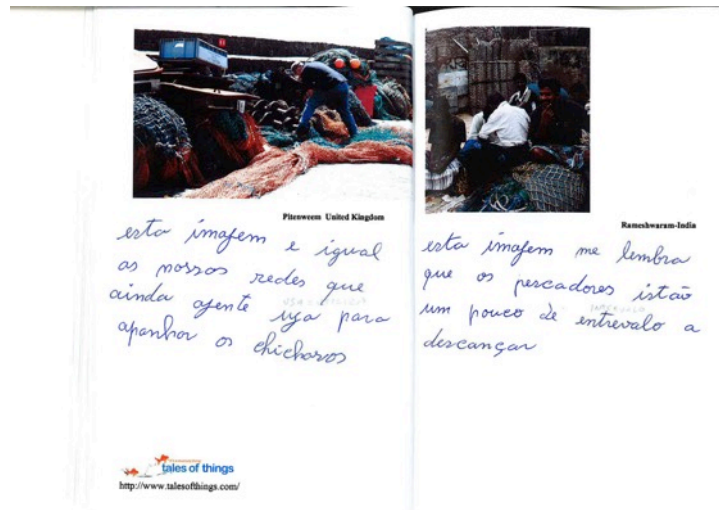


Figure (Left)

This image is like our nets that we still use to catch the 'chichorros' (kind of fish)

Figure (Right)

This reminds me that the fishermen are in a bit of break resting them.



Figure (Left)

This image is a same as ours, they are separating the crabs.

Figure (Right)

This image is same as ours, when they have come from sea, they start to sew the nets.

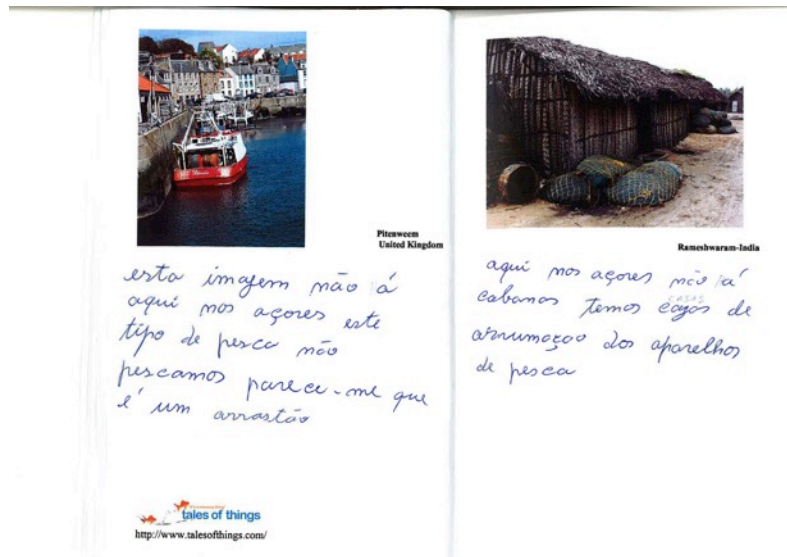


Figure (Left)

This image doesn't happen in Azores. Here we don't have this kind of fishing technique. It seems to me that it is 'arresto'

Figure (Right)

Here in Azores we don't have tents, but we do have houses to keep the fishing equipment.

7.4 Appendix: D Story Kit: Story manual Translations:

7.4.1 Story Kit

United Kingdom Participant - 1

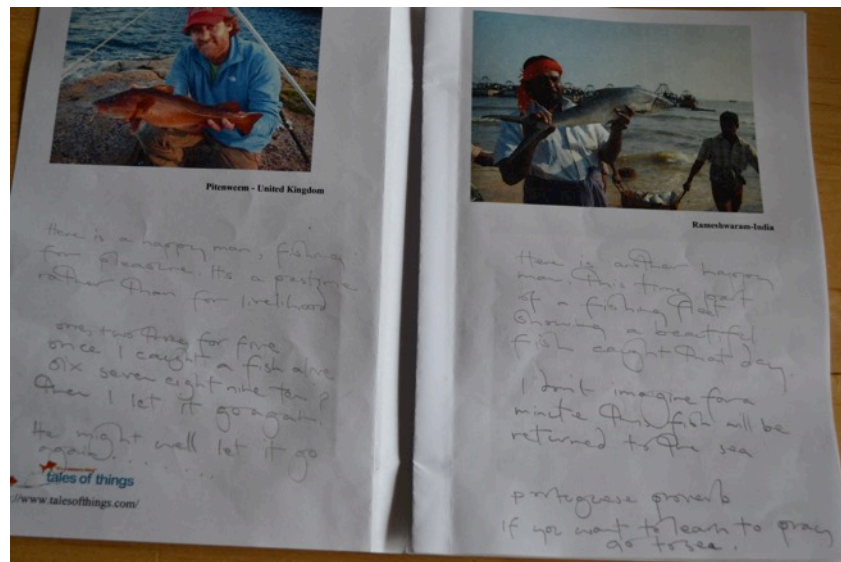


Figure (Left)

He is a happy man fishing for pleasure. It is a past time rather than for livelihood.

One. Two three four five

Once I caught a fish alive

Six seven eight nine ten

Then I let it go again

He might as well let it go again

Figure (Right)

Here is another happy man. This time part of a fishing fleet showing a beautiful fish caught that day. I didn't imagine for a minute this fish will be returned to the sea.

Portuguese proverb if you want to learn to pray go to the sea

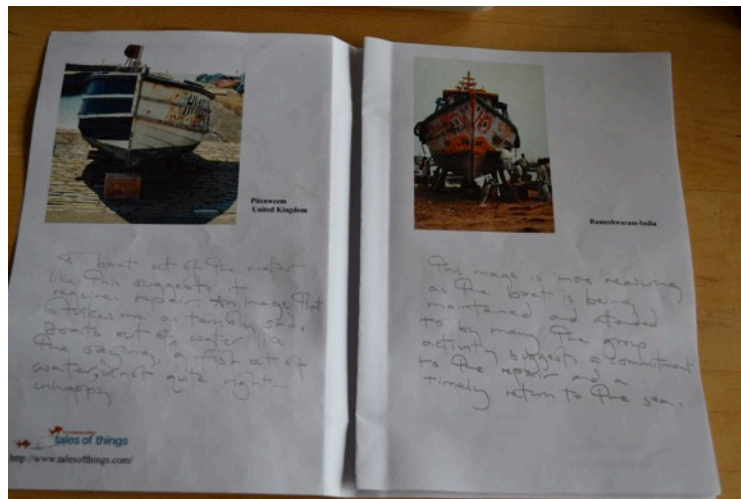


Figure (Left)

A boat out of the water like this suggests it requires repair. An image that strikes me as terribly sad. Boats out of water are like the saying “a fish out of water are not quite right”.

Figure (Right)

This image is more reassuring as the boat is being maintained and attended by many. The group activity suggests a commitment to the repair and a timely return to the sea.

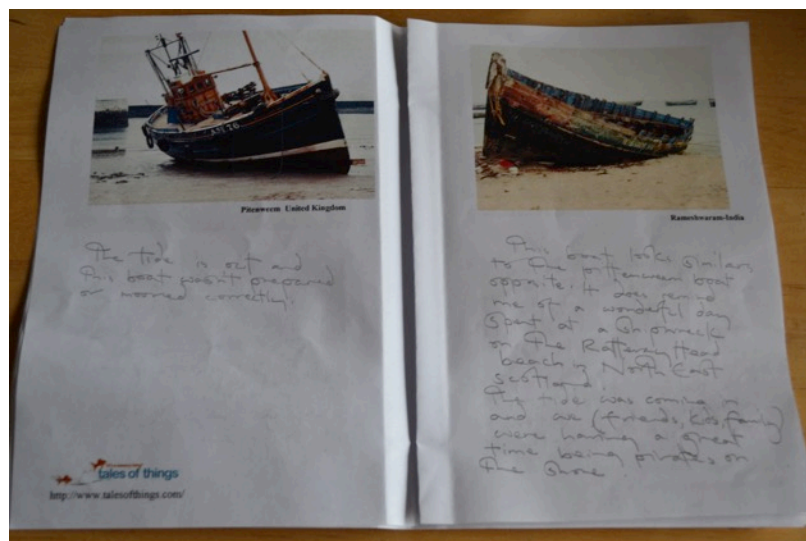


Figure (Left)

The tide is out and this boat wasn't prepared or removed correctly.

Figure (Right)

This boat looks similar to the Pittenweem boat. It does remind me of a wonderful days spent at the shipwreck in the beach in North east of Scotland. The tide was coming in and we (friends and family) were having a great time being pirates on the shore.

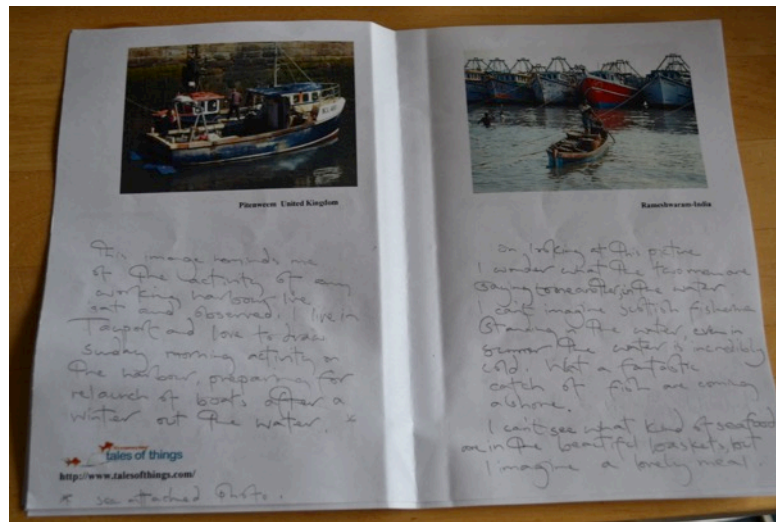


Figure (Left)

This image reminds me of the activity if any working harbour I have sat and observed. I live in Tayport and love to draw Sunday morning activity on the harbour, preparing for relaunch of boats after a winter out in the water.

Figure (Right)

Looking at this picture I wonder what the two men are saying to the other in the water. I can't imagine Scottish fishermen standing in the water even in the summer. The water is incredibly cold. What a fantastic catch of fish are coming a shore. I can't see what kind of seafood is in the beautiful basket, but I imagine a lovely meal.

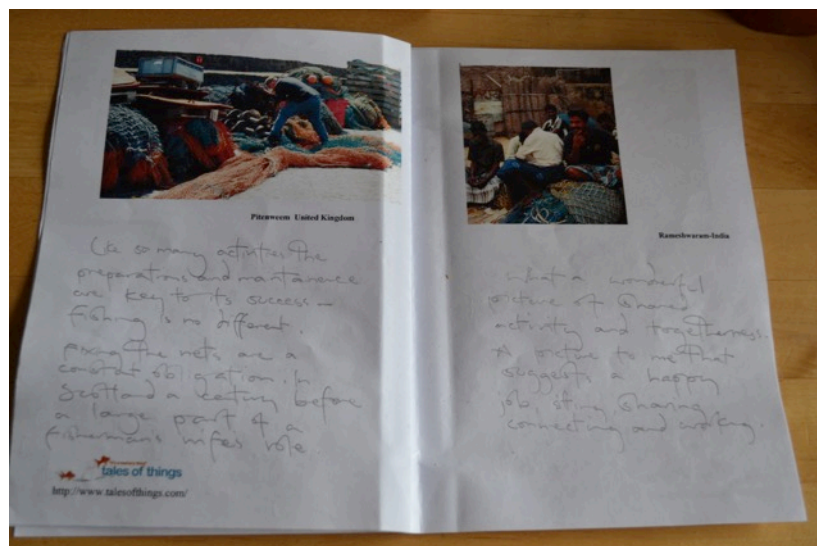


Figure (Left)

Like so many activities preparation and maintenance are key to its success. Fishing is no different. Fixing the net is a constant obligation. In Scotland a century before a large part of a fisherman's wives role.

Figure (Right)

What a wonderful picture of shared activity and togetherness. A picture to me that suggests a happy job, sitting, sharing stories, connecting and working.

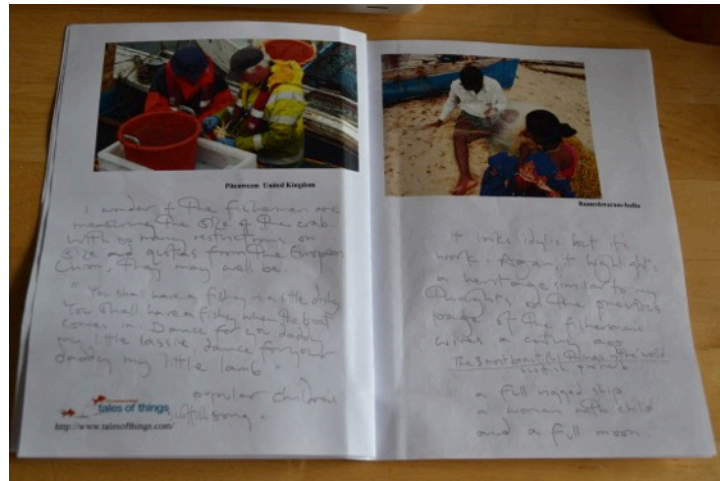


Figure (Left)

I wonder if the fishermen are measuring the size of the crab. With so many restriction on size and quotas from the European union, they may well be.

you shall have a fishing in a little dishy

you shall have a fish when the boat come in. Dance for you daddy my little lassie, dance for your daddy my little lamb.

Popular children rhymes Scottish song.

Figure (Right)

It looks idyllic but it is work again it highlights a heritage similar to my thoughts on the previous page of the fisherman's wives a century ago.

Three most beautiful thing s in the world.

A full rigged ship

Women with the child

And a full moon

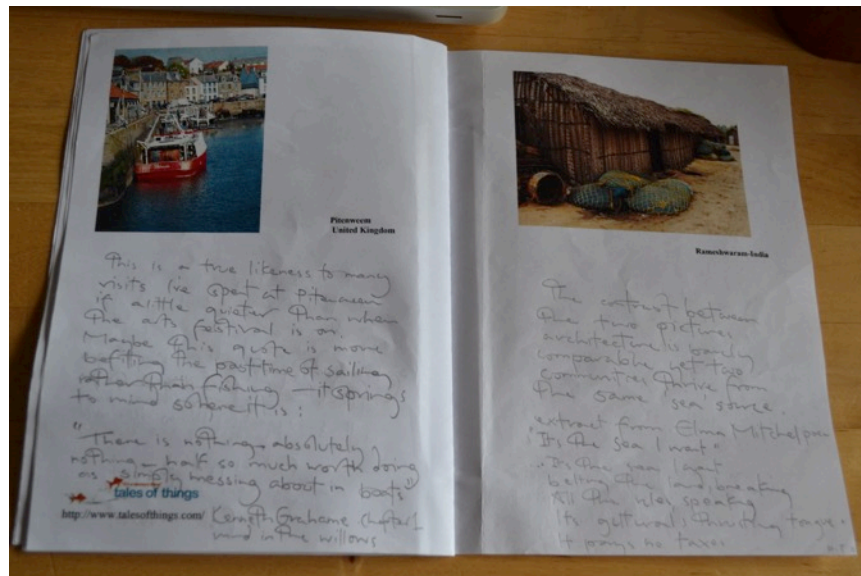


Figure (Left)

This is a true likeness to many visits I have spent at the Pittenweem if a little quieter than when the arts festival is on. Maybe this quote is more befitting the past time of sailing rather than fishing. It springs to mind so here it is

“there is nothing absolutely nothing. Half so much worth doing as simply messing about in boats

Kenneth grahame Chapter 1 mind in the willows.

Figure (Right)

The contrast between the two pictures architecture is basically comparable yet two communities thrive from the same sea source. Extract from Elma Mitchel poem

It's the sea I want

It's the sea I want

Belting the land, breaking all the rules, speaking its guttural, thrusting tongue it pays no taxes.

Story Tag:

How do you connect to people?

I try to connect to people by smiling as much as possible to everyone and follow this when appropriate with some light hearted conversation. This somehow develops into having coffee together as an extension of the initial conversation. If I write to people I usually write a postcard or letters. I'm slow to switch to digital technology and prefer face to face approach (not Facebook).

United Kingdom Participant 2

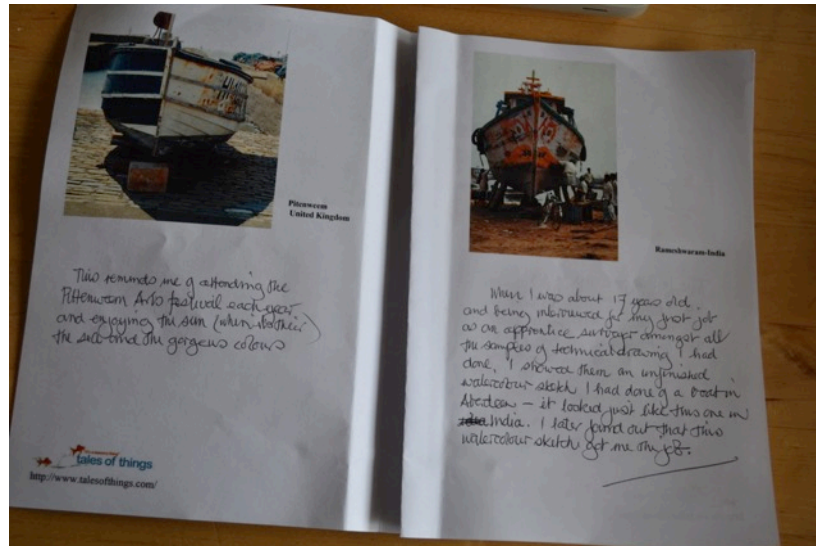


Figure (Left)

This reminds me of attending the Pittenweem arts festival each year and enjoying the sun (when its their) the sea and the gorgeous colours.

Figure (Right)

When I was about 17 years old and being interviewed for my first job as an apprentice surveyor amongst all the samples of technical drawing I had done, I showed them an unfinished watercolour sketch o had done of a boat in Aberdeen. It looked just like this one in India. I later found out that the watercolour sketch got me the job.

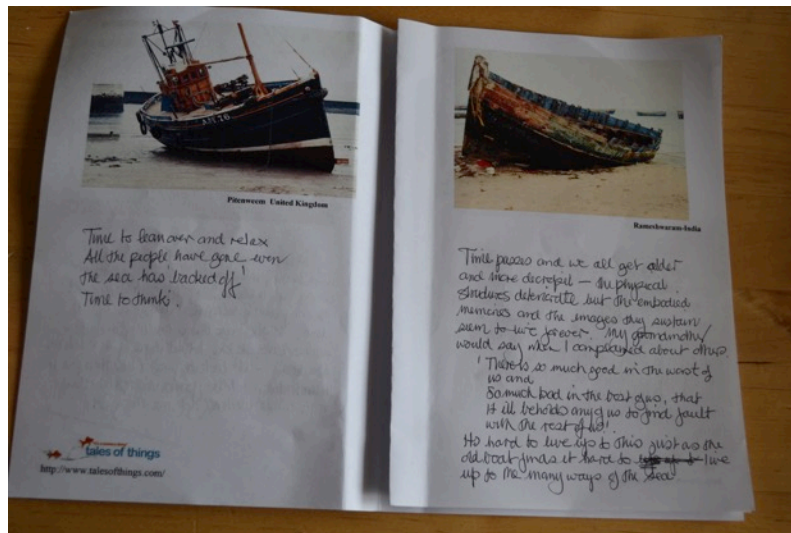


Figure (Left)

Time to lean over and relax. All the people has backed off. Time to think.

Figure (Right)

Time passes and we all get older and more decrepit. The physical structures deteriorate but the embodied memes and the images they sustain seems to live forever. My grandmother would say when I complained about others

There is so much good in the worst of us and so much bad In the best of us, that it ill behold any of us to find fault with the rest of us!

Its hard to live life to this just as the old boat finds its hard to lice up to me many ways of the sea.

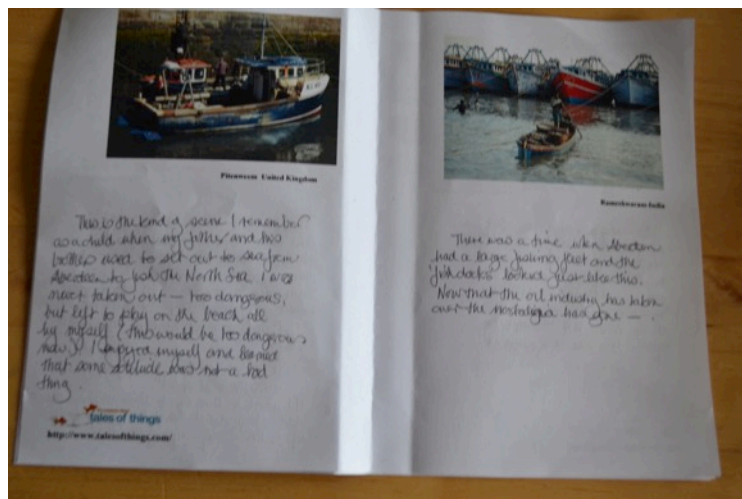


Figure (Left)

This is the kind of scene I remember as a child when my fathers and his brothers used to set out to sea from Aberdeen to fish in the North sea. I was never taken out. Too dangerous they said. I was left to play in the beach all say. I enjoyed myself and learned that some solitude was not a bad thing.

Figure (Right)

There was a time when Aberdeen had a large fishing fleet and the fish docks looked just like this. Now that oils industry has taken over the nostalgia has gone.

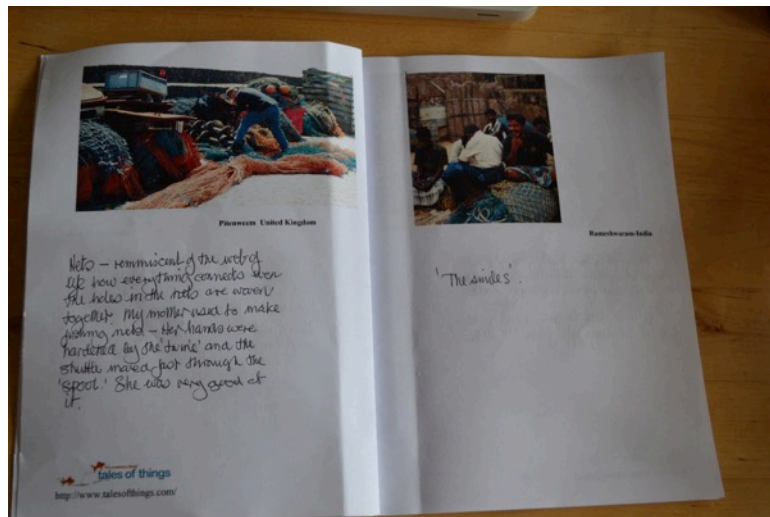


Figure (Left)

Net reminds of the web of life how everything is connected even the holes in the nets are woven together. My mother used to make fishing nets. The 'twine' hardened her hands and the shuttle moved fast through the 'spool'. She was very good at it.

Figure (Right)

The smiles.

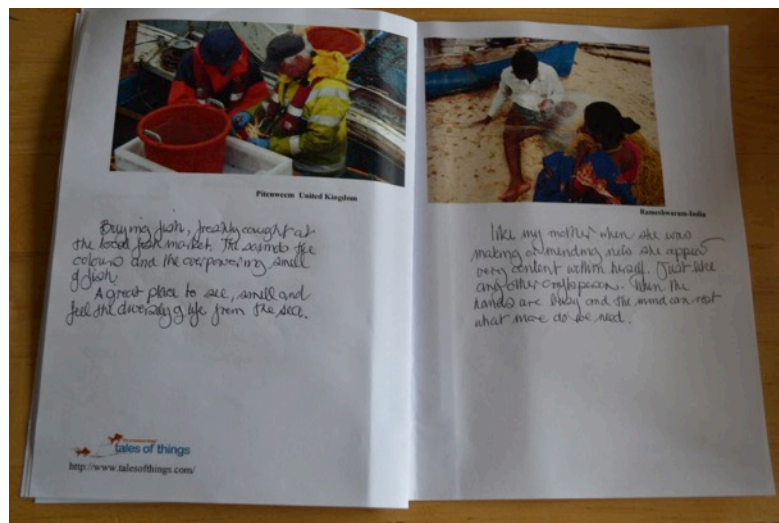


Figure (Left)

Buying fish, freshly caught at the locked fish market. The sounds the colours and the overpowering smell of fish. A great place to see, smell and feel the diversity of life from the sea.

Figure (Right)

Like my mother when she was making or mending nets she appears very content within herself. Just like any other crafts person. When the hands are busy and the minds can rest what more do we need.

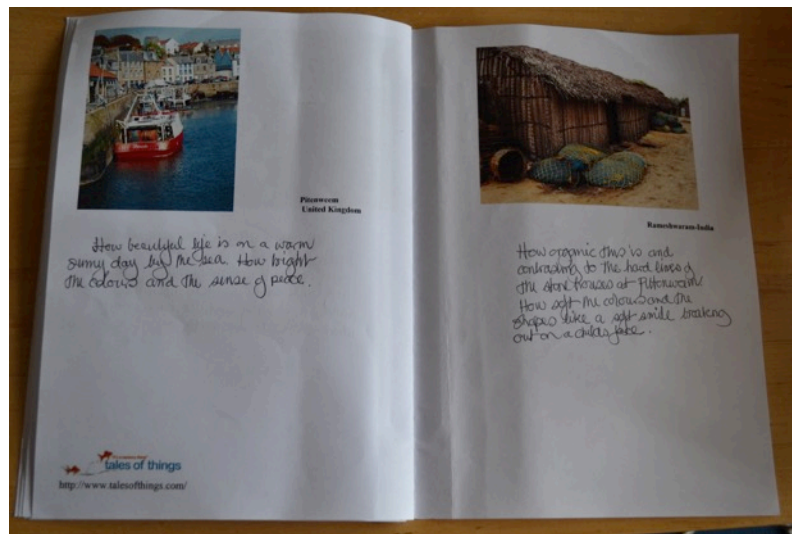


Figure (Left)

How beautiful life is on a warm sunny day by the sea. How bright the colours and the sense of peace.

Figure (Right)

How organic this is and contrasting to the hard lines of stone houses at Pittenweem. How soft the colours and the shapes like a soft smile breaking out on a child's face.

Image 14

Like my mother when she was making or mending nets she appears very content within herself. Just like any other fisher women. When the hands are busy and the minds can rest what more do we need.

7.5 Transcripts

7.5.1 Workshop Feedbacks

Participant 1

Age: 38 Occupation: lecturer/artists F:

1. How did you hear about the project/workshop?

e-mail

2. Have you been in VRC or the DCA before?

Yes

3. What did you think of your experience with Small Society Lab?

Excellent

4. Do you feel more connected with design after visiting the Lab?

Yes

5. What do you think about when you hear term 'Storytelling'?

Sharing, learning, knowing

6. Do you think that telling/ sharing stories bring people together? If so, why?

Yes, It is through shared narratives that people can form new stories and experiences

7. Do you use a smart phone? Y/N.

NO

8. If so do you use Internet to browse through mobile?

9. Were you familiar with QR code or any tagging technology before?

Limited knowledge

10. Would you use 'Tales of things' or tagging to connect your stories?

Yes

11. Did telling stories change your perception of the place of objects? if so how?

12. Do you think digital story telling will help us connect our community?

More stories mean more connections; digital storytelling opens up sharing to digital stakeholders

13. Do you think sharing stories of objects /places for other people give a sense of connection in the group?

Yes

14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it?

Yes

15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?

Yes

16. When was the last time you used your mobile for tagging?

Never

17. Would you ever consider using this technology in everyday life? If so how?

18. What is your view on "Digital Storytelling?"

Area I want to explore

19 Do you feel that this technology will eventually replace conventional way of using Internet?

Hadn't thought about it but am now!

20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?

I was involved in all three research methods and my favourite method was story kit method. I thought the method was playful and creative compared to the other methods. Because there was more than one opportunity to tell stories, I was able to take the kit with me and do it on my own time.

Participant 2

Age: 35 Occupation: Teacher M/F:M

1. How did you hear about the project/workshop? Scottish Fisheries Museum

2. Have you been in VRC or the DCA before? DCA, yes

3. What did you think of your experience with Small Society Lab?

4. Do you feel more connected with design after visiting the Lab?

5. What do you think about when you hear term 'Storytelling'?

The passing on of traditional and personal stories both in written in written and verbal form.

6. Do you think that telling/ sharing stories bring people together? If so, why?

The sharing of stories reinforces shared experiences and ideas. The social aspect of telling stories also brings people together.

7. Do you use a smart phone? Y/N. Yes

8. If so do you use Internet to browse through mobile? Yes

9. Were you familiar with QR code or any tagging technology before? Yes

10. Would you use 'Tales of things' or tagging to connect your stories? Yes

11. Did telling stories change your perception of the place of objects? if so how?

12. Do you think digital story telling will help us connect our community?

Yes, Providing that there is a wireless internet connection available to make the experience possible.

13. Do you think sharing stories of objects /places for other people give a sense of connection in the group? Yes

14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it?

Yes, the App was straightforward to use.

15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?

No sure.

16. When was the last time you used your mobile for tagging ?

During the workshop

17. Would you ever consider using this technology in everyday life? If so how?

I intend to use the technology to enhance learning and teaching in school

18. What is your view on "Digital Storytelling?"

It is an exciting possibility and providing the technology can be used without technological hitches (with a reliable wifi connection to ensure a high quality experience) then it should flourish.

19. Do you feel that this technology will eventually replace conventional way of using Internet? No, but it will certainly compliment it.
20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why? No

Participant 3

Age: 52 Occupation: Storyteller M/F: F

1. How did you hear about the project/workshop?
Researcher invited me
2. Have you been in VRC or the DCA before?
Only the DCA not theVRC
3. What did you think of your experience with Small Society Lab?
It was interesting to see a part of the DCA I'd never been in before. I enjoyed the 'intimacy' of such a small group with people I knew.
4. Do you feel more connected with design after visiting the Lab?
Not very
5. What do you think about when you hear term 'Storytelling'?
I think of how so many people interpret Storytelling as reading from a book when that's not what it is at all. It's people sharing stories.
6. Do you think that telling/ sharing stories bring people together? If so, why?
It definitely brings people together. Hearing a story helps people relate to each other, learn from each other and sparks off memories of one's own personal stories. It is a very sociable pastime.
7. Do you use a smart phone? Y/N. NO
8. If so do you use Internet to browse through mobile? NO
9. Were you familiar with QR code or any tagging technology before?
I have seen the tags but didn't know what they were.
10. Would you use 'Tales of things' or tagging to connect your stories?
Perhaps
11. Did telling stories change your perception of the place of objects? if so how?
Sorry, I don't understand the question
12. Do you think digital story telling will help us connect our community?
Probably yes among the younger generation and those with worldwide connections.
13. Do you think sharing stories of objects /places for other people give a sense of connection in the group?
Yes especially because it was such a small group.
14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it?
Arthi tagged my object as I am not Smart Phone literate and find the whole operation taxing.
15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?
Not really.
16. When was the last time you used your mobile for tagging ?

Never

17. Would you ever consider using this technology in everyday life? If so how?

It's doubtful.

18. What is your view on "Digital Storytelling?"

Hmmm. I prefer hearing/telling stories to people face to face but I suppose Digital Storytelling is just like watching television which I do. I don't see me using Digital Storytelling personally just yet.

19. Do you feel that this technology will eventually replace conventional way of using Internet?

Not for me

20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?

No. But I was involved in story kit method. I found the story kits easy to use as all the information was clearly laid out in the instruction manual and I could go back to refer whenever I need.

Participant 4

Age:66

Occupation: artist/storyteller

M/F:F

1. How did you hear about the project/workshop? Through the researcher.

2. Have you been in VRC or the DCA before? Yes.

3. What did you think of your experience with Small Society Lab?

Very worthwhile, and useful. It helped me to think about ways forward. Before the visit I felt I had very little in common with the digital side of storytelling, but came away seeing possibilities.

4. Do you feel more connected with design after visiting the Lab?

Yes. It is quite an eye-opener! I remember the days when I was at Art College – in the 1960s, and teaching art in the 70s before computers and mobiles were around.

5. What do you think about when you hear term 'Storytelling'?

In my opinion, storytelling is all about sharing and creative communication. The storyteller focuses on the listener. Storytelling is NOT reading aloud from a book.

6. Do you think that telling/ sharing stories bring people together? If so, why?

Yes very much so, because storytelling is so flexible, the storyteller can adapt the tale to suit the audience and reactions of individuals. It is human interaction. It breaks down barriers. The much used phrase is: "eye to eye, mind to mind, and heart to heart." The challenge is to see that if digital storytelling can match this. I do not think it ever will to the same degree, but it certainly is worth while. It is another very useful and effective tool.

7. Do you use a smart phone? Y/N. No.

8. If so do you use Internet to browse through mobile? No.

9. Were you familiar with QR code or any tagging technology before? Not at all.

10. Would you use 'Tales of things' or tagging to connect your stories?

Perhaps, if I learn more about it. I think it could be very useful.

11. Did telling stories change your perception of the place of objects? if so how?

It provided more focus.

12. Do you think digital story telling will help us connect our community?
Yes. Mainly in museums, and other similar places where people gather. But the element of sharing is strong, and I can see it drawing people together.

13. Do you think sharing stories of objects /places for other people give a sense of connection in the group? Very much so.

14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it?
It looks easy when someone else does it. I will learn.

15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?

Yes I think so. Telling a story makes one have to think hard about the meaning of the story. The storyteller's apparent understanding of the story and the skills in communicating this, should give credibility.

16. When was the last time you used your mobile for tagging?

Never, except at the recent workshop at DCA.

17. Would you ever consider using this technology in everyday life? If so how?

Not at the moment. But it may happen - with support and guidance from those who are expert. I would need to discuss this question more fully.

18. What is your view on "Digital Storytelling?"

At the moment I am concentrating on becoming more skilled in developing direct and straight-forward storytelling techniques, after a career which has involved many different art forms (art, writing, drama, puppetry, music, etc). Taking on digital storytelling at this stage is perhaps too soon. However, I am very open-minded about it, and with encouragement, could become more keen to be involved.

19. Do you feel that this technology will eventually replace conventional way of using Internet?

I feel it impossible to guess what lies ahead. Things change so quickly. I hope not too quickly!

20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?

No

Participant 5

Age:46 Occupation: artist/storyteller M/F:F

1. How did you hear about the project/workshop? Through Researcher

2. Have you been in VRC or the DCA before? Yes.

3. What did you think of your experience with Small Society Lab?

Very worthwhile, and useful. It helped me to think about ways forward.

4. Do you feel more connected with design after visiting the Lab? Yes

5. What do you think about when you hear term 'Storytelling'?

Communication. Sharing. Inspiring others.

6. Do you think that telling/ sharing stories bring people together? If so, why?

Yes, because storytelling is so flexible, the storyteller can adapt the tale to suit the audience and reactions of individuals. I breaks down barriers.

11. Did telling stories change your perception of the place of objects? if so how? No
12. Do you think digital story telling will help us connect our community?
I think storytelling is a powerful tool. And having been based in a design environment I have never come across Design Thinking and storytelling put together, this could open up many possibilities.'
13. Do you think sharing stories of objects /places for other people give a sense of connection in the group? Yes
14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it? Quite
15. Do you think telling your stories to the world gives you the credibility to bring your views in the society? Not sure.
16. When was the last time you used your mobile for tagging ? Never
17. Would you ever consider using this technology in everyday life? If so how?
Yes for my profession
18. What is your view on "Digital Storytelling?" Very Interesting.
19. Do you feel that this technology will eventually replace conventional way of using Internet?
Yes I think your right !
20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?
No

Participant 8

Age: 34 Occupation: student M/F:f

1. How did you hear about the project/workshop?
University...Small Society email
2. Have you been in VRC or the DCA before?
yes
3. What did you think of your experience with Small Society Lab?
Very interesting, a nice change from the university environment
4. Do you feel more connected with design after visiting the Lab?
It's has definitely opened the doors as to how i can capture stories using QR codes. It also enabled me to meet yourself, and created an opportunity to work together since our projects are related.
5. What do you think about when you hear term 'Storytelling'?
The Three Bears! Illustrated ladybird books from when i was wee and my granny reading them to me. Comfort and happiness.
6. Do you think that telling/ sharing stories bring people together? If so, why?
Yes. Most people are keen to hear stories as well as share them.
7. Do you use a smart phone? Y/N.
No
8. If so do you use Internet to browse through mobile?
9. Were you familiar with QR code or any tagging technology before?
Yes but didn't understand it fully.

10. Would you use 'Tales of things' or tagging to connect your stories?

Perhaps...but worried it wouldn't attract the right audiences as not everyone has internet or smart phones.

11. Did telling stories change your perception of the place of objects? if so how?

Not really but it was nice to hear how other people described well known landmarks or sites.

12. Do you think digital story telling will help us connect our community? I think it has potential and depends on what you mean by digital and community. In the case of QR codes, maybe not at this present time as lots of people don't have access to smart phones and internet. It is a great way for stories to have legacy and would be very interesting to see how this could help us connect communities. I do think the idea has to be developed further so it becomes accessible to people who may not have access. Digital can also mean video, this can open up so many other possibilities and is something to be considered also.

13. Do you think sharing stories of objects /places for other people give a sense of connection in the group?

It's always a bit daunting at first sharing stories with people in a new setting but once people get started, there's no stopping them. So yes it does give a sense of connection. People begin to relate to each others stories.

14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it? Easier than i thought

15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?

Because of the internet now, everything is so accessible. I think if you want to get noticed and for your project to be worthwhile and meaningful, people have to know what your doing. This will in turn give you the coverage, support and credibility you will need to be successful.

16. When was the last time you used your mobile for tagging ? never

17. Would you ever consider using this technology in everyday life? If so how? Not quite sure. It's still a new subject to me.

18. What is your view on "Digital Storytelling?" Same as above

19. Do you feel that this technology will eventually replace conventional way of using Internet?

As i mentioned i think it has potential. I think there will definitely be advances to technology but not sure if QR codes will replace the internet.

20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?

No

Participant 9

Age: 40

Occupation: Masters Student

M/F: M

1. How did you hear about the project/workshop?

Through the masters and word of mouth

2. Have you been in VRC or the DCA before?

Yes

3. What did you think of your experience with Small Society Lab?

Fun

4. Do you feel more connected with design after visiting the Lab?

I'm a design student and QRs are within my area of research so I was there out of curiosity rather feeling connected.

5. What do you think about when you hear term 'Storytelling'?

Again, this area is within my research so storytelling to me is fairly broad.. although I do use other terms to be more specific about certain aspects of Story Dwelling, Story Forming and Story Making.

6. Do you think that telling/ sharing stories bring people together? If so, why?

Our brains are hardwired to decode stories. It's the most potent form of information dissemination and retrieval for human beings.

7. Do you use a smart phone? Y/N.

I have a web enable phone.

8. If so do you use Internet to browse through mobile? Occasionally

9. Were you familiar with QR code or any tagging technology before? Yes

10. Would you use 'Tales of things' or tagging to connect your stories?

Maybe, but I have my own system too...

11. Did telling stories change your perception of the place of objects? if so how?

It has done and ToTEM was one of several inspirations...

12. Do you think digital story telling will help us connect our community?

I believe it can and so my Masters project is founded on that basis...

13. Do you think sharing stories of objects /places for other people give a sense of connection in the group?

I think the story is the important part. The object is more of the trigger...

14. Was it easy and straightforward to use tagging, if not what was the difficulty in using it?

Easy...

15. Do you think telling your stories to the world gives you the credibility to bring your views in the society?

I'm not sure how people view my storytelling and how I share them but it's certainly an interesting method to a lot of people just now... over time technology will only make it easier I think... and maybe then it'll become more common place.

16. When was the last time you used your mobile for tagging ?

It's what I do a lot just now...

17. Would you ever consider using this technology in everyday life? If so how?

I am...

18. What is your view on "Digital Storytelling?"

19. Do you feel that this technology will eventually replace conventional way of using Internet?

I think the internet will always evolve into a more convenient 'space'. Just now we have devices in our pockets that are capable of taking images and video to an acceptable quality that we can then share at almost no cost to ourselves. Once this becomes 'one touch' in its approach and we more carefully manage our privacy (and have faith in those systems) then I see this as something that my kids probably won't even think twice about. I just hope that that doesn't mean that we become even more web dependent.

Thank you for taking time to complete my questionnaire.

20. Were you involved in my previous research? If so, can you tell me what was your favourite method and why?

No

7.5.2 Transcripts

Story Interview

India – Participant 1

How are you connected to the fishing community?

I'm a fisherman and I come from a fishing family, My father was a fisherman too.

What do you think about your fishing community?

I'm a fisherman for the past 30 years and I see a major decline in fishing industry in Rameshwaram. No one wants to pursue this profession these days. They think it is dangerous and unpredictable. But I do this because it is my family profession. And I want to keep up the tradition.

Have you seen a QR code before? Have you used them?

No, They look like bar code. But, I have never seen this before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

NGOs here come door to door to meet us and they mostly talk about child education, women safety and women welfare. I learnt about the importance of education, health, nutrition and general awareness of women and children.

Have you used technology to share stories with someone? If so, how?

I don't think so, I use mobile Phones some times, We have one mobile phone in our family.

Have you used a computer?

No, I have never used a computer.

Do you often visit fisheries museums in your community? If so, why and how often do you visit?

We do not have a museum in our community.

India – Participant 2

How are you connected to the fishing community?

I come from a fishing family. It is our family occupation.

What do you think about storytelling?

My grandmother used to tell stories when I was young. No one tells stories anymore.

How often do you get together and share stories in your community?

We don't get together very often.

How often do you get together and share stories in your community?

Not very often at all. We get to gather only during festivals or any other religious occasion. If not we just stick to our daily routine.

Can you tell me what technology you use in your day-to-day activity?

My family owns a mobile phone. It is very expensive to own one for each of us. We own a television in our house.

Have you heard of or used QR code or any other auto ID technology before?

No, I have never seen them before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

NGOs visit us now and then. They talk about children education and women welfare.

What do you think about your fishing community?

It is a big community. It is one of the biggest fishing communities in South Asia I think. We go to the sea all year round except July.

India – Participant 3

How are you connected to your fishing community?

I'm the head of the panchayath here in Ramesharam. I'm a fisherman and my family was into fishing as well.

What do you think about storytelling?

I don't tell stories. But the homemakers here they get together occasionally to tell folk stories. That's all we have in our community.

Tell us an unforgettable story from your fishing experience.

I think everyday we go into the sea is adventures. Some days are dangerous even. But then this is our job if we do not do it there is no money to run our family you see.

Tell us an unforgettable story that happened in your community.

I don't know any unforgettable stories.

How often do you get together and share stories in your community?

We don't really. Some times during festival seasons or for religious purposes we get to gather. The majority of the fishermen here are Christians so Christmas and Easter are the time we meet everyone to celebrate.

What do you think about your fishing community?

It is a close community. It is a family tradition for most of us. And we love what we do. Even though we consider it to be dangerous.

Have you used technology to share stories with someone? If so, how?

I have limited access to technology like computers. But I use mobile phones almost every day to communicate to people.

Can you tell me what technology you use in your day-to-day activity?

Television and mobile phones.

Have you heard of or used QR code or any other auto ID technology before?

No I have never seen them before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

Yes, I'm one of the organisers for the NGO organisation. We go door to door to talk about children education and women welfare. We do this once in 4 months or once in 6 months.

India – Participant 5

How are you connected to your fishing community?

I'm a fisherman. My brother is a fisherman too. He taught me to fish when I was a boy.

What do you think about storytelling?

I have never told a story before. Although I grew up listening to fishing stories from my father.

Tell us an unforgettable story from your fishing experience.

There are so many unforgettable stories to tell. I was actually shot once when I was fishing. I was shot by the Srilankan coast guards. I can never forget that. I thought I was going to die that day.

Tell us an unforgettable story that happened in your community.

I don't think I have any stories for the community.

How often do you get together and share stories in your community?

We don't get together particularly to share stories. But after we return from the sea we do relax next to our huts and talk about our experiences.

What do you think about your fishing community?

It is a big fishing industry. We do exports and imports you see. Every one in the country will know when you say Rameshwaram.

Have you used technology to share stories with someone? If so, how?

Yes, I am very fascinated by technology. I own an android smart phone. And I'm on Facebook too. I use my phone all the time.

Can you tell me what technology you use in your day-to-day activity?

Television, Mobile phone and I occasionally use computer to browse.

Have you heard of or used QR code or any other auto ID technology before?

No actually never heard of them. What do they do?

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

No I have not been a part of an NGO before. But they do come to us sometimes.

Portugal – Participant 1

How are you connected to your fishing community?

My father was a fisherman. My husband is a fisherman and my son will also grow up to be a fisherman as well.

What do you think about storytelling?

I have always enjoyed telling stories. I think it's a great way to share our memories.

Tell us an unforgettable story from your fishing experience.

I don't have a story of my own. But I have heard a lot of stories from my father. He used to tell us about his experiences. Once he was at the sea early in the morning and they had a bad weather. He was with two other fishermen and they could not control the boat. The wind was so harsh that it broke one side of the boat and they were completely lost. How often do you get together and share stories in your community?

The women folks here we get together very often in our community centre to share stories.

What do you think about your fishing community?

Fishing here is a small community and we are very helpful to each other. However, we feel isolated from other communities. We feel there is not enough care from the government.

Have you used technology to share stories with someone? If so, how?

The only technology I use is mobile phones. I don't use it for stories.

Can you tell me what technology you use in your day-to-day activity?

Mobile phones.

Have you heard of or used QR code or any other auto ID technology before?

No, I have never seen these before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

In our community the only NGO we have around is UMAR. We gather in our community centre occasionally to meet the authorities. And they work mostly with women in Azores. It is an association for women rights and equality group. UMAR has helped gender violence and has offered shelter for women in need.

Do you have a fisheries museum in your community?

We do not have a fisheries museum as such, but we do have a community space where objects, sketches and artefacts are displayed. We spend our evenings with kids telling stories.

Portugal – Participant 2

How are you connected to your fishing community?

My husband is a fisherman. And that is the only source of income in our family.

What do you think about storytelling?

I have never told stories before. But I have seen some women in our community tell good folk stories and some even are good singers.

Tell us an unforgettable story from your fishing experience.

I don't have any stories.

Tell us an unforgettable story that happened in your community.

I don't have any stories.

How often do you get together and share stories in your community?

We women get to gather every day actually. We support each other as a group.

What do you think about your fishing community?

I love my fishing community. I'm very proud of it. We have lots of problems but we work together to solve them.

Have you used technology to share stories with someone? If so, how?

No, I do not.

Can you tell me what technology you use in your day-to-day activity?

Yes, we have mobile phone in my family. We also have a small television.

Have you heard of or used QR code or any other auto ID technology before?

No I have never seen them before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

Yes UMAR is an active NGO in our community. They talk to us women's rights.

Do you have a fisheries museum in your community?

No we don't.

Portugal – Participant 3

How are you connected to your fishing community?

I'm in the fishing occupation all my life. I come from me fishing family. From the day I remember we are into fishing.

What do you think about storytelling?

Stories are fun they are engaging.

Tell us an unforgettable story from your fishing experience.

Tell us an unforgettable story that happened in your community.

I don't think I have stories of my community.

How often do you get together and share stories in your community?

Almost everyday.

What do you think about your fishing community?

It is the beautiful part of the world I think. We get a lot of tourist and they seem to think the same.

Have you used technology to share stories with someone? If so, how?

No I have not used technology to share stories.

Can you tell me what technology you use in your day-to-day activity?

I occasionally use mobile phones when I need to talk to someone. I don't like to use technology much.

Have you heard of or used QR code or any other auto ID technology before?

No never seen them

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

Yes, I 'm an active participant in UMAR. They come here occasionally to talk to us. Some times they even have guests like you visiting from abroad.

Do you have a fisheries museum in your community?

No.

Portugal – Participant 4

How are you connected to your fishing community?

I'm in the fishing occupation all my life, since I was a child and my father used to take me on his boat to the sea.

What do you think about storytelling?

I like to listen to stories especially folk songs. Never told one myself.

Tell us an unforgettable story from your fishing experience.

I don't have a story. I have gone fishing in my life.

Tell us an unforgettable story that happened in your community.

I do have stories from my community though. Christmas is a big event for us in our community. Last year we celebrated Christmas as a community and for the first time we has some beautify fireworks on the sea shore. It was magnificent! We had a memorable time watching it as a family.

How often do you get together and share stories in your community?

Women here meet almost everyday when our men folk go to the sea. We meet at the community centre. We weave nets, build crab traps etc. we get to talk about our families.

What do you think about your fishing community?

It is one of biggest in the 9 islands here. It is one of places tourists visit during summer.

Have you used technology to share stories with someone? If so, how?

No

Can you tell me what technology you use in your day-to-day activity?

I use mobile phones. And we have a computer in our home I have used in once. My son uses it very often.

Have you heard of or used QR code or any other auto ID technology before?

No, I have never seen them before.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

I'm a part of the UMAR. They help the women in the community.

Do you have a fisheries museum in your community?

No.

UK – Participant 2

How are you connected to your fishing community?

I was a fisherman in Pitenweem for the past 35 years. I was a fisherman all my life and it was a family tradition.

What do you think about storytelling?

For me storytelling Is a way of learning more information and it gives me focus.

Tell us an unforgettable story from your fishing experience.

Tell us an unforgettable story that happened in your community.

How often do you get together and share stories in your community?

I meet some people in my community once a month and we share stories and experiences.

What do you think about your fishing community?

I'm very proud of my fishing community and we fishermen form a very small group. There are lot of people who are connected to the fishing family however they are not fishermen.

Have you used technology to share stories with someone? If so, how?

No, I have not used a technology to share stories as such.

Can you tell me what technology you use in your day-to-day activity?

I use technology in my boat. I use GPS and I use mobile phone to communicate to people.

Have you heard of or used QR code or any other auto ID technology before?

I'm familiar with QR code. I have seen them on advertisements in bus stops and on products I use like shampoos. But, I don't know how they work.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

No I have not.

Do you have a fisheries museum in your community? If so, How often do you visit?

I have used the fisheries museum in Anstruther (Scotland) very often. I take my kids to the museum every weekend for a family activity. I think it helps them understand the culture and reminds them what it's like to be living in a fishing community.

UK – Participant 3

How are you connected to your fishing community?

I'm not involved in fishing although I come from a family of 'fisher folks'.

What do you think about storytelling?

In my opinion, storytelling is all about sharing and creative communication.

The storyteller focuses on the listener. Storytelling is NOT reading aloud from a book.

Tell us an unforgettable story that happened in your community.

How often do you get together and share stories in your community?

What do you think about your fishing community?

Have you used technology to share stories with someone? If so, how?

I think I can say I use my artwork as a method to tell my stories. I also use mobile phones to share stories via twitter and I have a blog where I upload my experiences very often.

Can you tell me what technology you use in your day-to-day activity?

Computer, Mobile phones.

Have you heard of or used QR code or any other auto ID technology before?

Yes, I have. I see them everywhere these days. But I have never used them.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

No, I don't think I have been a part of an NGO activity.

Do you have a fisheries museum in your community? If so, How often do you visit?

Yes, the fisheries museum is just down the road from my house and I visit them very often. Especially when I have visitors I like to take them to share our culture and stories.

UK – Participant 5

How are you connected to your fishing community?

My father was a fisherman, I'm a fisherman, and we never went to school. I do not wish the same for my sons. They are not going to pursue this family occupation. I want them to have a better lifestyle.

What do you think about storytelling?

I think of how so many people interpret Storytelling as reading from a book when that's not what it is at all. It's people sharing stories.

Tell us an unforgettable story from your fishing experience.

Tell us an unforgettable story that happened in your community.

How often do you get together and share stories in your community?

We get to gather once a week for a drink or so. We talk about everything. Not just stories.

What do you think about your fishing community?

It is a very small village. And everyone knows everyone here.

Have you used technology to share stories with someone? If so, how?

No I do not use technology to share stories.

Can you tell me what technology you use in your day-to-day activity?

I use mobile phones.

Have you heard of or used QR code or any other auto ID technology before?

No. I have not.

Have you been part of a group activity organised by the local NGOs in your community?

If so, what was it about and what did you learn from the activity?

No.

Do you have a fisheries museum in your community? If so, How often do you visit?

We have a landmark fisheries museum. It gives us a cultural identity. It has lots of stories in it.

Digital Storytelling Workshop – Transcripts

India

Me: Explaining and demonstrating how the Auto ID technology works.

Me: What object did you bring for the workshop? – Going around the table to introduce the objects participants brought with themselves for the digital storytelling workshop.

Participant 1: I brought my fishing net float.

Participant 2: I brought a photograph.

Participant 3: I brought my fishing net

Participant 4: I brought a life saving jacket.

Participant 5: I have a photograph of my father and myself standing next to his boat.

Me: Can I record your story to upload it to the website and then I can tag that video link to your own QR code? If you not comfortable with the video you can just record your voice or even write down your story.

No one has any objection in recording the video.

Can you tell me a story about the object?

Participant 1: 'This object reminds me of my day to day struggle to survive in the sea. I'm a fisherman in Rameshwaram. Even though fishermen here face a lot of problems due to the India/Sri Lanka border issues, we continue to do fishing over many generations. My father taught me to fish and this is something I enjoy doing every day. He used to take me fishing in the sea when I was 8 years old and I often used to be seasick. It took me years to get out the seasickness.'

Participant 3: 'Yes, I was very similar too. My brother taught me fishing and I sometimes go to the sea with him, even now I get seasickness.'

Participant 4: It was a summer, when my father and me headed to the sea for fishing. About an hour into the flow, I hooked into what I thought was a big bass. When I managed to see the first glimpse of the fish, I realized it was way too long to be a bass. It was, in fact, an Eel! It was only about a foot and a half, but we had never caught eel in this stretch of sea. "I hope we can catch some more/bigger Eel today," I said excited

Participant 5: I don't have a story of my own by I want to tell a story which my father used to tell me when I was a little boy.

Two men went fishing. One was an experienced fisherman, the other wasn't. Every time the experienced fisherman caught a big fish, he put it in his ice chest to keep it fresh. Whenever the inexperienced fisherman caught a big fish, he threw it back.

The experienced fisherman watched this go on all day and finally got tired of seeing the man waste good fish. "Why do you keep throwing back all the big fish you catch?" he asked.

The inexperienced fisherman replied, "I only have a small frying pan."

Sometimes, like that fisherman,

we throw back the big plans, big dreams, big jobs, big opportunities that God gives us.

Our faith is too small.

We tag all the videos that were recorded to their respective QR codes.

Me: Your chosen object will be tagged with a QR code, which is printed here on a paper label. You can take the label with you and print many copies if you like. You can use your smart phones to retrieve the stories through smart phones like I phone, Android devices.

What did you think about the technology?

Participant 1: Such a platform would be useful to share stories and information; it could also be a place where people discuss their issues and also could find solutions. You know, something like that would be good.

Participant 2: I never thought of mobile phones to use this way before. But the process seems very complicated.

Participant 3: I agree with participant 2. It looks very confusing but seems easier when someone else does it.

Participant 4: It is interesting to see how technology works these days. I like the idea of putting your stories online and also taking away something like the QR code with you.

Me: What do you mean by that?

Participant4: Ah.. what I meant that I don't have to access a computer every time to see my video. All I need is my mobile to scan it right.

Would you use this technology to tell stories and share?

Participant 1: I haven't thought about it till now. I might consider if the website was available in Tamil.

Participant 2: No, I don't think so too.

Me: Why

Participant 2: I looks very cumbersome.

Me: Can you imagine this technology being helpful in your day to day fishing?

Participant 2: I am not a fisherman, but I come from a fishing family.

Me: How do you think you are connected to this community?

I have lived in Rameshwaram all my life and also feel part of the community.

Me: Do you see this technology helping your community?

I don't think the technology can particularly help. But we do not have group activities as such but having activities like this workshop run locally can help keep our community active and could make a difference.

Participant 3: Not sure. I don't see myself using this technology for sharing stories. I guess I still prefer face to face interaction.

Participant 4: Hmmm. I prefer hearing/telling stories to people face to face but I suppose this is just like watching television that I do. I don't see me using this technology personally just yet.

Participant 5: No, I don't think so.

Digital Storytelling Workshop- Transcripts

Portugal

Me: Explaining and demonstrating how the Auto ID technology works.

Me: What object did you bring for the workshop? – Going around the table to introduce the objects participants brought with themselves for the digital storytelling workshop.

Participant 1: I brought my fishing net

Participant 2: I brought a crab trap

Participant 3: I brought a model of a boat which my dad made it himself.

Participant 4: I brought a photograph of my boat.

Participant 5: I brought my fishing net

Participant 6: I brought a photograph of my boat too.

Participant 7: I brought my fishing net too.

Me: Can I record your story to upload it to the website and then I can tag that video link to your own QR code? If you not comfortable with the video you can just record your voice or even write down your story.

Participant 1: I don't want to be filmed if that is ok.

Me: of course that will be fine. Can I ask you why?

Participant 1: I don't my video to be on my internet. I think I will be uncomfortable with that.

Following participant 1, the other participants did not want to be filmed during the workshops session.

Me: Do you mind if I take photographs during the workshop for my record?

Participants show no objection to photographs.

Can you tell me a story about the object?

Participant 1: I brought this fishing net today to remind how life's of women in Azores have changed. We are more informed and engaging within the community. We support each other when our friends are in need.

Me: What story does this object remind? Can you tell me an unforgettable story from your past experience?

Participant 1: I don't have a story of my own. But I have heard a lot of stories form my father. He used to tell us about his experiences. Once he was at the sea early in the morning and they had a bad weather. He was his two other fishermen and they could not control the boat. The wind was so harsh that it broke one side of the boat and they were completely lost.

Participant 2: I made this object when I was 16 for my father. This is a net to catch crab. I remember the days when he went to the sea even during bad weather. It can be very dangerous, but he will risk his like to feed his family. I always envied him. He was a brave man.

Participant 3: This boat was made by my dad himself for me when I was a little girl. I have always had it since then. This reminded me of the times when me and my dad used to go to

Sea and he first taught me how to fish.

Participant 4: Back when pink salmon were relative newcomers here in Azores, my father , mike and myself went to sea for fishing. My das had just set out all the lines when one of the rods popped up. Someone yelled "Fish on!" My friend Mike, having drawn the high card, jumped up and grabbed the rod. After several minutes of furious fighting, he pulled in the first fish. It was a pink salmon. Father said, "that's pretty big for a pink. You boys might want to consider turning around right now and weighing it in. You could have a real catch here."

Participant 5: I made this fishing net for my husband. This net is not to catch big fishes, though. It was meant to be for small fishes which we catch for our self. We sell the big ones in the market in Azores. This net reminds me of the little family time we have and how much we enjoy fishing.

We tag all the videos that were recorded to their respective QR codes.

Me: Your chosen object will be tagged with a QR code, which is printed here on a paper label. You can take the label with you and print many copies if you like. You can use your smart phones to retrieve the stories through smart phones like I phone, Android devices.

What did you think about the technology?

Participant 1: It was fun tagging but I have forgotten how to do it already. (laughs!)

Participant 2: I felt it was a complicated process.

Participant 3: I find the technology cumbersome and confusing. If this device (mobile phones) with this technology (auto ID technology) allows me to share information through stories instantly, then it should be simple and straightforward.

Me: Do you think you will use something like this to help with you day to day fishing?

Participant3: I'm not comfortable with technology anymore. When the government made technologies in boats compulsory they did not understand the practicality of using technology in an open boat where natural occurrences such as rain could easily spoil the device. I will not encourage technology that will bring hindrance to our everyday life.

Participant 4: It's always a bit daunting at first sharing stories with people in a new setting but once people get started, there's no stopping them. So yes it does give a sense of connection. People begin to relate to each others stories

Me: What do you mean by that?

Participant 5: I felt the technology was very complicated.

Would you use this technology to tell stories and share?

Participant 2: I have always found technologies daunting.

Participant 2: May be. In the future....but I think it wouldn't attract everyone here you see. Not everyone has Internet or smart phones.

Participant 3: No, The website was easy to read.

Participant 4: I think it has potential. It looks easier than I thought.

Me: Did you have any problem following the website?

Participant 5: I don't think so.

Participant 6: I don't think so.

Me Why do you think that?

Participant 6: I don't see the need for such technology. When I want to talk to someone or share my experience I prefer to meet my friend in person for a coffee or a meal and talk about my issue. I don't understand the purpose of this.

Me: But don't you think sharing you stories means it gives you an opportunity to share your experiences across the sea.

Participant 6: hmm... may be. (smiles)

Me: Explaining and demonstrating how the Auto ID technology works.

Me: What object did you bring for the workshop? – Going around the table to introduce the objects participants brought with themselves for the digital storytelling workshop.

Participant 1: I brought a life ring

Participant 2: I did not bring an object, but I want to tell a story about a photograph in the museum.

Participant 3: I brought this small boat model

Participant 4: I brought a photograph

Participant 5: I brought this musical instrument to sing a song.

Participant 6: I brought fishing net

Participant 7: I brought artwork made by my mother

Participant 8: I brought a photograph

Participant 9: I did not bring any object

Participant 10: I brought a photograph of my grandfather with a fish he caught in Anstruther

Participant 11: I brought a photograph

Participant 12: I did not bring any object

Me: Can I record your story to upload it to the website and then I can tag that video link to your own QR code? If you not comfortable with the video you can just record your voice or even write down your story.

Participant 6, 7 and 10 did not want their video to be recorded. Voice recorders were used as an alternate for them only. No one else has any objection in recording the video recording.

Can you tell me a story about the object?

Participant 1: One fine day me and my friend Mike decided to go on a trip to brought ferry from Anstruther on his boat. His boat was called Vanhaullan. So, we took off at Vanhaullan and We were having a lot of success that day because it was early June and the Bass were going crazy biting top water lures. The water was very very cold. Just when I decided to go get the lure, the water shattered. A fish had taken over the lure! I became angry and started cursing. We couldn't believe what had just taken place! SO I jumped in to the water without taking my clothes off.

Did I mention that the water was cold?

Participant 2: My family is not into fishing anymore. But my father used to bring me to fishers museum to tell me the story of my great uncle. The person in the photograph is my great uncle who was a fisherman; he worked in Penzance a small town in Cornwall. He was killed during the war and he was buried in the same place, Penzance.

Participant 3: This boat reminds of the time when me and my partner spent the weekend in a cottage next to Pittenween. It must around 4 years ago. It was a lovely

summer day and we went fishing in the sea. We just wanted to take a break from the busy work schedule. We had the most wonderful time spending the weekend with long walks and boat rides. By the end of the weekend we bought this boat so we both could remember the good times.

Participant 4: This is a photograph of me and my dad next to his boat. He named the boat after my mother Pamela. The memories of Daddy and I fishing still live while I fish in this sea.

I would catch one to every three of Daddy's. Our goal was to catch the limit. Often we would come close, but I don't remember ever catching the limit.

Participant 6: This object reminds of my uncle who was a fisherman like me in Pitenweem. He used to take me in his boat some days and tell me great stories about fishing. I always loved the boat rides.

Participant 8: I brought a photograph of a fish caught by my son. One summer afternoon my son went to fish for his first time with his grandfather in Anstruther. However, little did he know that he was in for a major shock and plenty of excitement. After a short while he had a bite and to his amazement was almost pulled into the water by the strength of the cat fish he had hooked. It was so heavy [eight stone] that a winch was needed to land it; it weighed half a stone more than my son, and it was also a foot and a half taller. We took a picture of the fish to remember that day. It took a full half an hour to fully bring to fish to the boat.

Participant 9: I live in Anstruther and I work at this fisheries museum. I did not bring any object, But I would like to share a story that I came across.

Participant 11: My son whet fishing in Anstruther for the first time when he was 12 years old. His name is Jake. He fished from a jetty with only a length of cat gut, with an attached hook, wound around a wooden handle; his expectations, using bread as bait, were minimal and he was delighted to catch several tiny fish to feed to his cat

What did you think about the technology?

Participant 1: I see QR codes every ware and I actually have a reader in my smart phone. But I never really bothered to learn how to make my own digital story. I think I'll make more stories and share to my family and fiends.

Participant 2: What if I own a QR in my house and the same QR code could be placed in the Fisheries museum, next to the artefact. All I have to do is upload a story to the QR code and people who scan the same QR code at the museum can listen to the story instantly.

Participant 3: I use my mobile phone all the time, to make calls, text people and sometimes for mobile banking. But I have never thought of using this as a means to share my personal stories. It helped me to think about ways forward.

Participant 4: The technology seemed cumbersome but it looked easy when someone else does it. At the moment I am concentrating on becoming more skilled in developing direct and straightforward storytelling techniques, after a career which has involved many different art forms (art, writing, drama, puppetry, music, etc). Taking on digital storytelling at this stage is perhaps too soon. However, I am very open-minded about it, and with encouragement, could become keener to be involved.

Participant 6: Technology is fascinating. There are lot of innovations these days and I find it difficult to keep up with them. I think my grandson would be more encouraged to use this than me.

Participant 7: yes, I found this workshop quite interesting. This tagging technology is something I have never come across till now.

Me: Did you find it easy to follow?

Participant 7: hmm.. yes and no. It felt like a complicated process in the beginning. But, once I managed to upload my story and scan the QR code I got the idea of how this works.

Would you use this technology to tell stories and share?

Participant 1: Yes, I will.

Participant 2: This is an area I want to explore through my art work and I think I will look at some create way of incorporating this into my craft.

Participant 3: Yes, I think I'll use this to enhance learning and teaching in the museum.

Participant 4: Hmmm. I prefer hearing/telling stories to people face to face. I don't see me using QR code personally just yet.

Participant 5: It is not necessarily something I will be involved in much, but perhaps I will.

Participant 6: As i mentioned i think it has potential. I think there will definitely be advances to technology but not sure if I will be using it just yet.

Participant 7: I don't think so.

Mediator: Every community is different. I think engaging communities in story led research studies will bring meaningful community participation. By doing so it allows communities to learn, contribute and shape their decisions that affect their lives. This has to be achieved through a long term research studies. Through this, we accomplish common goals based on trusting relationships that have been built over a long period of time.

7.6 Appendices F: Publications

7.6.1 Short paper for International workshop on Digital object memories in the Internet of things DOME-IoT 2010 - Copenhagen, Denmark -UbiComp 2010.

Story Cultures: Understanding how stories of different cultures can influence digital memories.

First Author: Arthi Kanchana Manohar **Co-Author-** Jon Rogers

KEY WORDS:

Memory palace, Culture, stories and memories, object and artifacts, cultural probes, case study analysis, Family archives, Methods.

ABSTRACT:

Objects, people, spaces and memories are the building blocks of stories. Think of a story. Now try to find a memory that contains no people, objects or spaces. The stories we tell reference the objects that we have in our lives. They may be a key detail or a background prop, but nonetheless our memories are based on our objects. In this short paper, we would like to position objects and their role in elucidating memories – at times as triggers, acting as props or as access points.

Exploring different social and cultural context to consider artifacts in people's life. This paper proposes research methods to carryout case studies and methods to analyze and evaluate the study. Concluding with design methods and concept for digital memory technologies.

INTRODUCTION:

Design and technology methods that are used to gather insights for stories of people, objects and spaces – for example cultural probes, rarely probe cultures are more of a localized method tied to Western European and North American design cultures. We are beginning to take this notion this further in relation to design research methods exploring stories and cultures of Indian domestic and family activity.

Memories are crucial to self-identity and everyday functioning; yet memory is known to be fragile [1]. A better understanding of what makes an object valuable, as well as how, when, and why the objects are chosen should help the design of technology for storing and accessing digital memory [2].

This paper talks about design methods that will facilitate to carry out a field study and a method to analyze and evaluate data. It also proposes method to design digital memory object.

CASE STUDY AND EVALUATION METHOD:

Few case studies were conducted in India to collect stories and memories of people, objects and places; Semi structured Interviews were carried out in the process. Cultural probe was

used to collect data from the users. The participants were selected within close family network. They were asked to bring objects and artifacts that they possess which triggered memories and stories of people and places. The case study encouraged reflection in the feelings and emotions that are evoked using the objects, which are directly meaningful to their memories. The case study was an attempt to understand how people perceive the objects to construct their physical environment such as “a physical map of memory, history and belief” [4]. The cultural probe method was used to collect data from the participants; audio recorder, sticky notes, camera etc were used to collect data.

The data collected were evaluated later, the method looked at the network of memory map created by the objects which the participants related to places, people and events. The qualitative data analysis method was used to analyze the raw data generated from the interviews including transcripts, translations (given that some of the interviews were held in regional language Tamil), documents, photographs and materials. The grounded theory technique was appropriate in this research in order to analyze the data because the data itself directed the course of study, as in what is to be expected from the participants and what questions helped to trigger the emotions behind the objects.

Few questions were asked in the interview like, what do you like about the object? Why is it important to you? And what stories does the objects provoke?

It is important to value our experience that we shape from the stories we tell one another and the narratives we form. During the case study the participants were given the freedom to make their own interpretation of memories and stories behind the objects. However, the main objective of the case study was to share these stories to build the connection to others by providing object or material that provoked stories. The family home in particular contains personal and shared objects; the most valued often being related to memories [8].

The Family archive (Memory box):

The objects the participants chose to narrate were not only displayed and shared, but also integrated into everyday activities. The stories behind the objects helped in unveiling the Family story, history and culture. The toolbox that is chosen to develop into an interactive digital memory box was inherited from participant's grandfather. Grandfather being a jeweler designer, the memory box was used as his jewelry toolbox. The aim of the design is to Build Grandfathers' toolbox as an interactive memory object to unveil family stories. The interactive memory box will be a technique to archive and articulate the sentimental family artifacts and memorabilia. The memory object can be termed as memory palace, which can hold events or experiences worthy of remembrance. This can help us to have a deeper understanding of home life and also critically analyze how our technology might fit into family life. The memory box will narrate how physical objects acquire sentimental values in homes, which together with photos and videos, from a class of objects we might call memory palace. To store, organize and interact with such sentimental objects is a key human value, which is being considered in digital technology designs. [7]

Why chose India? India is a country of bursting diversity-virtually every writer describes it as one of the most culturally and geographically diverse nations in existence [3]. In India the philosophy of life and the mental structure of its people comes not from the study of books but from tradition (Munshi, 1965, p148). The objects that participants talk about in

the case study are a part of family history, work life, growing up, moving countries, education, and play.

CONCLUSION:

Using the case studies the authors proposes a digital memory box, which will be an attempt to archive the family stories, memories of objects and artifacts and tested on the participants. The digital memory box will be a compact device that allows users to browse through images, audio and videos of data. The paper is drawn out of case study methods explored using qualitative research to collect stories, which are analyzed and evaluated. More case studies are planned in the future; participants with different cultural backgrounds and cross generation will be involved to augment stories and memories in different cultural context.

ACKNOWLEDGMENT:

We are thankful to the participants who participated in the case study and sharing their stories and thoughts.

Abstract for EAD conference - Portugal

The One That Got Away: Digital Storytelling in Communities

Arthi Kanchana Manohar and Jon Rogers

Theme: Locality

Key words: Tagging, Culture, stories and memories, object and artifacts, cultural probes, Invisible networks.

With the enormous development in digital technologies there is a rapid change in everyday lifestyle of an individual. Due to these rapid changes in the technologies physical objects are replaced by digital object. While people try to incorporate these technologies in the daily life they fail to procure the social and cultural values. In this study, the paper describes the approach to understand the cultural aspects of designing an interactive product and integrate them in the design methods. Exploring different social and cultural context to consider artifacts in people's life [2].

We chose the National Fisheries Museum of Scotland as a location for the study of collecting stories about objects and communities. The museum is both a celebration of the history of the people and technology of fishing, but also a cautionary voice in the decline of an industry and the community that it supports. Besides this, we know that Fishermen like to tell a good story. The objective behind the conducted field study was to collect stories and memories from people and also to study the effect of tagging objects with stories and memories in a particular community network. In this study, various methods are explored for collecting stories like multiple user experience research methods which will include practical observation and qualitative analysis with semi-structured interviews and cultural

probe, which is used to investigate cultural values of the community and human interaction like emotions, values, connections, and trust [1]. In this case probes are not just an insight or rather looked as evaluation tool for individuals but as a probe across generations, among different cultures and through communities. The field study looked at collecting these stories of the fisheries community and to build a connection within the current community by providing object that helps to tell stories. The invisible networks formed within the community by the objects will be analyzed, which will help to enhance perceptibility of the user and object.

These data and experiences collected during the field study is analysed to form a set of criteria that can be used to build an interactive memory object for the community. These stories and memories articulate and influence people's social lives, developing an interactive design tool, which will help the community engage and explore itself through design and create an impact in the social community. Based on the findings, an interactive memory object is proposed to show the cultural implication of the community. The main objective of the paper will be to value the design outcome, by analyzing the case study data, and to design the interactive memory object that will talk about the social and cultural context of the community. The paper argues that social and cultural characteristics of a community should play an essential role in designing and developing a product [3].

The project will offer a new way for people to place more value on their own objects in an increasingly disposable economy [4]. There will be a vast potential of everyone collecting stories and archiving in an object that will be manifested in our lives. Will the next big thing on the Internet be a combination between YouTube and Antiques Road show?

7.6.2 Workshop abstracts:

Abstract for ICIDS 2010: The third International Conference on Interactive Digital Storytelling – November 2010 in Edinburgh UK

Authors: Chris Speed and Arthi Kanchana Manohar

Understanding design technologies to comprehend stories and memories in different cultural context

People are surrounded by thousands of objects, of which most of them are not cared for. For every individual, in almost every household there are certain objects that would hold significant resonance and these objects connect them to stories and memories of people, places and events. This paper is developed to comprehend the role of Internet of things in capturing these stories in a global spectrum.

This paper is about design technologies that can augment stories and memories in different cultural context and how these stories and memories help us function in everyday. It will be a system that will help people to save every bit of information they touch, experience and to create a personal archives of data, which are called the memory palace. Exploring different social and cultural context to consider artifacts in people's life and also looking at materials like photos, sound, smell, and location that trigger stories

from the past. Jonathan Chapman (2005) says “Everyday objects that engage the senses should not be taken for granted, their characteristics are not simply utilitarian or aesthetic.”

However, the main objective of the paper is to share these stories of their past from various culture and to build the connection to others by providing object or material that helps us to tell stories. These technologies help us to know our-self better, build up our connections to those we care about and bring us closer to the world around us. It will be an attempt to analyze the network created by the objects and their contribution to digital storytelling, which might help to enhance perceptibility of the user and object.

Abstract.

The movement from a screen based experience of the Internet to one in which everything is connected in the actual world is slowly becoming a reality. The advent of smart phones and data free contracts has provided a cultural context in Europe in which society will begin reading and writing stories to objects of their own. Digital Storytelling methodologies are required to understand how narratives between objects can be constructed as individual objects become connected with others. This workshop proposes research methods to carryout case studies and methods to understand the relationship between the objects and the participants. The implications for the knowledge to support this cultural / technical revolution are widespread – in particular of industry, but also leisure and the arts. We hope that storytellers, academics who are interested in social computing, and programmers will be interested in the workshop.

Keywords: Internet of things, Culture, stories and memories, object and artifacts, methods.

1 Description of the workshop

This workshop is concerned with exploring the implications for digital storytelling methodologies as society moves toward an ‘Internet of things’. The term, ‘internet of things’, refers to the technical and cultural shift that is anticipated as society moves to a ubiquitous form of computing in which every device is ‘on’, and every device is connected in some way to the internet. The specific reference to ‘things’ refers to the concept that every new object manufactured will be a part of this extended Internet, because they will have been tagged and indexed by the manufacturer during production. It is also envisaged that consumers will have the ability to ‘read’ the tags through the use of mobile ‘readers’ and use the information connected to the object, to inform their purchase, use and disposal of an object. Digital Storytelling methodologies are required to understand how narratives between objects can be constructed as individual objects become connected with others. The implications for the knowledge to support this cultural / technical revolution are widespread – in particular of industry, but also leisure and the arts.

As well as facilitating logistical procedures in the manufacturing and production/consumption industries such as attaching tracking data to objects, the same technology offers the opportunity for the public to attach stories to objects. This workshop will provide a critical context in which participants will be asked to explore the theoretical

and practical implications for the retention, recall and construction of stories when they become associated with physical artifacts.

The workshop is offered by academic partners involved in a large EPSRC funded project that has been researching the potential of the technology to conserve social history. Whilst the technology at present is effective at recalling individual stories the team are interested in how discrete instances of stories can be associated with other stories to construct larger narratives. As more and more objects in daily life become tagged and connected to the Internet, the potential for linking the data behind each object to other artifacts increases. This linkage offers a rich space and new space for digital storytelling.

Delegates are asked to bring something along with them that become part of a series of props in a story. The object will be tagged with a QR paper tag and the story retrieved by an iPhone / Android app.

TOTeM and Anstruther Fisheries Museum Stories and Memories of Objects in Anstruther

Background:

Anstruther is the largest of the villages in the East Neuk. The place has a vast association with the fishing industry that has not been forgotten. The town is a home for the Scottish Fisheries Museum that tells the stories of Scottish fishing from the earliest times to the present day.

The project aims at tagging objects and artifacts in the Anstruther museum and the community with stories and memories of objects from people, objects that are associated with their memories and the people who share in the stories using QR codes. These codes will link to slide shows of photographs, audio and videos of participants narrating stories; This digital information can be uploaded to the Internet and accessed via mobile phones.

The Digital data will be stored on the "Tales of things" website (<http://www.talesofthings.com/>) and the objective will be to record memories of the Anstruther with a range of different groups to generate a stronger sense of community.

A memory palace will be created to archive and articulate the stories of artifacts and objects. The memory place will be an object or a product where people could archive and articulate the stories of objects and artifacts. The memory palace can hold events, stories or experiences worthy of remembrance. This can help us to have a deeper understanding of the place and also helps us to understand the effect of tagging objects using stories and memories of a particular community.

Practicalities:

The Initial stage of the project will be to conduct case studies involving stories of objects that will engage participants of different age groups (Inter-generational study) like Involving social communities and secondary school students in the case study.

The project can also involve story-telling groups in the museum, which can invite participants of all age groups to bring in the objects that they possess and value more, to narrate and share stories and memories associated with the objects.

The main aim of the project will be to analyze the data collected from the case studies performed with the participants and to build Memory palace within the community. The objective of the projects is to collect stories of the photographs and objects displayed in the museum that participants (people in Anstruther) have donated to the museum. Identifying network of maps created by these objects and stories within the community.

The ToTem printer will be developed by TOTeM team in Dundee as a physical app, the printer will print QR codes from an iPhone (or other devices and Smartphone), which will make things simpler rather than using computers and printers every time. The TOTeM Printer will be designed and developed collaborating and gaining feedback from the Anstruther community.

Initial research Question:

What are the effects of tagging objects with stories and memories in a particular community network?

Methodological approach to answer the research question:

To develop a methodological approach to investigate the role of TOTeM objects in the community

To design, develop, and test TOTeM objects (The Totem printer) that will enhance association within the Case Study group

To analyze the findings of the primary study by using compare and combined analysis of different case studies.

To develop and design the "Memory Palaces" for targeted Case Study participants and a subsequent narrative framework for future designs

Timeline of Activities:

August 2010 to December 2010

Data collection through case studies (Collecting stories of objects)

- Data collection through case studies, involving participants of different age groups to collect stories and memories of objects from the participants, objects that are associated with their memories and the people who share in the stories.
- Collecting stories and memories and unloading them to TOTeM website. (<http://www.talesofthings.com/>)
- Involving story-telling group to share their stories and memories of objects

January 2011 to April 2011

- Tagging objects in the museum using QR codes
- Train participants about QR codes, tagging objects using QR codes and Tales of things platform.

May 2011 to December 2011

- Building Memory palace (Analysis & Prototyping)
- Analysis and write up for the case studies conducted at the initial stage.
- Design development and building a prototype of the memory palace either drawn out of the analysis or coordinating with the participants

January 2012 to April 2012

- Testing TOTeM printer among the participants within the community groups and tagging objects with stories and memories using QR codes

September onwards: TOTeM Write up, Review & Dissemination.

7.6.3 Journal articles:

Connecting communities across seas - Published in A UMAR – Açores e o sucesso do “Caminhos em Terra e no Mar”

First Author: Arthi Manohar

Co Author/Translator: Laurinda Sousa

4ª Edição

Maio 2012

Ligando as comunidades através dos mares...

As mulheres da pesca nos Açores integram um estudo cujo principal objectivo é o de aproximar comunidades costeiras situadas em diferentes contextos geográficos, como Portugal, Reino Unido ou Índia.

Ao longo do mês de Novembro de 2011 foram distribuídos 10 kits a 10 diferentes famílias pertencentes a zonas costeiras nos Açores. As participantes de sexo feminino (5) pertenciam ao núcleo da associação Ilhas em Rede e o trabalho de recolha foi orientado pela equipa da UMAR-A.

No contexto do estudo, coordenado por Arthi Manohar (Universidade de Dundee – Escócia) as informações recolhidas junto das mulheres da pesca (e fornecidas através de fotos, gravações de som e interpretação/narração de imagens) vão ajudar a entender o seu sentido normal de conectividade com a própria comunidade onde se inserem e fora desta.

Segundo a investigadora “este estudo ajudar-nos-á a aumentar o sentido de conectividade no interior e entre as três comunidades. Poderá ser um exemplo para que os organismos governamentais e os responsáveis pelas decisões acerca das comunidades foquem os assuntos sociais das comunidades costeiras em todo o mundo”.

Este tipo de metodologia é adequado a envolver as pessoas de forma criativa, conquistando a sua compreensão e ajudando-as a superar barreiras interculturais, como o podem ser as diferentes linguas. Ainda de acordo com Arthi Manohar, “este estudo poderia ser um exemplo de como envolver participantes de diferentes contextos culturais usando métodos de design criativo que, capturando sons e imagens, ajudam a romper as barreiras culturais. E também mostra como a narração de histórias pode ser uma prática importante para entender a cultura e a tradição da comunidade. Usando métodos de investigação assim desenhados, o estudo criou condições para outras oportunidades, e vias de pensamento novas, envolvendo participantes de todo o mundo.” Em termos futuros, “o estudo espera construir uma relação saudável no interior e entre comunidades costeiras, nomeadamente fornecendo-lhes uma plataforma para partilharem os seus conhecimentos. Também espera que a oportunidade aberta pela investigação possa tornar as comunidades capazes de partilhar e discutir numerosos e variados temas e questões.”

Laurinda Sousa e Arthi Manohar



Procissão da Festa do Pescador em Rabo de Peixe

No passado dia 20 de Maio um grupo de mulheres da pesca de São Miguel participou na procissão da Festa do Pescador em Rabo de Peixe.

Na sequência de um convite feito pela Comissão da Festa, a Ilhas em Rede fez-se representar na procissão que percorreu algumas ruas da bonita vila de Rabo de Peixe.

Estava um bonito dia de sol, e esta presença foi mais uma boa forma de dar a conhecer a Ilhas em Rede, uma associação de grandes Mulheres da Pesca.

Joana Medeiros

Mulheres na Pesca – Documentário

Nos Açores, apaixonei-me pela arte da pesca. Se há lugares onde me sinto bem é nos portos, cheios de vida ou desertos, mas nos portos. E se há histórias que me apaixonam, então gosto de me aproximar. Essa foi a razão que me levou a realizar o filme “Mulheres na Pesca”, uma primeira abordagem, para mim, daquilo que pode e deve ser um profundo trabalho quer de investigação quer de realização artística que falta ainda fazer na região dos Açores, valorizando não só a arte como os homens e mulheres “artistas”.

Esta primeira abordagem, estreada na piscatória Vila de Rabo de Peixe, foi o resultado de uma aventura que se prolongou por vários meses, tendo sido partilhada sobretudo com as protagonistas e comunidades piscatórias de várias ilhas dos Açores (S. Miguel, Terceira, Pico e Faial).

Apesar de ser, muitas vezes, muito difícil a escolha entre o que se filma e o que entra efectivamente, por fim, no filme, para mim importam todos os momentos

que vivi, as escolhas ao segundo que tive que fazer, o que aprendi, o que permaneceu por saber, as casas das mulheres na pesca que me receberam de braços abertos, a desconfiança de outras que não quiseram colaborar, a importância de reconhecer o trabalho humano nesta arte, de homens ou de mulheres, valentes.

O filme ganhou agora asas. É de quem o quiser ver!

Maria Simões

Mulheres na Pesca
Doc. Pt, cor, 55min
Realização: Maria Simões
Co-produção: Umar - Açores/Descalças cooperativa cultural



Connecting communities across seas – (Translation)

Introduction:

The purpose of this study is to bring together different coastal communities from various geographical locations such as Portugal, UK and India. The report presents a feedback of various studies undertaken at different stages of the research. The study highlights the importance of 'Social connectedness' (also known as sense of connection), as it is known as a coping tool in times of social crisis. Social connectedness proves to bring positive effect in our wellbeing. The aim of the research is to maintain and enhance the existing social connectedness (Sense of connection) that is seen in the chosen communities. And to create new connections by increasing their radius across the seas, giving them the opportunity to connect with people in different geographical location.

Stories across seas:

During the month of November a set of story probe kits were distributed to 10 different costal families in Azores, Portugal. The female participants were a part of UMAR-Açores team. Especially by collecting information from the women of Azores helped the researcher understand the their current sense of connection within and across the community. This design led task is adapted to engage people in a creative way and to gain their understandings and help to overcome their cross-cultural barriers such as languages. From the famous quote ' a picture is worth a thousand words' images are used as a significant part of this study. From the studies conducted in the past few months, images were taken by the researcher and by the participants from the Azores community, these images where used to understand their socio-cultural identity. These images collected by the participant and the researcher is studied through 'visual analysis' method. In the Visual analysis method the images are used as modes of interpretation and representation of their lifestyle. During the study, the researcher also looks at how the images of people, places and objects are used to trigger and provoke 'story narratives' from the participants and

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Conclusion and future works:

This study will help us understand the use of technology to improve the sense of connection within and across the three communities. This study could be an example to inform the government bodies and the design communities to highlight social issues in the coastal communities around the world.

This study could set as an example for engaging participants from different cultural contexts by using creative design methods that captures sound and images that helped to break the cultural barriers. This study also shows how story narrative can be an important practice to understand the culture and tradition of the community. By using such design research method, the study opened up to other opportunities and ways of thinking and engaging users from around the world.

In the future the study hopes to build a healthy relationship within and across the coastal communities, particularly by providing them a platform to share their knowledge. The study also hopes that the opportunity provided by this research will enable communities to share and talk about multiple and varied themes, and issues. By such activity, this framework will not only provide a significant resource for emerging communities but also help to weave the threads to people within the existing communities.

“ In a story the content of the story is important. Regardless of whether the story is told by a human storyteller or mediated by technology, it should touch our hearts and engage our minds. It should tell us something about what it means to be human.” Judy Robertson (2008)

Acknowledgement:

Special thanks to the participants who were involved in the study especially to UMAR-Açores team and Laurinda souse who made the data she collected available to the research team in Dundee.

RGS-IBG Annual International Conference, London, 28-30 August 2013
Connected communities and story cultures

First Author: Arthi Manohar

Co-Authors: Steven Birnie and Dr. Jon Rogers

Abstract:

Key words: Connected communities, stories, technology, networks, participatory methods, creative methods, and cultural identity.

The term community is merely a concept that has been around for thousands of years. When Internet became a significant part of our everyday life, this concept of community began to transform. According to Putnam (2000), people in a community have the need to feel connected for their well-being, redevelopment or to lead a sustainable lifestyle. This paper will look at connecting communities through story cultures. The study will explore how communities can interact within and across each other using auto ID technology, which facilitates real time interaction through handheld devices. Storytelling is explored as a creative tool throughout the research to understand cross-cultural communities. In this study, storytelling is identified as a social activity, which triggers people to interact and share experiences, which in turn has proved to influence each other lives. The paper also explores how important it is to strengthen the existing networks and also create new networks.

The research proposes a design framework, which offers a holistic approach for researchers (designers) to reinforce cultural identity in communities. The advantages and drawbacks in applying participatory creative methods are explored in this paper, which are tested various communities located in India, Portugal and Scotland. The research is approached through design research methods and it is identified that there is value in addressing social issues through creative practice. We will present new insights that further the notion that in-depth cultural and social values are better approached through creative methods. By such technological intervention in communities what are the effects and new form of community, creativity and opportunity that might emerge? If technology played a significant role in connecting people, do some communities look at technology as a hindrance if so why? Will this technology growth be a threat to the community or will it help strength the ties within and across communities? Does such intervention transform the meaning for community?

7.5.4 Full Paper

THE BIENNIAL CONFERENCE OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF TRADITIONAL ENVIRONMENTS

IASTE 2012 | The Myth of Tradition OCT. 4–7 PORTLAND, OREGON

First Author: Ram Sateesh Pasupuleti

Co-Author: Arthi Kanchanana Manohar , Jyoti Mithal, Siva Sakthivel and Ramadoss.

TRANSFORMING TEMPLE STREETS IN THE NEW DIGITAL ERA

Digital social networks such as Mobile phones have become increasingly important in our daily life in a manner, which has wide range of implications on day to day lifestyles of the people and their livelihoods. Such a revolutionary changes in the lives and livelihoods of the resident inhabitant's and visitors of the temple have intervened into these historical Temple Streets. Therefore, this paper has been developed with a growing concern on the transformation process in historic temple streets of Srirangam, located in the Tamilnadu, India. Primarily, it reviews an extensive literature and develops a theoretical framework for understanding the transformation of the temple streets in the new digital era. Secondly, it discusses about the findings that were developed from the observations in the field work. This study concludes that even in the digital era physical and virtual world can complement each other to enhance our experience with the digital technology rather than replacing each other.

INTRODUCTION

With the advent of technological changes affecting the whole world, the relationship between the physical environment and social behaviour is also undergoing transformations in the built form. The role of technological intervention in the present day to day situations acts as a tool to structure the spatial environments and its socio-cultural behaviour. A recent literature review focusing on built environments identifies that there is little empirical evidence on the impacts of digital technologies on the socio-spatial structures of the developing world.

Digital technologies such as mobile phones, ipods and handheld devices have brought a new dimension to human interaction. Turkel (2011)ⁱⁱ associates technology to a phantom limb. Technology has become so much a part of our life. She also states that technology reshapes our everyday landscape, which in turn reshapes our emotional lives. It is also evident that one's location does not depend on connecting with people. Though, the basic use of mobile phones is to communicate with people, the use of technology varies in such cultural context to a greater extent such as Email, SMS (Short message service), photography, internet and mobile banking. Mobile phones have become a fundamental tool to communicate with people. However, in an isolated community where technology hasn't been prevalent among the people the usage of mobile is varied. In such places the exposure to technology is limited; its usage of technology is reduced to mobile phones, SMS text only.

According to highlights of telecom subscription data as on 31st October, 2011, the mobile telephone network in India has aggrandized greatly since 2000. According to the mobile statistics, India's cellular subscriber base is set to rise to 1.159 billion by the end of 2013, making it the world's largest mobile marketⁱⁱⁱ. This will represent an extraordinary growth since the year 2000 when there were just 3.2 million active mobile subscriptions. The number of mobile phone connections in India, have crossed fixed-line connections in Sept 2004 and by 2011 there was an estimated 881.40 million mobile phone users in India compared to 33.19 million fixed line subscribers.

While developing countries are still lagging behind high-income countries in overall ICT usage and applications, the mobile phone has been regarded as a more accessible and less expensive means to close the digital divide^{iv}. Wade (2004) also highlights the reason for the wide usage of mobile phones especially among the poor and other factors like the ease of mobility, security and no reliance on physical infrastructure. India's communication minister Shashi Taroor (2009)^v states that the development in telecommunication in India has changed the way people connect and thus bringing a huge economical growth to the underclass. He also states that this empowerment of the underclass is the real result of the country being connected and that transformation is part of where India is heading today.

As such they are considered particularly important in the developing nations and moreover, as they require only a very basic level of literacy, they can serve to a major segment of population in such developing nations. As we see more development in new technologies, designers will have to take in account that the line between workspace and domestic space will eventually disappear. With the help of these digital tools, spaces can be enhanced in such a manner so that they encourage the cultural and social interaction in the communities. Researchers such as Mitchell, (1999), Moss and Townsend, (2000 P1) have stated that

While mobile telephones are sold as a technology that helps conquer constraints of location and geography, it is increasingly apparent that the time-management capabilities of this new tool are equally important. As a result, the widespread use of these devices is quickening of the pace of urban life and at an aggregate level, resulting in a dramatic increase in the metabolism of urban systems. This quickening metabolism is directly tied to the widespread formation of new decentralized information networks facilitated by this new technology. As a result, new paradigms for understanding the city and city planning in a decentralized context are discussed.

It was also addressed by Juha Talvitie in 2002 that digital technology would reshape our regional, urban and rural structures in the near future and create new spatial character^{vi}. Though scholarly work has addressed the possibility for changes in the city structures by such technological intervention, but there has been only little empirical evidence about how the digital technologies such as mobile phones has influenced the transformation of spatial characters of the towns and cities. The intervention of digital technology gives us the opportunity to be present in the physical and virtual world at the same time^{vii}. Such development will have a spatial consequences and on our behavior patterns. Such changes are not usually taken into account in design of our towns and its streets. Experts such as

Negroponte (1995 p230) states that Digital technology can be a natural force drawing people into greater harmonyviii. On the other hand, David E Nye (2007) said that technology itself will not break the cultural barriers and bring harmony or world peace in a natural way. Technology is best used when it is shaped by one's cultural choicesix. There is a growing concern from the scholarly thought on how such technological interventions are shaped by the varied cultural environments especially in the historic towns and cities of the developing world. Such places of historic interest possess with rich cultural heritage and architectural value.

Indian historic cities have been influenced by some of the most diverse religions and cultures history has ever witnessed. They have always experienced many changes during their history. Historic Temple streets have a special place in the cities history because of their cultural, historical and architectural value. They reflect the history of the city's culture and indigenous culture with their unique built forms and patternsx. Temple Gopuram's play a vital role in the evolution of variety of functional activities that gives a unique identity for the temple streets and they give message to us about the religion, life style, economical degree, social condition and architectural style of the society with their special pattern.

However, in the recent decade, new social practices are being reshaped by both new technologies and entrenched systems of belief. Digital social networks such as Mobile phones have become increasingly important in our daily life in a manner, which has wide range of implications on day to day lifestyles of the people and their livelihoods. Such a revolutionary changes in the lives and livelihoods of the resident inhabitant's and visitors of the temple streets have intervened into these historical Temple Streets. Therefore, it is necessary to investigate in detail of what are differences between traditional and modern streetscapes; which is current spatial position of the historic streets; when those interventions get into the historical streets and how they affect the surrounding heritage areas. This study provides a gateway to understand such impacts in our daily life, which is mostly neglected. This study looks at the role of digital technologies such as mobile phones and their impact on the socio-spatial consequences in the historic temple streets.

RELEVANCE OF URBAN DESIGN PRINCIPLES: TOWARDS AN ANALYTICAL FRAMEWORK FOR UNDERSTANDING THE ROLE OF DIGITAL INTERVENTIONS IN THE TEMPLE STREETS

Definitions of urban design are constantly being reshaped by practice and new theoretical insights (DETR 2000b; Parfect and Power 1997)xi. However, there is agreement that urban design, as the discipline is both concerned with the physical attributes of built (urban) form and with the processes that produce that form.

Moreover, in itself it is considered a process by which the environmental quality of the built environment is sought and facilitated (DETR 2000a, 2000b; McGlynn 1993)xii. The concerns of this discipline are broadly derived; they cover issues such as the functional, visual, environmental quality and aesthetic aspects of places. Because of this wide range of issues, urban design has been conceived of as the middle ground of many associated design professions such as engineering, architecture and town planning (McGlynn 1993)xiii and more recently other non-design professions. It is therefore, recognized as an activity of an

interdisciplinary and collaborative nature. Within the urban design process there is an explicit aim to combine knowledge from different disciplines.

Urban design qualities or principles can be used in the analysis and assessment of urban form (Punter and Carmona, 1997)xiv. Urban design principles are reflected in the physical context and are used to provide a kind of benchmark as to whether the aims of creating better places have been achieved or not (Parfect and Power, 1997; Punter and Carmona, 1997)xv.

According to Schurch (1999)xvi the use and definition of urban design qualities are considered mainstream activities within the discourse of the discipline. Much of the literature and research in the last thirty years has elaborated on the subject (e.g. Alexander 1977, 1987; Bentley, et al., 1985; Jacobs 1961; Lynch 1960, 1981; Punter and Carmona 1997)xvii. Bentley et.al set out various principles that are believed to help in delivering a responsive environment. So far these have related to different aspects of urban form; for example, aesthetics, planning control and development, and have affected to different extents the form of the built environment and the social relationships of the people using that environment (Parfect and Power, 1997)xviii.

Although seemingly of a prescriptive nature, the qualities set out in the responsive environments and urban design principles are not fixed. Their degree of importance, transferability and applicability needs to be related to the different priorities and cultural contexts where they intend to be used. The different relationship between qualities themselves, and between qualities and context, is what gives them their relative value or relevance (Punekar 2010)xix. There has been little application of these urban design principles in the assessment of historic temple street contexts and especially in the digital era. Given the transferable nature of these principles, this study aims to apply the following listed principles derived from the 'responsive environments' theory of urban design (Bentley et.al 1985)xx to assess the transformation of historic temple streets in the new digital era: Permeability, Legibility, Variety, Robustness, Personalisation. Such principles must be contextualized with respect to the assessment of the transformation of historic temple streets in Indian context.

DIMENSIONS THAT DETERMINE CULTURE IN TERMS OF TRANSFORMING TEMPLE STREETS IN THE NEW DIGITAL ERA

In the built environment context, Dovey (2005)xxi notes that habitus as the aspect of human behaviour that causes culture to happen and cultural capital is the result. To complicate things Dovey (2005 p285)xxii considers it to be embodied in people as well as their physical environments and also refers to Bourdieu's work on Pascalian meditations stating that it is subjected to constant change, but such revisions always based on social practices through which the habitat may change radically; the habitus evolves (Bourdieu 2000:161)xxiii. Neil Leach (2005 p298)xxiv recognizes that architecture in Bourdieu's terms can be understood as a type of objectified cultural capital. He points out that Bourdieu's theory of habitus as discussed by Dovey (p285)xxv did not address any commonly accepted framework for exploring how people make sense of space and relate to it. Therefore in order to establish a schematic framework, Leach (2005)xxvi develops a

tentative theory of identification with space by bringing three discreet theoretical models. They include process of narrativisation, performatives and mirroring.

From the above discussed theoretical aspects it can be understood that architecture offers a potential mechanism for inscribing the self into the environment and how the narrative and performative discourses tend to give meanings to the spaces in the everyday life. It also supports Lee's (1997)^{xxvii} model that states:

"...the practice or set of concrete actions will over time adjust the original objective conditions of existence of a place, there by leading to the modification of the original habitus in response to these changes, will accordingly generate changes to practice."

Meanings are constructed through narrative and performative processes. These take place in specific spatial and architectural layouts. From the above articulated theoretical models, it can be understood that culture is a way in which people give meanings to their lives and the places they live in. However, such meanings are also subjected to change with the day-to-day needs and demands of the people especially in this digital era. Such transformation is reflected in the evolution of traditional dwellings and settlements. Leach (2005)^{xxviii} theory helps in understanding how these constructs of culture are determined with the changing daily practices and narratives in the digital era.

Lim (2008)^{xxix} used the term 'cultural environment' in her work on Philippine settlements relating to the different cultural aspects through which communities construct their identity either at national, regional and local level. The order in which she presented these different aspects is in accordance with the process of construction of identity how an individual becomes a social individual (Lim 2008 pp32-41)^{xxx}. They include family, kinship and gender roles, politics, economy, cultural interaction, religion and belief systems, and the ecological environment. Lim (2008)^{xxxi} considers these components as fundamental aspects that can provide a means for a holistic understanding of culture and also elaborates on how these aspects bear upon each other influencing other components in creating identity for people and the places they live in. Here it is important to consider that such identities also get transformed due to changing social, economic and political contexts, which formulate the development context for any traditional settlement. Technological development acts an agency in the evolution and transformation of traditional settlements.

In the recent theories of globalization, it is also argued that people also draw upon the imaginative aspirations and practical experiences of 'modernity' (Giddens, 1990)^{xxxii}. Deborah Lupton (1999, p75)^{xxxiii} in the writing on Giddens (1990)^{xxxiv} aptly summarises the impact of modernity in the pre-industrial communities and states, "People now cannot simply rely on local knowledge, tradition, religious precepts, habit or observation of other's practices to conduct their everyday lives, as they did in pre-modern and early modern times."

Such modernistic arguments open up new challenging dimensions in this research that is aimed to understand the transformation of temple streets in the digital era. The key role which choice (either tradition or modern) plays has complex and contradicting implications for the identity and construction process (Bentley and Watson 2006)^{xxxv}. These arguments challenge the main argument of this research that physical and virtual world can complement each other to enhance our experience with the digital technology

rather than replacing each other. Even in this new digital era, people draw upon their culture to create physical and material spaces to sustain their emerging needs. Therefore, it is important to understand how modernity is perceived in the evolution of these historic temple streets and how such transformations is affecting the historic temple streets especially from a built environment perspective has been investigated from the case study of Srirangam, Tamil Nadu.

DEFINING THE CONCEPTUAL FRAMEWORK TO UNDERSTAND THE TRANSFORMATION OF TEMPLE STREETS IN THE NEW DIGITAL ERA

The framework developed in this research categorizes the components through which built environment can be read and elaborates upon the role of the cultural dimensions that influence the transformation of traditional streets in the new digital era. Kim Dovey (2005, 1999)^{xxxvi} states that our everyday life takes place within the clusters of rooms, buildings, streets and cities we inhabit and action. It is structured by the road layout network and shaped by building facades walls, doors and windows framed by the decision of stakeholders. Taking this aspect of our everyday life, the following components are considered as the physical spaces ranging from very public domains to the more private domain. They include Pedestrian movement on the street, Vehicular Movement on the streets, nodes and the Building facades on either sides of the street, Gopurams as Landmarks.

The framework developed in this study employs two different fields of enquiry, namely cultural anthropology and in morphological analysis as a particular form of urban design analysis. In this framework cultural anthropology is mainly used to understand and define the constructs of culture through which people tend to give meanings to their lives and to their places in the new digital era.(Fig. 1)

The above proposed conceptual framework is applied to acknowledge the research question by synthesising the positivism of development studies and the post structuralism of cultural anthropology from two dimensions for the case study area. One dimension is assessed using the qualitative urban design principles that are explained earlier. This investigation uses primary and secondary data that were collected by the authors during a field survey in historic temple streets of Srirangam. A second dimension of the assessment employs methods from cultural anthropology in order to assess the relation of built form to cultural dimensions of the historic streets. Therefore, the first dimension of the assessment looks on how the street layouts, landmarks and building facades have given scope for satisfying such emerging needs of the communities in the new digital era. This will be assessed using the relevant qualitative design principles based on the theory of responsive environments. However, due to the complexity of socio-spatial relations and communities basic needs that cannot be taken for granted in the digital era, it is necessary to address both philosophical positions through the urban design analysis and social investigation. Therefore, the second dimension of the assessment adopts methods from cultural anthropology and this would then provide support to the mixture of different research methods.

THE CASE OF TEMPLE STREETS OF SRIRANGAM

Srirangam, Old name is Vellithirumutha gramam and Tamil name is Thiruvarangam, is an island and a part of the city of Tiruchirapalli in South India. Srirangam is bounded by the Kaveri river on one side and the Kaveri distributary Kollidam (Coleroon) on the other side. Srirangam is home to a significant population of *Srivaishnavitez*^{xxxvii}. The Srirangam history occupies an important place in the spiritual history of India as one of the prominent worship place of Vishnuism (vainavam in Tamil), which has grown vigorously particularly in the south from the seventh to the thirteenth centuries.

TEMPLE STREETS IN HISTORIC CONTEXT - DESCRIPTION OF PHYSICAL FORM STREET NETWORK

According to the temple's website, Srirangm can be considered the biggest functioning Hindu temple in the world as it covers an area of about 631,000 square metres (6,790,000 sq ft) with a perimeter of 4 km (10,710 ft) (Reference needed). The whole temple town of Srirangam is laid in concentric rectangular patterns. There are total seven *prakarams* and out of seven *prakarams*, four are seen inside the temple and three are outside the temple. They are namely *Uthra street*, *Chitra street* and *Adayavalanjan street*. Originally these concentric streets were ideally developed based on the caste hierarchy system, which are predominantly recognized by their professions. For instance, the streets nearer to the temple are allocated for the upper caste Brahmins and further concentric patterns are allocated for blacksmiths and potters. (Fig 2)

LANDMARKS

There is an elegant temple tower on the south side called *Rajagopuram*^{xxxviii}, which is the highest temple tower of south Asia and acts as the main landmark indicating the main entrance to the temple. (Fig 3). Including that there are totally 26 Gopurams on the four sides of Temples. There are totally 3 entrances for this temple, South, North & East.

EVOLUTION OF BUILT FORM AND LANDUSE PATTERNS IN THE TEMPLE STREETS OF SRIRANGAM

The land use study that was undertaken as a part of field work in Srirangam shows that the city has evolved with a combination of different land use models, i.e., concentric and linear with basically residential and commercial land uses. Predominantly residential areas dominate on the concentric lines and the main temple street connecting two parallel streets South Uthrai Street and South Chitra street is developed with commercial activities. From the Fig 4, it can be noticed that in the historic times, the house fronts on the main temple street are composed with small shops that are used to serve the religious and other needs of the pilgrims visiting Sri Ranganatha swamy temple. Though the dwelling units on the main temple street serves for mixed uses (both commercial and residential) the house or shop fronts reflect the religious character of the place. It is also significant to note that there is a Mandapa that is built on the street which serves as waiting space for pilgrims and also for the deity's procession events. (Fig 4)

TRANSFORMATION OF TEMPLE STREETS IN THE DIGITAL ERA

The technologies with which humans communicate have changed considerably during the recent decade. The advent of inexpensive mass-produced mobile communications in particular, has merely the first wave of an imminent invasion of portable digital

communications tools to come, have undoubtedly lead to fundamental transformations in individuals' perceptions of self and the city, and consequently the way they collectively construct that place. In so doing, mobile communications devices will have a profound effect on Srirangam city as they are woven into the daily routines of urban inhabitants. Mobile handsets present the most visible facet of the cellular mobile industry. Continued growth of mobile services has spawned a host of ancillary applications such as FM radio, media downloads, picture and video capture, and transmission of multimedia messaging, video streaming, rich presentations and video on demand. These are associated with an array of user interfaces on the mobile. Users are increasingly handling memory sticks, firewall cables, Bluetooth devices, and a host of other accessories that vary in complexity and applications. Therefore this study has been developed to understand how these digital interventions with its day to day advancements are responsible for shaping our towns and cities.

The conceptual framework that has been discussed in the earlier sections forms as a basis for getting an insight into how cultures respond to different digital interventions in the temple streets and to analyze the factors that have affected the transformation in the physical form of the temple street. The following discussion concerns specific development issues that are raised in the Srirangam case study. The key findings of this case study were classified into specific impacts on the cultural dimensions of the inhabitants and to their places and the reasons for such response situations. These are discussed below, considering all the information and narratives collected from the case study during the fieldwork.

LIVELIHOOD SHIFT FROM RELIGIOUS TO TOURISM BASED ECONOMY

Comparing with the present economic pattern of the temple city along with the trend in the past (during 1860s), it was identified that the commercialization of the main temple street has increased considerably from selling *puja*^{xxxix} items to fancy shops. Initially there were small huts providing the daily needs of the residents and for the pilgrims visiting the city of Srirangam. However, with the passage of time, rate of commercialization had increased to attract the tourist attention and their needs. We can notice that many of the traditional occupations are gradually vanishing on the main street and perhaps they are taking a new dimension on a whole. For instance, the bronze and copper vessel makers are now been changing to fancy stores. As the mobile users are increasing, there is a necessity for the users to recharge their mobile and the mobile companies also provide their customers with various types of offers in the form of electronic recharge or vouchers. With the day today changing demands of users the companies also update their business formulas to serve the consumers in a better way. Until the millenium, the only way pilgrims who are visiting srirangam were able to connect with their family members back home is through the telephone booths. Now it is very hard to find such telephone booths in the city as most of the vistitors carry their mobile phones with them.

As said in an interview by P. Shanmugam, a shop keeper on the main temple street,

“Mobile phones came to the streets of Srirangam very lately. 20 years before, no telephones were there. I was the first one to keep landline connection. Since then, my friends and neighbours use to give our telephone number as a contact for their relatives. Their relatives used to call on this telephone and

the respective people used to come and talk over here. Whenever I used to get a call, I would ask the address of the concerned person and then send my assistant to his house to inform them. Not only the neighbours, but people from the whole street used the telephone as a means of contact with their relatives. Just one year ago I bought a mobile phone. Still I use the land connection for the business purposes and I use the mobile for my personal communication.” (Fig 6.)

E – RECHARGE CENTRE / BILLBOARD HOARDINGS AND THEIR LOCATION

The advertisement boards are placed on top of the shop fronts with the display of cinema actors to promote business and to attract tourists. This hides the expression of traditional architectural elements which acts as a composition for the front façade of the shops and portrays a different image to the place. Especially visitors walking on the street, find it difficult to understand the religious importance of the place and its streets. The recharge shops and counters place their billboards on the foot path pavement to create awareness among the residents and tourists to avail the benefits of the recharge offers. (Fig 7). A recharge board of Airtel and Tata docomo companies look exactly similar whether they are located in Srirangam or Kashmir or anywhere else in India. Hence, this creates a feeling of placelessness especially with a religious charm and does not represent the cultural identity of the place. This is because there are no certain regulatory norms that have a control on the signage and the commercial hoardings on the main temple street. Nevertheless, it also implies that such issues are relevant for other shops and other locations as well.

ADVANCEMENTS IN DIGITAL TECHNOLOGY AND TRAFFIC CONGESTION

As per the rules and regulations of the temple, talking on mobile phones inside the temple premises is strictly forbidden due to religious reasons for maintaining a silent and spiritual environment at the presence of the almighty. If a ringtone suddenly rings inside the temple complex, with a strange alarming ringtone, it creates an agitated reaction among the devotees. Moreover, digital photography inside the temple compound is not allowed owing to similar religious reasons. But looking at the present scenario, the enormous number of devotees visiting the temple every hour makes it difficult for the temple authorities to keep a check on each and every person. The reason for attending calls even when they were inside the temple complex is due to the fact that people have become totally dependent on these digital technologies and finds it difficult to step out of their lifestyles as they are totally adapted to it. So, when a person receives a very important business call he tends to attend it rather than waiting for some time. Such situations tend to disrupt the peaceful environment in the temple premises.

The major traffic route comprises of the three streets i.e. single street, Gandhi street and the Ammamandapam street, this route actually connects Srirangam with Trichy. The internal streets comprising of a network of south street of the temple complex, south uthrayi street and south chitrayi street which are connected in parallel and perpendicular to the main street. The south street comprises of heavy traffic since it signifies the major important access to the temple complex. This street has barricades placed all over the

entry points so as to restrict the incoming four wheelers like cars, buses, lorries and trucks, thereby by dedicating the entire street for the pilgrims visiting the temple.

People walking on the main street tend to use their camera phones to capture the important landmarks on the main temple street such as Raja Gopuram, Ranga Gopuram and other important buildings. In such process of photographic recordings, people completely ignore the traffic that has already been in a congested situation. There were many instances, which were observed during the fieldwork, that people are not much bothered about the traffic (both pedestrian and vehicular) that has been following behind them. On the other instances, people keep talking on their mobile phones, while walking on the main street rather walking on the foot paths and it has been noticed from the movement tracking analysis that many at times, people were conscious about the traffic on the street and at times they overlook the surrounding traffic which cause some hurdles for them and the traffic behind them. (Fig 8).

The advancements in the mobile communications have both positive and negative impacts in case of Srirangam. They provide an ease in talking while doing other chores for the people with the help of handsfree and Bluetooth technology. But also, when people are driving and attending calls through the handsfree or Bluetooth devices, it distracts their movement pattern and at times ends up in accidents. Though, the streets of Srirangam, especially the south street is accessed mostly by the pedestrians and also by the two wheelers, pedestrians still find it difficult to walk comfortably without any fear of accidents.

FAMILY RELATIONSHIPS IN THE DIGITAL ERA

The most important and major contribution of this digital technology is in the field of business, where shopkeepers are able to make their dealings without having physically going to the other place and most of the communications for business purposes they are dealing on the phone. It is saving time and effort of the people. Moreover, the mobile facility allows family members to stay in touch with the working parents or relatives and hence helping to maintain the family bonding and relationships. In Srirangam, it has been noticed that earlier, the shop keepers when they were busy in their work or sometimes, when they go out for other places and getting delayed in coming back to home, the family members at home are worried for the loved ones. Now with the mobile phones, where ever they are, they feel connected with the family members. For instance, even if someone is going out unexpectedly, he has an opportunity to be in touch with the family members.

A cloth merchant from the main street states that

“Cell phone has become a very important part of our lives. Specifically, when people from other places come to my shop, they call their family members to discuss about their taste regarding the colour of the cloth pieces, their sizes and other aspects. For business purpose cell phones are very useful. Nowadays, the tourists have also increased and mostly all of them have mobile phones. Even the workers here and people who sweep the roads have got mobile phones.”

From the above discussion it can be noticed that mobile phones have become so much a part of our daily life. Technology reshapes our everyday landscape, which in turn reshapes our emotional lives. It is also evident that one's location does not depend on connecting with people. The following section puts together the findings of this study in an analytical manner.

ANALYSIS OF THE STUDY

This research has started with the study of culture relating to digital interventions because there is a need to find an alternative to the current development models to understand how modernity is perceived in the evolution of these historic temple streets and how such transformations is affecting the historic temple streets especially from a built environment perspective has been investigated. The above discussed findings from the case study indicate a correlation between the evolution of culture and technology and how it is helpful in the management of place for the existence of the community. The following diagrams have been developed to get a clear understanding of this relationship between the impacts on the built form and the reasons for such impacts that were generally noted in the case study. (Fig 9 and Fig 10).

From the above figures the findings on the outcome of the transformation process in the digital era have been discussed from the perspective of cultural anthropology. Here the consideration is of a 'way of life' – a habitus. This was changing for the inhabitants and visitors anyway in new digital era and the mobile technologies have represented the prospect of a change. The concept of habitus is not determinist and as the 'way of life' is inevitably altered, different individuals and stakeholders have different responses. At the drastic change can also lead to deteriorating traditional character. This perspective is addressed from a different philosophical framework to positivism of development studies and draws on cultural anthropology. In this study it has been established that space is portrayed as a neutral container that can be understood through positivist science, rather than something that is dependent on the social and cultural processes and substances that make it up. Positivism considers a place as objective, bounded, self contained and measurable. Although these positivist legacies can be detected in the case study, but in contrary to the dominance of positivism in the contents of socio-spatial constructs examined in this study, their processes show a shift towards post-modernist approaches, which is looking at the world as a social construct that operates through a physical spatial field. This study has witnessed that when the spatial relations change, this has an impact on social relations, but the relationship is not direct and deterministic, because the social and the spatial are mutually constructed. In this research, urban design concepts have operated at both levels. The street layout can be viewed instrumentally and functionally in terms of the way it supports (or not) the issues of livelihood and it can be interpreted as a socio-spatial construct that supports the above discussed aspects (performances) of social and cultural life that have been identified in this study. Here the methods of urban design appraisal help to tease out the spatial elements of these practices. Such spatial elements were determined by these habitual practices of the communities explicitly reflect Leach's ideas as discussed in the earlier sections. Therefore this study concludes that even in the

digital era physical and virtual world can complement each other to enhance our experience with the digital technology rather than replacing each other.

