

**Making post-literacy: makerspaces as information strategy
in a post-literate world**

by

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Abstract

Research problem: Makerspaces are physical spaces that are used to create and manipulate digital and physical objects. This is often related to the rise of the 3D printer and the reduction of boundaries between the physical and the digital. Post-literacy is the period after the Gutenberg Parenthesis, when popular and institutional cultures do not privilege literacy, and when pre-literacy strategies are used for communication and learning. If makerspaces can be demonstrated to be examples of post-literate learning strategies, they could potentially be used to work with the information literacy needs of people from recently literate communities, or people from oral cultures.

Methodology: For this project, I employed a qualitative exploratory methodology, with cross-cultural research using ethnographic methods. Data collection and analysis were almost simultaneous activities, and data collection was both from bibliographic material and field study. The field study involved semi-structured interviews with eight people of Māori or Pasifika descent.

Results: There is clear evidence that pre-literate practices are relevant to makerspaces and maker culture. While pre-literate views of authority systems seem at odds with the values of maker culture, this could well be a reminder that post-literate culture owes to literate culture and practices too. More observation of makerspace culture and research into pre-literate culture is needed to tease out the specifics of the relevant strategies.

In the context of New Zealand and the Pacific, the question of using makerspaces to meet information literacy needs may be too fraught to pursue, if aimed at particular ethnicities or communities. The colonialist discourse has left indigenous and colonised communities too scarred to be able to be able to easily trust research that labels and classifies. While using making and storytelling techniques to engage people in information literacy is valid, this appears to be equally valid for people from recently pre-literate as well as highly literate cultures.

Keywords: makerspaces, post-literacy, postliteracy, oral culture, creative digital

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*“Whiua te kupenga marama
Cast out your net”*

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1. Introduction and research topic

Contemporary human civilisation is entering a period when writing and print are no longer used as a primary or privileged means to convey language (Ridley, 2012). Simultaneously, there is a maker revolution brewing (Anderson, 2013), with makerspaces changing the focus of technology use from consumption to participative creation. Makerspaces encourage and facilitate DIY learning, and tend to be electronically and technologically inclined (Kroski, 2013). The focus of this research is the potential use of makerspaces as an information strategy in a post-literate world.

1.1 Makerspaces and post-literacy

Wong (2013) described makerspaces as physical spaces that help cultivate creative interests by allowing participants to draw upon multiple intelligences. They tap new resources for learning, and embrace various forms of exploration, experimentation and engagement, and foster peer interactions as well as the interests of a collective team. Colgrove (2013) adds that they build users' literacies across multiple domains such as science, engineering, art and design and are a gateway to deeper engagement with learning. These spaces also demonstrate a strong preference for creation over consumption, and work in a context of community and knowledge sharing (Slatter & Howard, 2013). There are growing numbers of makerspaces in New Zealand that are not affiliated to any institution (Kerr, 2012; Brendish, 2011), though public libraries are beginning to experiment with these spaces too (Jacob, 2014).

Scholars such as McLuhan (1967), Pettitt and Sauerberg (2013) and Scott (2009) understand widespread writing and print literacy as a parenthetic phase in a historically oral human

culture. They suggest that technological change will bring about what Ong (1982) refers to as a 'secondary orality' that is based on literate culture, but also a rejection of the privileging of text. Contemporary use of digital texts already demonstrates oral as well as literate characteristics (Pettitt, 2014).

Meanwhile, the state of our literacy is fraught. In spite of increasingly innovative activities and events to promote literacy (Finch, 2011), there is rising concern around young people's literacy levels, with reports indicating that increasing numbers of young people are leaving school lacking basic literacy skills (Hill, 2011). The lack of language skills seems apparent in the skills of reading and writing, and not in these students' ability to speak the language (Orwin, 2003). While this is the case for native language speakers in the 'developed' world, the situation is even grimmer among Māori and Pasifika people in Aotearoa New Zealand, who have historically had the country's lowest rates of educational achievement (McNaughton, Phillips, & MacDonald, 2003). It is of interest that these comparatively literacy-disadvantaged communities of today were, until recently, oral cultures (Roberts, 2012; Lal & Fortune, 2000).

1.2 The research problem

If the existing education models have not been successful in enabling Māori and Pasifika people, could post-literacy approaches be successful? Specifically, could the use of makerspaces help these communities engage better with information literacy?

Based on survey findings, the World Internet Project (McCracken, 2013) reported that Māori and Pasifika people were typically at the bottom of the digital divide in New Zealand, except

in their use of online streaming services such as Spotify. Meanwhile, recent conversations with community librarians on the desired nature of makerspaces in Auckland Libraries (in communities with high Māori and Pasifika populations) had a very strong bias towards spaces where people could record music and performance. This is further reflected in research (Ka'ai-Mahuta, 2010) that demonstrates the pre-literate Māori use of *waiata*¹ as archives and as information tools. Could this triangulation be an example of the potential use of makerspaces for engaging with information?

There have been studies of post-literacy strategies to meet information needs, but these are still limited in number. While Ong (1982) and McLuhan (1967) have theorised that the learning and entertainment strategies of a post-literate age will be built on the foundations of a pre-literate one, more groundwork is needed to demonstrate this as true. In a Library and Information Management context, there is little study of post-literacy, apart from reflections on the nature of post-literate libraries (Scale, 2011; Johnson, 2010). Meanwhile, the wide adoption of makerspaces in libraries has meant an increasing amount of literature on this area. While many of these are theoretical, practical studies are emerging that look at workable models (Good, 2013) and the challenges of these new library spaces (Slatter & Howard, 2013). However there appears to be no work connecting post-literacy and makerspaces, and this research looks to make these connections.

Given the potential relationships between pre-literacy and post-literacy (Jacob, 2014), makerspaces could be useful as an approach for communities that are literacy-disadvantaged to engage with information literacy using indigenous knowledge and local context (Dorner & Gorman, 2011).

¹ *Waiata*: (noun) song, chant, psalm.

The objectives of this research are to:

- a) Examine makerspaces in the light of post-literacy theory;
- b) Explore how makerspaces can help literacy-disadvantaged communities engage with information;
- c) Recommend areas for further investigation in relation to makerspaces and post-literacy theory.

This exploratory research study will add value to a limited body of knowledge, and ask:

- a) How do makerspaces demonstrate effective post-literate information strategy?
- b) How can makerspaces be used by literacy-disadvantaged communities to engage with information literacy?

Comment [D1]: Your reader has to assume that the questions posed here are your research questions - you should be more explicit ...

1.3 Definitions

Pre-literacy: The condition of a culture before writing was invented or discovered. This is called 'primary orality' by Walter Ong (1982), and the period before the Gutenberg Parenthesis by Pettitt and Sauerberg (2013).

The Gutenberg Parenthesis: The period starting with the mass literacy mediated by the Gutenberg printing press, and ending with the use of digital tools as primary strategies.

Literate culture: Culture that is based on high rates of literacy, including in institutions and popular culture, and that privileges this literacy based culture.

Post-literacy: The period after the Gutenberg Parenthesis, when popular and institutional cultures do not privilege literacy, and when pre-literacy strategies are used for communication and learning.

Makerspaces: Physical spaces that are used to create and manipulate digital and physical objects. This is often related to the rise of the 3D printer and the reduction of boundaries between the physical and the digital.

Comment [D2]: What is the antecedent to "this"?

Maker culture: A culture of communal creativity that is developing around the tools, philosophies and physical locations of makerspaces.

2. Literature review

This literature review looks at two areas of research: research conducted around the meeting of orality and literacy, and research around current information literacy practice. Research conducted around orality and literacy is important to establish the basis of the theorised 'gap'. Also, information literacy studies look at the dynamic between information needs and information services, and provide clues to an effective response.

2.1 Orality and Literacy

In a study to understand the challenges and provide solutions to the experience of English language learning for Somali migrants, Bigelow (2010) provided much insight into the nature of their literacy and orality. Recent history has contributed to a functional orality that has kept alive and developed poetic and storytelling traditions in the Somali diaspora. In spite of an

obvious love and enjoyment of language, the Somali diaspora struggled to achieve functionality in English. Bigelow saw this as an example of the gulf between oral and literate cultures that Ong (1982) refers to. She highlighted the emotional and cultural difficulty faced by an individual or society in transitioning from orality to literacy, much of which was mirrored in reports of the decreasing literacy skills among young people in highly literate cultures (Hill, 2011). Could literacy be too hard?

In a similar study of conflict between oral and literate approaches to communication, Tsang (2007) examined the literature on orality and literacy, as well as the dichotomy between a highly literate education for social workers and their highly oral based practice. Tsang highlighted three incompatibilities in the context of orality and literacy: 1) between the oral and literate mind-sets of clients and workers, 2) between the literate mode of education and the oral mode of practice, and 3) between the oral and written modes of direct and indirect practice. The crux of his conclusion was a plea to value and cater for the oral mode of social work practice in academic and professional contexts. The situation of this research in the contemporary context of a socially interactive profession drew out the oral nature of our daily interactions, even though situated in a larger literate culture. It also paid respect to the orally mediated knowledge among social workers in practice, and recognised that oral modes of communication were important in the construction and transfer of practical knowledge.

Fernback's (2003) research continued the theme of the contemporaneity of oral culture in a formal analysis of online discussion groups devoted to urban legends and the cultural significance of their existence in the online realm. Using an ethnographic approach, this study was based entirely on observation of interactions, with no researcher participation. Fernback asserted that the development of new technologies does not demand the obsolescence of

existing ones. This introduced the idea of writing as technology (Gnanadesikan, 2009), and supported Ong's (1982) view of a 'secondary orality' showing characteristics of 'primary orality' while being literacy based. Cyberspace was characterised as a site for oral culture, with the sharing of urban legends conforming to the impermanence of oral culture rather than the permanence of writing. Though these stories were shared and debated in textual form online, the dialogic quality of the discourse was distinctly oral. Fernback also pointed out that the distinctions between orality and literacy online are becoming less evident and less important, and that cyberspace could serve as a simultaneously oral and textual environment. This porous border between literacy and orality tied in neatly with Scott's (2009) view of historical literate and non-literate societies living alongside each other.

2.2 Creation as a learning tool

Kenny's (2011) research engaged directly with Pettitt and Sauerberg's (2013) hypothesis that we are coming to the close of what is termed the 'Gutenberg parenthesis', a period that has seen the widespread privileging of text and print as primary to language and communication. Kenny started from the premise that before Gutenberg's printing press, humans commonly utilised devices such as sampling, remixing, borrowing and appropriating as a means to communicate and learn. The researchers developed and administered a series of instructional activities for students that blended video and story in response to the challenge of reluctant learners. The curriculum allowed students to utilise remixing, appropriation and mash-up techniques to create real, digitally mediated stories, which were bridged to the creation of text based constructs such as journals and descriptions of events. The intervention was found to have a positive effect on students' attitude to reading, their ability to visualise, reading anxiety and their struggle to read even when they had difficulty with the vocabulary.

If writing is technology (Gnanadesikan, 2009), and the ability to handle literary culture a learned skill, it follows that one would need different skills to handle post-literate culture. This is confirmed when participants of Kenny's (2011) study explained that the activities made them think more critically about their viewing. Could the reported higher interest and comfort with the textual material, not just the audio-visual, confirm Fernback (2003) and Tsang's (2007) earlier points about the interactions of oral and literate modes of communication? Also, is this remixing and mash-up culture closely related to makerspace approaches?

One of the biggest drivers of internet development has been online gaming (McGonigal, 2011), and this would appear to be a major component of the electronically mediated secondary orality that Ong (1982) speaks of. Way (2011) developed a curriculum based on the popular Guitar Hero: World Tour game, extending it to literacy and numeracy tasks. Post-programme surveys showed that most of the students displayed improvements in motivation, learning and in engagement during the period of the trial. Parents and teachers saw marked improvements in behaviour and engagement. While this confirmed earlier studies that posit the interconnectedness of oral and literate modes, it would be worthwhile to explore the relation of games to learning outcomes not passed through filters of literary and numerical ability. In the light of Kenny's (2011) findings, could computer game remixing and creation in a makerspace context result in improved learning outcomes?

Comment [D3]: For who?

In a review of existing research, Buschman (2009) critiqued the ideas around the 'new' literacies and the orality-literacy divide. Ideas around the disruption and splintering of unitary notions of literacy by the electronic and digital world were examined, and applied specifically to information literacy practice. While not challenging the idea that we as a civilisation were

becoming increasingly post-literate, Buschman concluded that there was little evidence to show that information literacy practice in a digital world needed to be severed from information literacy that is text based. He challenged claims made about changes to cognition brought about by digital games, multimedia and the internet. While this does not stand in direct opposition to Ong (1982) and McLuhan's (1967) thesis, it is worth considering as a warning against making too much of the effects of technological change to cognition. ✓

2.3 The Relational Model of Information Literacy

Bruce (1999) looked at the experience of information literacy among various types of professionals, to see what does actually work, in the context of delivering information literacy training. This study involved 60 individuals from four types of professions, involving written data from workshops, email and semi-structured interviews. Bruce tested the 'seven faces' model of information literacy, which is based on how people experience information literacy. This came up with new directional suggestions in information literacy delivery such as the importance of helping learners access and experience for themselves, ✓ helping learners reflect on their use of information, ✓ and emphasising the social and interdependent nature of information literacy. It also affirmed existing trends such as the emphasis on conceptual skill and intellectual agility and the teaching of technology to encourage adaptability to change rather than requiring attendance at constant training programmes.

Comment [D4]: Again - what is your antecedent for "this"?

While not directly considering post-literacy concepts, Bruce's (1999) research brought out the interdependent and social nature of information literacy, rather than the accepted individualist model. This reflects the makerspace approach to collaborative learning, and the provision of a space to enable that (Kelly, 2013). Catts' (2005) statistical analysis confirmed Bruce's (1999)

Comment [D5]: This finding?

relational model of information literacy. The paper sought to demonstrate how the application of procedures for designing and developing quantitative measures could confirm a qualitative model. He did this by developing a self-report tool to demonstrate the effects of training in information literacy and investigate the effects of information literacy on achievement. While this research validated Bruce's model as a whole, it did not necessarily validate the findings on the social nature of information literacy. [Good point!](#)

2.4 Learning as a social experience

In a piece called 'The Problem of Speech and Thinking in Piaget's Theory', Vygotsky (1987) argued that a child's speech development starts as a social function, then moves to egocentric and inner speech (p.74). This is interesting, particularly in the light of an earlier statement by Vygotsky that it was not a teacher who did the teaching, but "the particular social environment in the school (Johnson, 2003, p.54)". Elsewhere (p.271), Vygotsky also stated that oral speech is generally dialogic (from dialogue), as opposed to the monologic (from monologue) forms of written and internal speech.

This dialogic and social nature of learning and communication is further developed by Pettitt (2013), who saw the evolving internet culture as following themes and characteristics of pre-literate cultures. One of these is in the significance given (in pre and post literate periods) to performance over composition (2007, p.5).

Writing in 'The Maker Movement: Lessons for Educators', [Luke Rainey](#) (2014) emphasised the social nature and aspects of maker culture and the maker movement. Referring to the [Maker Movement Manifesto by M. Hatch](#), Rainey identified social sharing, lifelong learning

Comment [D6]: You should have this in your reference list - and include the date here.

rooted in community support, and collective action as the characteristics of the maker ethos. These themes connect back both to Pettitt's formulation of post-literate learning and communication as a shared, performative experience, and to Vygotsky's emphasis on learning as primarily a social act.

2.5 Media Literacy

Moving the focus to information skills in a media context was Austin and Johnson's (1997) experiment in the effectiveness of in-school media literacy training. This research was conducted in a sample of 225 third graders, divided into six groups. The experiment found that any media-literacy training could affect the decision-making process and outcomes, but also that lessons specific to the context were likely to have a longer lasting effect. While there were significant differences in the effectiveness of the treatment depending on the influence of the media, gender also played a strong role. These findings, while not central to the experiment itself, were particularly interesting in the context of looking at the effectiveness of information literacy in a post-literate context that is likely to involve more forms of audio-visual communication.

Comment [D7]: Of the third graders?

Comment [D8]: ???

Continuing on the theme of media literacy, Hobbs & Frost (2003) examined perceptions that media literacy was not as rigorous as text-based instruction. To do this, they used a quantitative method to design a quasi-experiment that used one school as a control group, and another as the comparison. The study found that students who received media-literacy instruction were more skilful than control group students at identifying construction techniques in various media formats. They were better able to identify information not included in a message, and could recognise the complex blurring of information. As with

Austin & Johnson's (1997) experiment, the primary finding was that media literacy increased students' ability to critically assess media. The interesting finding was that information literacy training strategies based on text-based information were being adapted successfully to information literacy in an audio-visual context. This linked back to Buschman's (2009) conclusions that strategies for post-literate information literacy education can well be based on existing ones used in a text-literacy context.

2.6 Themes in the Literature

Three themes emerge strongly from the literature review. Firstly, orality and literacy are, in practice, seen to exhibit differing characteristics and attributes. Secondly, there is a re-ascendance of oral culture attributes in online and digitally mediated worlds. These two themes establish the premise of Secondary Orality (Ong, 1982) and Gutenberg Parenthesis (Pettitt and Sauerberg, 2013) theories. The third theme to emerge is around the nature of information literacy, as relational (Bruce, 1999) and learnt through creation (Kenny, 2011; Way, 2011). This theme ties in strongly with the collaborative and creative (Good, 2013) nature of makerspaces.

These themes are reinforced by Walsh's (2010) study of digital games research, gameplay and design. Walsh ~~introduces~~introduced the idea of systems-based literacy practices in High school English classrooms. This requires the game and player to work together in a cybernetic relationship to effect various actions. The study found that the projects connected with the digitally mediated lifeworlds of the students, and that gameplay helped students engage highly with the curriculum, resulting in their completion of school based literacy

Comment [D9]: Your antecedent for "this"?

practices too. It found that these systems-based literacy practices supported a wide range of complementary literacy practices such as multimodal design and game mechanics.

The literature review lays the ground work for the study of makerspaces in the context of post-literacy. It establishes that there are connections between elements and aspects of makerspace practice, post-literacy strategies, and information literacy. This research hoped to connect up these elements and aspects, and demonstrate that makerspaces can help literacy-disadvantaged communities engage with information literacy.

3. Research design and data collection

For this project, I employed a qualitative exploratory methodology, with cross-cultural research using ethnographic methods.

3.1 Research design

The cross-cultural nature of the research brought in an element of complexity, both in terms of protocols and access (Spoonley, 2007). Also, this research was looking at pre-literate and literate cultural traditions, as well as a post-literate future. While the gulf between pre-literate and literate cultures are well documented (Ong, 1982; Havelock, 1989), all three (pre-literate, literate and post-literate) could turn out to be very different cultures, with value systems and protocols of their own, even while sharing foundations in meaning making and expression.

Given that this study focused on oral cultures and intensive detailed examinations, it lent itself to ethnographic methods (O'Leary, 2004; Bryman, 2012). Due to the complexity caused

Comment [D10]: In what ways did you employ ethnographic methods?

by cross-cultural research, I conducted semi-structured interviews. I used collected material to develop theory that is empirically derived from real world situations (Oktay, 2012).

Grounded theory application was relevant because of the lack of material and theory at the intersection of makerspace practice and post-literacy theory. This allowed for data collection and analysis to proceed simultaneously (Bryant & Charmaz, 2010), and constructed knowledge actively, with constant reference to the experiential world (Goulding, 2002a). A study of the motivations of museum visitors (Goulding, 2002b) used Grounded Theory to build theory from the voices, actions and experiences of these visitors. This research project followed a similar purpose, in trying to understand the learning motivations of people of Māori and Pasifika ethnicities. Another example of the application of this theory was in Ekins (1997) study of transvestite fashion, which took an area of study previously dominated by clinical models, and looked at it as a social process. This research project, similarly, hoped to take a fresh look at literacy and information literacy models, and see if pre-literacy and post-literacy theories apply.

Comment [D11]: How did you use grounded theory?

3.2 Data collection

Given the qualitative methodology I adopted for this study, I followed Davidson and Tolich's (2007) recommendation and undertook data collection and analysis as almost simultaneous activities. Because the research was exploratory, I also took into consideration Stebbins' (2001) perspective that my study required flexibility and open-mindedness in locating data. Thus, I collected data both from bibliographic material and during field study.

3.2.1 Field study

At the field study stage, semi-structured interviews were conducted with informed participants, who were willing to talk about experiences and expectations with an ethnic outsider. The intention was to run these with individuals or in small groups, following the following purposive sampling:

- Ten people in total, five of Maori and five of Pasifika ethnicities
- Each group would have two people in the 18-30 age group, two people in the 31-45 age group, and one person in the 45+ age group

The intention of these choices was to get responses that were, as far as possible, typical of the age group and the ethnicity.

- People of Māori and Pasifika ethnicities were chosen because they are closer to a pre-literate past (Lal & Fortune, 2000), and could possibly benefit more from a post-literate future.
- People of various ages within the group would have a broad range of experiences of formal and informal education. However, only 22% of Māori and Pasifika students achieve the NCEA requirements to enter university (Statistics New Zealand and Ministry of Pacific Island Affairs, 2010). This would suggest that interviews with people who do not have tertiary qualifications would be more representative of the general population.
- People of various age groups would also reflect generational attitudes to a pre-literate past as well as the potential of makerspaces in a post-literate future.

In the field research, due to time limitations, I was only able to get eight participants, five of various Pacific ethnicities, and three of Māori ethnicity. The 18-30 age group for people from Māori ethnicity was not reached.

Interviews were loosely structured around researcher-led themes, while the content itself was dictated by the interviewee (Opie, 2007). The themes were:

- Oral culture elements such as stories, songs, tattoo culture, weaving, carving etc. and how those were historically communicated. These would help to establish a link between pre-literate and post-literate modes and information engagement.
- Formal and informal learning preferences in various situations, including school, church and family situations. This would test the viability of makerspace approaches to information literacy engagement.

These data were examined to develop theory in the light of post-literacy theory and makerspace practice, to evaluate makerspaces as an appropriate strategy for the development of information services in a post-literate world.

The names of interviewees have been changed to protect their privacy. The following table indicates primary ethnicity, age groups and gender, to give perspective to views expressed later in the analysis. With one of the interviewees, I had to limit the amount of detail in the table to protect his identity.

Name	Ethnicity	Age group	Gender
Nikau	Māori	45+	Male
Aria	Māori	30-45	Female
Maia	Māori	30-45	Female
Afa	Samoan	30-45	Male
Yasi	Fijian	30-45	Male
Teuila	Samoan	18-30	Female
Anshu	Fiji Indian	45+	Female
Enele	Pacific Islander*	18-30	Male

Table 1: Interviewees

3.2.2 Limitations

Comment [D12]: This information is usually placed toward the end of the report.

This study considered a very small sample of interviewees, and was unable to get as many people in the 18-30 age group as originally planned. Much of the study was based on opinions of the interviewees, and this had its own set of limitations, given the comparative newness of terms such as post-literacy and makerspaces.

4. Analysis and discussion

To put the analysis in context, it pays to reiterate the research questions.

- a) How do makerspaces demonstrate effective post-literate information strategy?
- b) How can makerspaces be used by literacy-disadvantaged communities to engage with information literacy?

Three predominant themes emerged from the semi-structured interviews, which involved discussion of the interviewee's knowledge of their culture's pre-literate communication tools, their own learning styles, and reflections on the relevance and connection between post-literacy and makerspace ideas. These themes were storytelling as a communication practice, making as a learning practice, and resistance to makerspace and postliteracy ideas.

The analysis is presented in the context of the literature, and interweaves with the discussion.

This is consistent with pre-literate communication practice, where concept and practice are almost inseparable (Ong, 1982, p.51) and with makerspace learning culture, where theory and practice are intertwined (Rainey, 2014). This approach also hopes to challenge ideas around the researcher as an impersonal observer, and apply a reflective and personal voice to the data.

4.1 Story-telling as a communication practice

The primary theme that emerged as a pre-literate information strategy is that of story-telling.

The interviewees noted that while this was expressed most commonly through speech, it also found expression in dance and in the processes of making, such as in the case of *tukutuku*

panels². Aria reflected on the discussion and stories that were told while making these panels,

and said:

Comment [D13]: Your explanation in the footnote should have a cited source if it is from a formal source of information.

² *Tukutuku*: (noun) ornamental lattice-work - used particularly between carvings around the walls of meeting houses. *Tukutuku* panels consist of vertical stakes (traditionally made of *kākaho*), horizontal rods (traditionally made of stalks of bracken-fern or thin strips of *tōtara* wood), and flexible material of flax, *kiekie* and *pīngao*, which form the pattern. Each of the traditional patterns has a name.

With tukutuku panels, there are both sides. Tuku is to give. One person sits on one side of the panel and passes the flax through to the other side and they give it back. It is a reciprocal thing; you couldn't do it on your own.

Thus in the above statement, Aria pointed out that storytelling was used to communicate values and life skills. Elsewhere, Davis (2009) talked of how specific information such as ocean navigation through dead reckoning was told through stories. Ong (1982, p 34) made the point that in an oral/pre-literate culture, sustained thought required communication. This communication used physical mnemonic tools and the rhythms and patterns of storytelling.

Connected to this storytelling was the aspect of learning through conversation, both with elders and with peers. Aria identified conversation as her primary learning style. Afa, who manages a library, and whose patrons are young people of Māori and Pasifika backgrounds, agreed. Afa discussed how the young people at his library primarily learnt through interaction with each other, and not so much through books.

Comment [D14]: New paragraph?

When the kids come, it is easy to get them to tell stories (to us and each other), but if you get a book, try to get them to tell that story it's like...oh no, I don't wanna...

Anshu, who is of Indo-Fijian descent, grew up in a family that was not literate, and whose parents operated in an oral culture. She associated story-telling not just with speech, but also with song. Her father told her and her siblings stories of myths and gods, while her mother sung those same stories to them. In a social context, this storytelling expanded to elaborate combinations of dance, music and theatre, often in a religious context. Afa also connected learning and storytelling to the concept of 'Talanoa', roughly translated as discussion. 'Talanoa' could be either a formal or informal activity, could reach a conclusion or just serve

as a way of expressing views, and could be at a bar, at work, or in a church. Participation is voluntary, but most Talanoa were learning situations, whether people were directly participating or not.

...I've found that Pacific Islanders learn better when they speak. That's why the Talanoa happened because you talk-, talk, listen and talk, with the ability to share your own views. Whereas in our classrooms, when they talk...shh. So it all inhibits them already...

This need for social participation and discussion is reflected in the literature. Ito (2010, p.14) identified the idea that learning was an act of social participation in communities of practice as a key innovation of situated learning theory. She goes on to identify two genres of youth participation in informal learning, friendship-driven and interest-driven. Makerspaces, as informal sites for creative production in Art, Science and Engineering (Sheridan, Halverson, Litts, Brahms, Jacobs-Priebe and Owens, 2014) tend to fall into the genre of interest based participation, or as a community of practice with 'making' as the shared domain (Sheridan et al., 2014).

Comment [D15]: Verb tense should be past.

Enabling community story-telling is also at the root of Auckland Libraries' ComicsNZ project, a site that collects comic strips and art from creators across Aotearoa New Zealand, and is looking to run workshops to help communities create content. This project credits its genesis to Auckland Libraries' experimentation with makerspaces (ComicsNZ, 2015).

Further experimentation with story-telling in a makerspace context at Auckland Libraries has been around the use of stop-motion animation as a story telling tool, but also as a way to expose younger patrons to the digital tools needed to create their own media, specifically for

youth and children from refugee and low decile backgrounds (R. Stanton, personal communication, Jan 2015; Accelerating Auckland, 2014).

Maia, who teaches digital skills to all age groups in South Auckland, very quickly gave examples of how story-telling applied to contemporary communication, in a digital and creative context. Her own father, of Pākeha/White Australian background, was barely literate, and operated in an oral register, as Anshu's parents did. Maia identified this as using stories and games to communicate, often involving the whole family. She also connected this to two groups she has recently worked with. The first is a seniors group at a marae, where she was teaching phone skills. While the skills were being picked up, a lot of the learning was facilitated by the laughter, stories and gossip that happened on the side-lines. Sheridan et al. (2014) identified such social activities as seemingly peripheral to the making, yet central to the learning and the forming of a sense of community. Maia's second example was of working with young children to record images and video of their grandparents, and telling stories around it. She also worked this the other way round- teaching seniors to make YouTube videos that they could then show off to their grandchildren, and used this technological creativity as an entry point to inter-generational storytelling.

Comment [D16]: Interesting ...

While this establishes story-telling as a relevant pre-literate and makerspace communication tool, does it establish story-telling as a post-literate strategy? Tom Pettit (2013), writing on the Gutenberg Parenthesis in connection Elizabethan and digital contexts, appears to think so. He talks of pre-parenthetical (pre-literate) culture as being

Comment [D17]: The verb tense should be past.

“re-creative, collective, contextual, unstable traditional performance”_which connects directly to the post-parenthetical (post-literate)_“sampling, remixing, borrowing, reshaping, appropriating and recontextualising...digital internet culture”.

Ong (1982, p134) would seem to agree, recognising the group-sense of both primary orality (pre-literacy) and secondary orality (post-literacy). This group sense is nurtured by narrative, and while the nature of narrative is different, there is still a dependence on story for making social meaning.

4.2 Making as a learning practice

A second theme that clearly emerged was the lack of a definite connection between making or creation as a necessary component of the learning practice of current members of recently pre-literate cultures. While interviewees were conscious of the making element of pre-literate learning practice in their own cultures, their school systems and personal preferences did not appear to have any clear connections to this pre-literate making practice.

There were, however, clear connections to pre-literate learning styles in maker culture and makerspace approaches.

Anshu described how her father and his generation learned new skills, particularly in respect to a trade.

If they wanted to learn how to be a car mechanic, they would go and live with the car mechanic and his family for a few years, and they would teach them. Sometimes they went when they were very young.

Comment [D18]: How does this relate to makerspace approaches?

This approach however extended to other non-trade skills as well, such as learning how to plaster the ceiling of a house. In her description, the first time her father went with a friend to do this, he botched it up rather badly. This failure was accepted as a way to learn, connecting it directly to the ‘Fail Fast, Fail Often’ approach Rainey (2014) identifies maker culture embracing. ✓

This was reflected by other interviewees, who when asked, identified physical making as communication and learning strategies in pre-literate times.

“Carving, weaving, songs and poetry” – Aria

“...Māori it would be making korowai. Pacific island cultures it would be making regalia, headdresses that kind of stuff” – Maia

“We are craftsmen, boat builders” - Yasi

This idea of making as learning and communication in pre-literate cultures is clearly reflected in the literature, with Māori waiata demonstrably used as archives (Ka'ai-Mahuta, 2010), Samoan, Māori and Papua New Guinean tatau, moko and tattoo culture as demonstrating tribal, clan and personal information (Wright, 2009), and carvings in Māori meeting houses telling tribal and family stories and histories (EnviroHistory, 2014). Ong (1982) also made this point when identifying pre-literate cultures as being “empathetic and participatory rather than objectively distanced” and “situational rather than abstract”. Making as a contemporary effective learning method has also been widely discussed. Paulo Friere (2000) wrote of knowledge emerging through “invention and re-invention, through...inquiry men pursue in

Comment [D19]: Start of a new paragraph?

the world, with the world, and with each other". There is also the work of Piaget and Papert, on Constructivism and Constructionism, respectively, that Donaldson (2014) explains as

Constructionism...it asserts that learning is an active process, in which people actively construct knowledge from their experience of the world...(also) arguing that people construct new knowledge with particular effectiveness when they are engaged in constructing personally meaningful products.

Vygotsky's constructivism is also relevant here, as he saw learning as being both in social experience, and through the construction of knowledge (Johnson, 2003).

Given this support for making as a learning method, both in pre-literate culture and in learning theory, it seems surprising that people from recently oral cultures would not find more meaning in making as an activity, particularly to learn and to communicate.

Teuila, the youngest of the interviewees, and currently a student of Computer Science, was able to identify making as a large part of her Samoan heritage, but quickly followed that with "*but I am not creative*". This echoed Aria's reaction, who pointed out how deeply traditional Māori learning was involved with making, and how good it was that makerspaces were restoring this learning-from-making to contemporary youth and children. Asked to reflect on her own learning experience, though, she asserted that she was not creative. Afa expressed similar sentiments, and was very supportive of the use of makerspaces for teaching youth, but did not see himself as someone who learned through making. It was interesting that all the respondents saw immediate connections between traditional pre-literate ways of knowing

through making, and the makerspace approach that tries to communicate technological (and other) learning in the same way.

A hint related to the root of this situation came when Aria was asked about her learning experience in greater depth, and confronted with the incongruity that she, brought up in contemporary Māori worldviews, and with a deep understanding of her heritage, did not associate her personal learning styles with what she herself saw as her ethnic heritage. At this point, she clarified what she meant by not being 'creative', and explained that in her Pākehā, Catholic school, creativity was both an individual pursuit, and also limited to **limited** European mediums, such as writing and painting. It was this that she failed to identify with, while she identified highly with Māori making such as carving, weaving and song writing. Using this lens on other interviewees, it became clear that an analysis of the gaps would be more appropriate. To do this, I listened to the interviews again, listening for emotions and language around the interviewees' experience with formal schooling. All the respondents expressed a sense of discomfort with their (western based) school systems, and a sense of conflict with their families' culture. While some expressed an enjoyment for aspects of schooling, such as the ritual or the singing, **it was clear that they operated in two worlds, the traditional, recently pre-literate culture of their families, and the Western, highly literacy focused world of their school.** Some, such as Teulia, Afa and Yasi, expressed markedly differing emotions when contrasting the formal learning at school with informal learning at home, at church, or in the community. Afa expressed a sense too that his learning at work was a continuation of the learning at school, and expressed a similar discomfort and lack of relaxation about it.

Comment [D20]: Interesting observation ...

It was of particular interest that of the three who were personally closest to pre-literate cultures, Nikau, Anshu and Maia, two expressed very clear preferences for learning through making. Anshu and Maia both came from families that were non-literate, but who encouraged and supported their own literacy. Anshu, now in her 50s, talked about learning new skills such as sewing from YouTube videos that she watched, and then tried out. She also spoke of watching for new recipes on YouTube, and trying them out till they worked. Maia, in her late-30s, was introduced to computers very early, by parents who, while personally almost entirely non-literate, wanted her and her siblings to be comfortable with technology. Maia spoke of learning to write computer code at home, at a time when the technology was too new for her school. She also expressed a very strong preference for learning through making.

As with storytelling, making as an approach to learning is definitely a pre-literacy strategy. This is reflected in the literature, as well as in the anecdotal evidence collected in the interviews. If we accept Sauerberg and Pettitt (2013) and Ong's (1982) views that the nature of a post-parenthetical, secondary orality, post-literate society will be to return in many ways to a pre-literate culture, it is reasonable that making as an approach to learning and communication will be a relevant post-literate strategy. There are, however, questions about the validity of the second research question, on the usefulness of makerspaces as an information literacy tool for recently literate communities. While making as an activity seems valuable to people close to a pre-literate past, it is not a cross-cultural or cross-ethnicity approach that would be valuable, as too many people belonging to these communities are schooled in a literate based school model. While it does appear that there is general evidence for making as valuable learning activity, it may not be any more valuable to people of recently pre-literate cultures than it would be to people from historically literate cultures.

4.3 Resistance to Post-literacy and Makerspace ideas

The third theme to emerge from the conversations was a real reluctance and suspicion towards pairing ‘old ways’ with the new, or using pre-literate ideas and principles to frame post-literate or makerspace thought. This theme was expressed in two terms of reference:

- 1) As an expression of pre-literate thought, that is both close to the human lifeworld, and homeostatic in sloughing off memories that have no present relevance (Ong, 1982, p 42-46). This came across most strongly in the interview with Nikau, who was the oldest person to be interviewed. Nikau was raised in an oral family culture, while going to school in a literate one. He has maintained deliberate conceptual and personal links with Māori oral culture, and was most able, of all the interviewees, to present the nuances and subtlety of a learning tradition. While not objecting to makerspaces in themselves, objection was raised to the attempt to “put old wine in new bottles”, to try and keep old(er) ideas and practices alive beyond their relevance. This was expressed in both ecological and spiritual terms, recognised (Everett, 2010; Ong, 1982) as a feature of pre-literate thought.

When asked for detail, Nikau presented pre-literate Māori learning as based on observation and participation, and not on “questions of ‘why did you do that’”. Asking questions was considered a display of ignorance, and a result of not having adequately observed and participated. The right to speak was a hierarchical one, and was determined by familial and tribal decisions. This hierarchy of speech is also evident in Samoan traditions, as Afa ~~points~~ pointed out. He ~~talks~~ talked of how children were to be silent and accepting of their elder’s authority, and not to challenge

it. This culture spread to the school system as well, where the teacher was right and not to be questioned.

While philosophically agreeing with Nikau's homeostatic approach of letting old ideas that are no longer relevant die, his formulation of observation and participation based learning was directly relevant to makerspace culture. While rarely hierarchical, makerspace cultures do place a premium on self-directed and self-paced learning (Rainey, 2014), in the context of community and making spaces. Do we have the right to pull culture apart and accept some bits, while rejecting others? This was part of Nikau's critique of Western approaches, which needed to pull flowers apart to appreciate them.

On the other hand, surely bits of the old pass on to the new, and it need not be a polarising all-or-nothing? Ong's (1982) secondary orality owes to primary orality, but is also deeply and unalterably affected by literacy. Pettit and Sauerberg's (2013) formulation of the situation in terms of a parenthesis is helpful here, indicating a return to before the parenthesis opened, once the (literacy) parenthesis is closed. This is reflected in Afa's views, who, while respectful of traditional structures, was supportive of makerspaces as a place that people need to ask questions to learn, to be able to challenge themselves and their world. He saw makerspaces as a place to practice this learning, to shape the world according to their understanding. Does this question need resolution, or does it act as one side of an acrobat's balancing pole?

- 2) As a reaction to colonialist worldviews, that imposed an alien and judgemental value system on pre-literate cultures. The main example of this was from Yasi, in the case

of Fiji, where a refusal to work in the context of colonialist sugarcane production had the indigenous population labelled as 'lazy', and caused the mass import of indentured labour from India. The use of terms from Western worldviews, such as pre-literate and post-literate to describe cultural practice **was suspicious**, and fear was expressed that this would lead to more categorisation and labelling. This fear is not without precedence, as has been seen in the use of the Visual-Audio-Kinaesthetic models by New Zealand teachers to inadvertently limit Māori students (Ministry of Education, 2014). **While appreciative of the pro-oral culture nature of post-literacy approaches, these approaches were still rooted in Western worldviews, and while celebratory of pre-literate cultures, could still lead to categorisation and stereotype.**

Comment [D21]: Do you mean "was treated with suspicion"?

Comment [D22]: Excellent observation!

As with the previous point, this criticism is valid and pertinent. Though the need to classify is not ~~a~~ limited to Western/European cultures (Davis, 2010), there is a sense among indigenous and (contemporary) colonised people that Western science and social science is particularly interested in dissection and labelling. It is also interesting that there is a "very real ambivalence in indigenous communities towards the role of Western education" (Smith, 1999). This ambivalence creates, at the same time, a desire for Western systems and a suspicion of it. **While makerspaces are being promoted as the new way of learning across the Western world, does couching them in terms of post-literacy really change their nature, or does it perpetuate the violence already done to indigenous and pre-literate ways of knowing? As with the previous question, I have no resolution for this, and can only think of it as something to be deliberately and carefully conscious of.**

Comment [D23]: Very well stated!

4.4 Other themes

There were also some less prominent themes to emerge, around the relationship between the teacher and the learner. These intersect with the three major ones, and are worth examining as perspectives that inform and reflect on the three predominant themes. These themes were on the nature of authority, and the nature of creativity.

4.4.1 Nature of Authority

Anshu spoke of how people in her parent's generation who wished to learn to repair cars would go to a mechanic's home and live with them for a few years. This is reminiscent of the Gurukul system in India (Panjankar and Panjankar, 2010) where oral instruction was given to students living with the teacher or guru. This system focused quite heavily on the absolute authority of the teacher. Afa also referred to the teacher-student relationship in terms of authority, where the elders and teachers hold the authority, and the younger people obey. Learning was from doing what you were told. Nikau mentions this authority too, in terms of the right to speak (in public) being given, though this gift was given when someone was considered to have earned it.

This authority relationship of pre-literacy is quite at odds with makerspace principles. Questioning and challenging authority is a root attitude in hacker and maker cultures (Silver, 2014). This is, in fact one of the ideas around makerspaces that Afa referred to as beneficial to young people, the ability to question authority and make a world they wanted to see. It is tempting to apply Hofstede's (n.d) ideas around the Power-Distance dimension here, though carefully, as this authority is in the context of family systems, while Hofstede's work was in the context of corporations and national attitudes. It is also possible that, given the close

working conditions of makerspaces, such authority systems could manifest themselves over time. ✓

4.5.2 Nature of Creativity

Aria hit on the perceptions around creativity she faced at school, where it was restricted to traditionally European/Pākeha understandings of art. She grew up not thinking of herself as creative, even though well versed in traditional crafts such as weaving harakeke. Teuila expressed the same lack of confidence in her creative abilities, even though she uses music to learn concepts in Mathematics she finds hard to grasp. Afa spoke of how he would make things in school, such as mirrors, but never thought to add design elements to it, and therefore does not consider himself creative.

These responses show the deep disconnect between post-Renaissance, Western formulations of creativity (Pettitt, 2013) and those formulations in pre-literate cultures. So while stories were used to communicate, and making was used to learn, this was not 'creative' or exploratory in quite a contemporary sense. Ong (1982) ~~identifies-identified~~ this adherence to tradition, pointing out that in oral cultures (whether pre-literate or functionally illiterate) the emphasis is not so much on making new things, but rather on the interpretation of traditional themes into contemporary context. Damian Skinner (2008) ~~identifies-identified~~ a similar theme in Māori carving, where the focus was on accurate reproduction of ancient themes.

Anecdotally, some staff members in Auckland Libraries do not see the Auckland Library Makerspaces as 'creative' spaces, even though the emphasis is quite strongly on design, media creation and the turning of digital ideas into physical with such tools as 3D printers. In

an odd twist to the phrase, ‘the enemy of an enemy is a friend’, could it be that while people from pre-literate cultures find it potentially challenging to function in the limitations of modern creativity, makerspaces provide an atmosphere that is more conducive to the pre-literate way of thinking?

5. Conclusion

Based on these themes, it is appropriate to go back to the research questions to attempt an answer.

a) How do makerspaces demonstrate effective post-literate information strategy?

This is clear evidence that pre-literate practices of storytelling and making as an approach to learning are relevant to makerspaces and maker culture. While there appears to be a generation that does not personally relate with making, this lack of interest looks like a result of their enculturation into Western literate systems. While pre-literate views of authority systems seem at odds with the values of maker culture, this could well be a reminder that post-literate or post-parentetical owes to literate culture and practices too. More observation of makerspace culture and research into pre-literate culture is needed to tease out the specifics of the relevant strategies.

Comment [D24]: Is this finding from your research? This should be stated more clearly.

b) How can makerspaces be used by literacy-disadvantaged communities to engage with information literacy?

In the context of New Zealand and the Pacific, this question may be too fraught to pursue, if aimed at particular ethnicities or communities. The colonialist discourse has left indigenous and colonised communities too scarred to be able to be able to easily trust research that labels and classifies. While using making and storytelling techniques to engage people in information literacy is valid, this appears to be equally valid for people from recently pre-literate as well as highly literate cultures. ✓ Well-stated!

It is also worth noting that the condition of post-literacy is not unique to people from recently pre-literate cultures, and is a direction contemporary, digitally-dependant human civilisation is moving towards. Before the European Renaissance and the subsequent Industrial Revolution that opened the Gutenberg Parenthesis, most cultures, including ones that had writing, were functionally non-literate (Scott, 2009), as writing was confined to particular classes or families. Ong (1982) ~~identifies~~ identified oral cultures in Europe as recently as the 1970s, and anecdotal evidence suggests that blue-collar and working class cultures still operate in an oral register. If all this is true, makerspaces could well be of value in helping all of us engage better with information literacy, whatever communities we come from.

Comment [D25]: This sentence has a grammatical problem ...

6. Recommendations for further research

The first set of recommendations is around the first research question, about building the theory around the connection between post-literacy strategies and makerspaces.

1. The Gutenberg Parenthesis is potentially a more useful framework than is general post-literacy theory. This framework has more detail, and certainly more work around the consequences of the digital changes we are currently going through. Walter Ong's

‘secondary orality’ and Marshall McLuhan’s ‘Gutenberg Parenthesis’ were both formulated before the internet and digital technologies became as ubiquitous and influential as they are now.

2. It would also be appropriate to widen the theoretical context to understand makerspaces in the context of post-literate strategy. Some of these works have been referred to, but a deeper and comparative reading is likely to unearth subtleties in the theory. Recommended reading to further develop this area would be:

- Lev Vygotsky and Jean Piaget on Constructivism
- Seymour Aubrey Papert: Mindstorms: Children, Computers, and Powerful Ideas
- John Seely Brown and Paul Duguid: The Social Life of Information
- Damian Skinner: The Carver and the Artist
- Paulo Friere: Pedagogy of the Oppressed
- Neil Postman: Teaching as a Subversive Activity
- Katie Salen and Eric Zimmerman: Rules of Play

Comment [D26]: You should provide the bibliographic details from these items - they are not listed in your reference list.

More research also needs to be done to adequately answer the second research question. Two recommendations come to mind when doing so:

1. Extending the catchment of pre-literate or oral cultures to include various types of oral cultures, and not limiting this to Māori and Pasifika cultures, or to indigenous cultures. Looking at micro cultures that exhibit oral culture would be appropriate, as would widening the understanding of what it means to exhibit oral culture behaviour. The same research could be conducted, to understand the nature of the oral culture,

and to identify themes. While the simplistic Visual-Auditory-Kinaesthetic learning styles are lacking in subtlety, learning style theory could be used as a reference point too.

Prior to this research project, I shied away from the use of the term 'oral culture', primarily because it is easily confused with being 'aural', and people tend to forget that visual elements such as tattoo, carving and weaving practices are part of this culture too. 'Pre-literate' also seemed an appropriate term, used in a literacy continuum, and contrasting well with the terms literate and post-literate. If further research were to look at other oral cultures, though, this use of terms may need to be revisited, as oral micro cultures may well exist as communities of practice in a larger literate culture.

It was also interesting that while gameplay was a significant part of the literature review, it was barely reflected in the interviews, except with one participant. This could well have been a fault in questioning techniques, or with a lack of association between learning and gameplay. Further examination of this, both in the literature and in actual practice, would be valuable.

2. Observation of participant behaviour in makerspaces, not depending entirely on interviewee opinions, to see how people learn and communicate, particularly over time and in a social context. There were occasional inconsistencies in participant viewpoints, and these could be contextualised and better understood if behaviour in a space were to be observed over time. After the contamination of literacy, our memories are not quite as reliable (Ong, 1982) as they used to be! Action Research

Comment [D27]: This method would be an ethnographic approach to data gathering ...

seems relevant here, and is in the spirit of pre-literate/oral cultures in that it is learning through observation. Handled like a *Talanoa*³, this approach would also build trust, as long as the researcher is not a cold observer, but a participative one.

Comment [D28]: Again - your source of the definition in your footnote would be appropriate here.

While there seems to be a paucity of methods to evaluate and measure makerspaces, these are bound to develop as makerspaces mature. One such evaluation system is that of Auckland Libraries' Makerspaces, which is currently being ratified and made ready for implementation (Jacob, 2015). These evaluations could be very valuable for collecting data, particularly as there is a genuine attempt to collect high quality data. Makerspaces are also growing quickly across Aotearoa New Zealand, and there are already moves, outside libraries, to push a standard reporting that will help keep outcomes transparent and measurable. This, again, could provide a wealth of valuable data, and insights around the usage of makerspaces.

Comment [D29]: What does the Auckland system entail - that information would be useful to include here.

³ *Talanoa*: a conversational process involving "frank expression without concealment", in face-to-face dialogue

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Participant Information Sheet

Research Project Title: Making post-literacy: makerspaces as an information strategy in a post-literate world

Researcher: Baruk Jacob, School of Information Management, Victoria University of Wellington

As part of the completion of my Master of Information Studies, this study is asking two questions:

- a) How do makerspaces demonstrate effective post-literate information strategy?
- b) How can makerspaces be used by literacy-disadvantaged communities to engage with information literacy?

Makerspaces are spaces that enable digital creativity. These could focus on (but are not limited to) 3D printing, robotics, music and video editing, and computer game making.

Post-literacy is the idea that we are moving away from a world that is dominated by literate forms of information communication (such as books), and that future ways to access information will borrow from pre-literate cultures (such as storytelling, waiata, etc).

Victoria University requires, and has granted, approval from the School's Human Ethics Committee.

I am inviting people of Māori and Pasifika ethnicity to participate in this research. Participants will be asked to take part in a one hour interview. Permission will be asked to record the interview, and a transcript of the interview will be sent to participants for checking.

Participation is voluntary, and you will not be identified personally in any written report produced as a result of this research, including possible publication in academic conferences and journals. All material collected will be kept confidential, and will be viewed only by myself and my supervisor Dr Dan Dorner, PhD Programme Director. The research report will be submitted for marking to the School of Information Management, and subsequently deposited in the University Library. Should any participant wish to withdraw from the project, they may do so until 1 Jan, 2015, and the data collected up to that point will be destroyed. All data collected from participants will be destroyed within 2 years after the completion of the project.

Student ID: 300276130

If you have any questions or would like to receive further information about the project, please contact me at jacobbaru@myvuw.ac.nz or telephone +64 21 035 1673, or you may contact my supervisor Dr Dan Dorner, PhD Programme Director at Dan.Dorner@vuw.ac.nz or telephone (04) 463-5781.

Baruk Jacob



Participant Consent Form

Research Project Title: Making post-literacy: makerspaces as an information strategy in a post-literate world

Researcher: Baruk Jacob, School of Information Management, Victoria University of Wellington

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered to my satisfaction.

I understand that I may withdraw myself (or any information I have provided) from this project, without having to give reasons, by e-mailing jacobbaru@myvuw.ac.nz by 1 Jan, 2015.

I understand that any information I provide will be kept confidential to the researcher and their supervisor, the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me.

I understand that the data I provide will not be used for any other purpose or released to others.

I understand that, if this interview is audio recorded, the recording and transcripts of the interviews will be erased within 2 years after the conclusion of the project. Furthermore, I will have an opportunity to check the transcripts of the interview.

Please indicate (by ticking the boxes below) which of the following apply:

- I would like to receive a summary of the results of this research when it is completed.
- I agree to this interview being audio recorded.

Signed:

Name of participant:

Date:

Interview Schedule

Thank you for agreeing to meet me. My name is Baruk Jacob, and I am trying to understand how digitally creative spaces can be used to help communities communicate information that is necessary to participate in our knowledge-based economy. These spaces are called makerspaces, and people can experiment and learn to do things such as 3Dprinting, making and recording music on the computer, and making computer games. Behind this research is also the idea that we are entering a phase of civilisation that will be less dependent on reading and writing, and more dependent on pre-literate type strategies, like the ones Māori and Pasifika people would have used. We call this idea post-literacy. Do you have any questions about any of that?

1. What ethnicities do you identify with?
2. I am interested in knowing about the traditional ways of communicating information prior to the arrival of Europeans [such as storytelling, weaving and tattooing]? What were the traditional ways that [insert appropriate ethnic communities) communicated information? In what ways could those be useful today?
3. I am also interested in knowing about your education and especially what you liked and did not like doing in class. What level of schooling have you had? Did you enjoy school? What did you/did you not enjoy? What would you change in how children and young people are taught if you were able to?
4. Do you like to create/make things? What sort of things do you like to create? Have you used a computer or phone to create something? What did you think of the experience? How did it make you feel?
5. How do you like to learn new things? What kind of new things do you like to learn?
6. What kinds of learning situations you are currently involved in, such as in the family, at church or at work? What do you like about these? Is there anything you would change?
7. We have talked about makerspaces. Do you think there is any connection between the activities undertaken in these spaces and how (insert appropriate ethnicity) would have learnt and communicated information using their traditional/indigenous forms of communicating that preceded reading and writing?
8. I find that I prefer to listen to someone speaking, to watch a movie, or to look at comics than I like reading. Is this something you identify with to? How do you like to be entertained? How do you like to get information?
9. What aspects of traditional/indigenous knowledge and information do you think it is important for people to carry on in the contemporary world?

Thank you for your time. Do you have any questions or comments about what we have spoken about?