The State of Play: An exploration of games and their value in museum exhibitions

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Abstract

In the field of museum studies there has been very little consideration of games and their application to exhibiting practice. This represents a significant gap in the theory on current museum practice given the frequency of games in exhibitions and the scale of the commercial games industry in contemporary culture. This study begins to redress this issue by exploring how a significant and influential museum operating within the paradigm of the new museology views the role of games in its exhibitions. The thesis considers the central research question: what do practitioners currently think about games in museum exhibitions and how could museum games be improved.

Following an interpretivist methodology the study seeks to answer this question through a case study of the Museum of New Zealand Te Papa Tongarewa. Seven practitioners affiliated with this museum were interviewed about their understanding of games and their application in a museum context. The research findings illuminate the current understanding of games held by these practitioners and factors that inhibit the successful implementation of games at Te Papa. It was found that the practitioners' opinions had not been influenced by the available theoretical literature on games. It was also found that practitioners thought games in exhibitions at the museum have not been particularly successful in achieving either the goals of exhibitions or the potential that games offer. It is concluded that the introduction of theories on play and on games into museum theory and practice has potential for significant advances in this area of exhibition development.

In contemporary museums there is a shift away from presenting absolute, positivist understandings of knowledge toward the subjective, construction of meaning. Museums are also increasingly required to maintain economic efficacy while offering a valuable service to the populace. This thesis responds to this situation by proposing that a greater knowledge and utilisation of games in exhibitions offers a valuable approach in negotiating these two trends. By presenting an understanding of games, their potential value for museums and perspectives on what currently inhibits their successful application this research offers the field of museum studies a basis from which to develop knowledge of this under-theorised aspect of museum practice.

Contents

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Introduction

In the plaza in front of the Museum of New Zealand Te Papa Tongarewa sit three great boulders. The centre boulder, a 75,000 year old piece of andesite lava that erupted from Mt Taranaki, represents Papatūānuku – Mother Earth. To Papatūānuku's right sits another piece of andesite representing Tangata Whenua – the people of the land, and to her left sits a 350 million year old piece of Karamea granite representing Tangata Tiriti – the people of New Zealand. Together, the plaque states, "These three boulders symbolise the Museum's commitment to the land and people of New Zealand". While undertaking preliminary research for this thesis I visited Te Papa to look at the exhibits and observe people as they engaged with the displays. My intention in doing this was to look for clues that would help narrow down my area of interest from the then very broad topic of 'the experience of exhibitions'. Given my background in sculpture and professional experience in art galleries project managing the installation of fine art exhibitions, I knew I wanted this thesis to look at the design of exhibitions in some way. I also knew I wanted to look at interactivity in exhibits because my personal experience with museum *interactives* was coloured with disappointment. I could see promise in the potential of interactive engagement but found actual examples of it left me wanting. What I did not know, and what I wanted to study, was what was 'missing' in the experience of interactive exhibits.

On this visit to Te Papa I saw people moving around the spaces, looking at things, enquiring, conversing. I couldn't see anything particularly missing from the scene. It was on my departure from the building that I came across a particularly engaging interaction occurring in the plaza that pin pointed what it was that I wanted to look at. This interaction involved three young boys, of about eight or nine, exuberantly clambering to get on top of the three great rocks planted there. They were taking running leaps at the rocks, examining various routes up and testing different approaches in multiple attempts. These boys were vibrantly engaged in the challenge that they had set themselves and were joyfully engrossed in achieving it. What I saw in this incident was an enjoyment of objects

that I hadn't seen inside the building. I thought how great it would be if that level of exhilaration and compulsion could occur *inside* the museum for visitors of all ages and wondered what would be required to do so. This then became my topic. I recognised the boys' behaviour as play and set about understanding the nature of play with the hope of developing theories on how play might be integrated into museum exhibitions. Further research, consideration and refinement of this topic have led to a more specific focus on games in museums.

The question that this study considers is: what do practitioners currently think about games in museum exhibitions and how could museum games be improved? The value of addressing this problem is that it offers a starting point from which discussion and strategy may develop. A review of the literature reveals that there has so far been next to no research on the topic of games in museum exhibitions, suggesting there is a gap in the knowledge on this topic within museum studies. It is hoped that this thesis begins to fill this gap by identifying the current attitudes of practitioners towards games in museums and thereby making a contribution to both museum studies and museum practice particularly in the area of the production of exhibitions. It is my intention that through furthering discourse on games in museums opportunities will arise to increase visitors' enjoyment of exhibitions as well as develop methods of exhibiting content in ways that effectively embrace and communicate the complexity of history, science and knowledge. To introduce this study a review of the available literature is presented. This shows the fields of museum studies and game studies are both rich with information concerning their respective topics, but illustrates that as yet there is little interaction between these two fields and no literature directly applying game and play theory to museum practice.

Literature review

In order to construct a theoretical framework for this research, the following literature review covers two academic fields, firstly museum studies and secondly theories on play and games. The review focuses on the shifts associated with the new museology that have shaped and are continuing to shape the ways in which exhibitions and displays are conceived and developed in the museum sector. It outlines aspects of new museum theory that are significant to this study and which will be used to

contextualise subsequent arguments. A general history of museum practice is not presented as it would not add significantly to the core argument of this study. The second body of literature reviewed, theories on play and games, is wholly interdisciplinary by nature and covers a wide variety of disciplines including psychology, education, biology, sociology, mathematics, history, anthropology, folklore, art and literature, psychiatry, and pop culture (Sutton-Smith 1997) as well as computer sciences. Given the great diversity of sources on this topic, an exhaustive survey of play and game theories is beyond the scope of this thesis. As a starting point this review has drawn on existing surveys of relevant theories conducted by theorists such as Sutton-Smith (1997) and Salen and Zimmerman (2004). This review highlights significant features of the research available that hold most potential for the task of assessing the relevance of games in museum exhibitions and in doing so producing exhibitions that successfully integrate games and play. This strategy of "picking the low hanging [theoretical] fruit" is indicative of the lack of research previously conducted in the study of games in museums. This survey therefore produces an analytical framework with which to develop the argument that an understanding of theories on play and games is valuable to the practice of producing museum exhibitions.

Museum studies: Situating the topic

> Beyond the captions, the information panels, the accompanying catalogue, the press hand out, there is a subtext comprising innumerable diverse, often contradictory strands, woven from the wishes and ambitions, the intellectual or political or social or educational aspirations and preconceptions of the museum director, the curator, the scholar, the designer, the sponsor...Such considerations... are the subject matter of new museology (Vogel 1989, 3).

Museums are in a period of change. Across the cultural sector, museums, galleries and other exhibition venues are departing from their 'modern' modes of operation to develop post-modern techniques and practices (Deepwell in Marstine 2006, 76). This shift can be seen as a democratisation of knowledge and is not occurring in isolation but reflects broader social trends shifting from positivist epistemologies toward structuralist understandings of knowledge (Hooper-Greenhill in Carbonell 2004). In museums, debates on this shift fall under the rubric of new museum theory. These

discussions primarily revolve around issues of reflexivity, inclusivity and activism. As argued by Vogel above, the primary issue of the new museology is the awareness that knowledge is constructed and that in the process of constructing knowledge museums should be aware of *what* knowledge they are constructing, for *whom* and *why*. In a practical sense new museum theories advocate that institutions reflect upon the forces that influence their decisions and act to minimise the establishment of grand narratives that may exclude or denigrate sectors of its society. This shift is significant to the current study because it defines the academic and professional climate within which I will present my argument for the value that games have in museum exhibitions.

Reflexivity

The motivation to embrace reflexivity in new museum theory is a result of the recognition and rejection of the totalising grand narrative of Modernity (Bennett 1995).Through the course of the twentieth century, the perceived cohesion of Modernity came to be seen not as absolute but the result of the selective presentation of perspectives that supported cohesion and omitted alternative and discordant perspectives (Preziosi 1996). As part of this rejection of 'Modern' cohesion, museum theorists and practitioners have sought to convey a more 'realistic' and complex view of the world. The primary method of achieving this has been to include perspectives that were previously omitted by the prevailing Modern world view (Message 2006). In order to safe-guard against the possibility of naturalising yet another mono-stranded world view, and establish a new grand narrative, reflexive practices are encouraged by advocates of the new museology (Vergo 1989). Reflexivity in museums is about actively seeking to understand the influences upon the individual practitioner and the institution at large while carrying out the functions of the museum (Vergo 1989).

A characteristic feature of reflexivity in museums is the recognition of the museum itself as a framing device (Preziosi 1996, Marstine 2006, Bennett 1995). This awareness identifies the architecture and the modes of presentation that museums use as communication devices designed to convey the views of the institution (Giebelhausen in Marstine 2006, 59). Historically this frame has been used to assert

the veracity and authority of secular, material knowledge (Bennett 1995) and was implicitly a masculine, colonial view (Duncan 1995). In recent times this act of framing can even be seen to convey the reforming views of the new museology. By collecting and exhibiting excluded histories from indigenous or oppressed peoples, institutions implicitly promote pluralism and egalitarianism as social values to aspire to (Message 2006).

Following on from advocating a reflexive awareness of the 'frame', critics and scholars also suggest museum practitioners' actions should be 'visible' or 'transparent' to outside observers (Witcomb 2003). It is suggested that such an approach allows visitors the opportunity to critique the method that an institution has used to deal with a topic (Message 2006). Another form of transparency is for museums to act as a forum in which different discourses can occur side by side rather than as a temple-like site of awe or worship in which knowledge is handed down (Lindauer in Marstine 2006). Described as ceremonial spaces (Duncan 1995) or as an active site of knowledge construction (Roberts 1997), the museum as forum or laboratory expresses the desire for museums to be involved with active object- based learning while avoiding the authoritative connotations of sites of worship (Marstine 2006, 5).

Inclusivity

Throughout the mid-twentieth century writers pointed out that generally museum practitioners thought scholarly museum practice was of greater importance than considerations of how their audience received exhibitions (Schubert 2000). This traditional internal focus on collections at the expense of the external relationship with the public has come under heavy criticism in the light of post-colonialism (Message 2006) and the economic rationalisation that has occurred over the past three decades (Hudson in Carbonell 2004, Schubert 2000). Motivated by increased economic pressure, governing bodies have demanded greater accountability over the value per expenditure of museums since the 1980s. As a result publically funded museums have had to rigorously justify their expenditure and diversify their revenue sources. This has resulted in museums paying greater

attention to *who* constitutes their audience and *how* the museum can service their needs and wants (Schubert 2000, Boylan in Macdonald 2006). Complementing this is an increased recognition of the museum's place within the leisure market (Hudson in Carbonell, 2004). As a result marketing theory has made inroads into museum administration and has led to seeing visitors more as customers. Criticism of these approaches has arisen in the form of claims that museums are being 'dumbed down' and turned into amusement parks (Sorenson 1989, Bennett 1995, Schubert 2000). Along with the rise of the visitor due to economic reasons, we have seen the development of theories on audiences as individuals and groups that all bring a unique perspective with them to museums. Drawing extensively from constructivist educational theory this new appreciation of the visitor experience has meant museums are exploring ways of incorporating user generated content into exhibits (Simon 2010)

Activism

Scholars of new museum theory have called for visitors of museums to be critical and analytical in their engagement with exhibitions (Lindauer in Marstine 2006). This critical analysis seeks awareness of the intended and the unintended messages being transmitted by galleries and museums. Museum visitors are not stupid; they actively interpret the agendas behind narratives and consciously choose to accept or reject them. Theories of new museology also promote the active critique of dominant hegemonies by giving voice to previously underrepresented groups. Be they based on gender (Bailkin in Marstine 2006), race (Bennett 1995) or sexual orientation (Duncan 1995) exhibitions dealing with previously underrepresented sectors of society promote egalitarianism by demonstrating the acceptance of diversity. In a less extreme sense, activism in the museum takes the form of enabling visitors in their own lives and communities. Walking the line between social activism and education, museums subscribing to the new emphasis on audience and public service aspire to have social effect and aim to improve the societies that they operate within (Simon 2010).

Museums have always been contexts for learning and education (Giebelhausen in Marstine 2006, Heins 1998, Hopper-Greenhill 1991, Bennett 1995). While sharing this aim with other great modern

institutions – schools, libraries, and in many ways prisons – museums have been distinct for being based on material objects. The public engagement with these objects and collections has largely been leisurely or voluntary (Hein 1998, Bennett 1995). Within the modern complex of social education and reform, museums have held the position of being sites of casual learning and inspiration (Duncan 1995). Supporting this is the recognition that genuine education comes from experience and that not all experiences are equally educational. This illustrates the value of producing designed experience in the task of educating as it is this conscious production of experience that is the essence of museum exhibition practice (Hein 1998). As opposed to an archive of objects, the exhibition intentionally aestheticises and contextualises objects to create affecting experiences that convey knowledge (Hein 1998). However the knowledge that individuals receive varies from person to person depending in their prior knowledge and state of mind during their museum experience (Falk and Dierking 2000). As such the didactic, transmission model of transferring knowledge – in which it is expected that an identified set of information can be communicated from a knowledge transmitter to a receiver in a single direction like broadcast radio – fails to accurately describe the more complex and two way nature of learning in the real world (Falk and Dierking 2000, Hooper-Greenhill in Carbonell 2004). A primary feature of learning is the motivation to learn. An individual has to be motivated in order to store a piece of information or find meaning in a given situation (Falk and Dierking 2000). In this way it can be seen that museum visitors attend museums for the enjoyment and the education that they gain from their visit. In summary, we can say that museum visiting is learning-oriented entertainment (Falk and Dierking 2000, 87).

Drawing from constructivist education theory, the idea of 'meaning making' refers to the process of individuals drawing on their own intellectual resources to develop an understanding of a set of data. In contemporary museum theory it refers to the intention to encourage visitors to be proactive in constructing the meaning or value ascribed to objects or content on show. This approach is particularly significant in the transition within museums from being object focused to becoming information oriented (Witcomb 2003). As Stephen Weil memorably put it, museums went from being about something, to being for somebody (Weil 1990). Changing from presenting irrefutable facts

toward facilitating individuals in the generation or discovery of their own interpretation, museums are now moving away from their heavy reliance on static objects toward the incorporation of dynamic, information-oriented displays and seek to present information and meaning that is relevant to their audience (Silverman in Anderson 2004, 234, Sachatello-Sawyer et al. 2002). Meaning making attempts to avoid the presentation of authoritative, expert interpretations of knowledge in favour of allowing the interpretations and meaning to be generated by each individual (Silverman in Anderson 2004).

Exhibition design

In museum studies and related fields there has been a great deal of writing which analyses the history, theory and practice of exhibitions and display (Dean 1994, Greenburg et al 1996, Basu and Macdonald 2006). While there is much of value in this literature, there is very little work on current exhibition practice which touches on issues of games in exhibitions as is addressed in this thesis. Throughout the history of museums, methods used to exhibit objects and artefacts have shifted and evolved to reflect the ideologies of their time. Broadly speaking, argues Caulton, exhibiting practices fall within the following two models. First generation museum exhibitions were object centred and premised on the presentation of unchanging knowledge through 'static' objects. Second generation museum exhibitions began to incorporate the perspectives of visitors and allow for knowledge to be subjective (Caulton 1998). By intentionally including immersive and interactive qualities these second generation, narrative style exhibitions seek to produce self-inscription of the audience into the content displayed. Reflecting academic epistemological shifts, such exhibitions aspire to divest themselves of their authentic aura and encourage visitors to interpret their own meaning (Witcomb 2003, Black 2005, Lang et al 2006). This empowerment of individual visitors in developing and valuing their own interpretation of objects is also considered to be a way of democratising knowledge. When considering this push to democratise museums it is worth noting the historic use of the 'spectacle of culture' that museums engage with and its use in the reform and governing of citizens (Bennett 1995).

How do current efforts to educate and inform visitors through museum exhibitions relate to the historic practice of social improvement and 'reforming citizens'? Bennett (1995) comments on the 'performance' of exhibit engagement and argues that it is an act of organised walking that civilizes and modernizes participants by orchestrating their passage through evolution to reach the contemporary modern human state. Similarly Duncan correlates the aesthetic experience of exhibitions with the notion of ritual. Through the development of an appreciation for the 'aesthetic engagement' in art museums, Duncan asserts that exhibition visits are equivalent to a 'civic ritual' and that the museum visit is thus a secular experience of a quasi-religious rite.

A significant thread in the literature is the discussion of interactive elements in exhibits, or exhibits in which interactivity is central to their design. The rise in interactive or 'hands-on' exhibiting styles is a feature of second generation museums (Caulton 1998, 135). Established as a means to incorporate education and entertainment, this style of exhibiting draws on constructivist pedagogies and as such seeks to enable visitors to build their own meaning around the content on show (Falk, Dierking, and Foutz 2007, Witcomb in Macdonald 2006). Exhibitions in this style are often constructed to be non-linear and allow visitors to enter, navigate, and exit the exhibition as they wish. This conception of interactivity as an enabler of personal understanding was not always its prime meaning however. Initially used in relation to computational efficiency in the 1950s, the term was more about maximising productivity than enabling individuals (Lee 2010, 39). 'Interactivity' was developed further during the cold war era as a means to understand and predict one's military opponent's actions. This provenance of subjugation is definitely worth greater consideration. Especially, as Henning suggests, there is still much to know about interactivity as an exhibiting approach: "Indeed, we could see many of the present manifestations of interactivity not as increasing agency, but as encouraging acceptance of a new set of machine-body relationships" (Henning in Macdonald and Basu 2007, 36).

The political nature of 'hands-on' exhibits is also contrasted to the 'look only' approach to exhibiting artefacts which came to predominate in the twentieth century. Commenting on the correlation between the modern, ocular-centric practices and the parallels with touch in 'primitive cultures', Candlin suggest a highly political motivation behind the banning of physical interaction with objects

in museums and that it acted to reinforce class distinction (Candlin in Chatterjee 2008, 9). Using McLuhan's theories, Witcomb suggests that digital media has the potential to enable interaction between social groups that were previously held apart by social structures (Witcomb 2003, 108).

Concurrent with the implementation of interactive exhibits as a way to facilitate learning and democratise museum engagement, the rise of interactivity in museums functioned to reinvigorate museum visits and increase their appeal in order to remain competitive in the leisure market (Caulton 1998). Making museums more accessible and enjoyable for a wider variety of social groups and learning styles increases the fiscal viability of museums. An aspect of this is the reduction of obstacles preventing the enjoyment of the museum experience, one of which is museum fatigue. By designing unfamiliar interactions to be immediately apparent to a new participant, less effort is expended on the relatively unproductive task of working out what to do so that more energy can be spent on absorbing the content and relating to family and friends about it (Allen in Falk et.al. 45).

Promoting the value of participation as being a way for individuals to meaningfully affect their social and political environment, Nina Simon argues that many visitors to museums want to be taken seriously as valuable participants and not just passive consumers of culture. She argues that "It requires institutions that have genuine respect for and interest in the experiences, stories, and abilities of visitors" (Simon 2010, ii). Simon promotes social connectivity and argues that the value of making an experience socially connected lies in the potential to develop meaning and enjoyment (Simon 2010, 25). One approach is to personalise a visitor's experience to give a sense of significance to each individual person (Simon 2010, 67).

The development of an online, virtual museum presence marks the genesis of a new portal for interaction between museums and their audiences. Web sites can act as access points guiding visitors to the physical museum, as standalone access point to a museum's collection or a blurring of distinction between the virtual and the material sites (Witcomb 2003, 121). When critiquing the use of the term '*interactive*' to meaning solely digital multimedia interactivity, Witcomb suggests using the historic and more encompassing definition which includes wall text, paper leaflets, mechanical

engagement, day dreaming and contemplation (Witcomb 2003, 131 - 132). While exploring the potential for interactivity to consist of contemplation and day dreams, Witcomb discusses the way that history exhibits can become artistic provocations of knowledge. Through non-linear suggestions of narratives that allude to a topic, participants are enticed to insert themselves into the content and make correlations between components and meaning (Witcomb 2003, 159). The ambiguity of this style of interactivity requires a fairly high degree of prior knowledge about a given content, suggesting it would hold great potential to engage skilled adult participants. Interestingly, as Witcomb notes, this method takes on a quality similar to that of an art installation and is subsequently criticised for elitism and ideological fence sitting (Witcomb 2003, 163).

Another useful strand of writing related to this topic comes from contemporary fine art, in which Nicolas Bourriaud (2002) describes the idea of 'relational aesthetics' as the exploration and demonstration of alternative modes of interpersonal relationships or interaction (Bourriaud, 2002). In this influential book he states that art is a game. Bourriaud places the current developments in contemporary fine art within a lineage of artistic exploration into the relationship between an individual and a deity (religious art); between an individual and its physical environment (rationalist art); and more recently interpersonal relationships between people themselves. Using Bourriaud's schema, it can be said that the current interest in interactivity in museums corresponds to a general social orientation towards an interpersonal relationships and away from scientific interest in the physical world.

This survey shows there is a lot of writing available on the contemporary state of museum practice. In this discussion of the literature the shift from classical models of exhibiting practice toward the incorporation of post-modern models that seek to facilitate reflexivity, inclusivity and activism is of particular interest to this study. Writing which describes the ways that this shift has become tangible through hands-on, interactive participation in exhibits offers insights in to how practitioners approach the task of accommodating the new theoretical approach. The literature does not, however, comment on the use of games as an approach to expedite the current theoretical shift. Therefore I now turn to

the work on games and play seeking understanding of these concepts and their potential value in the task of making museums more reflexive, inclusive and socially engaged.

Theories on games and play

Academic theories on games and play can be found scattered throughout a wide variety of disciplines: psychology, sociology, mathematics and biology to name but a few. The theories discussed here are grounded in western, academic traditions and as such do not represent understandings of play and games from diverse cultural perspectives. In the literature there is much discrepancy over what constitutes 'play' and 'games' and how these concepts relate to each other.

Theories on the ambiguous and seemingly inseparable concepts of 'games' and 'play' range from succinct definitions such as "Play is free movement within a more ridged structure" (Salen and Zimmermann 2004, 304) to elaborate interpretations such as the following:

> [play is] a free activity standing quite consciously outside "ordinary" life as being "not serious," but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings, which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means (Huizinga 1955, 13).

Other definitions are more perfunctory: "The *game* is simply the totality of rules which describe it. Every particular instance, at which the game is played -in a particular way- from beginning to end, is a *play*... The game consists of a sequence of moves, and the play a sequence of choices" (Von Neumann and Morganstern 1944, 49); to the poetic: "playing a game is the voluntary effort to overcome unnecessary obstacles" (Suits 1978, 41). While quite different from each other, these definitions are indicative of the way that theorists acknowledge the interconnectedness of the concepts 'play' and 'games'. Most often 'play' is associated with freedom and 'game' is associated with governing rules and that without the other each loses their value and meaning.

Prominent in the study of play, scholar Brian Sutton-Smith explains why there is such diversity among theories on play, and therefore games. Sutton-Smith illustrates the way that the term 'play' has been co-opted by researchers and defined in terms of features that are the subject of their research (Sutton-Smith 1997). This indicates the breadth of the concept of 'play' by showing its applicability across the academic spectrum. In his own work Sutton-Smith seeks to identify an encompassing understanding of play that is sufficiently inclusive to weather critique. Similarly the approach of identifying a broad definition for play is taken by the pre-eminent historian and play theorist Johan Huizinga. Huizinga makes the ambitious assertion that human culture is by its very nature play (Huizinga 1955). In this line of thinking, Bernard Suits also makes grand claims for the significance of playing games. Through arguing that playing games is the voluntary effort to overcome unnecessary obstacles Suits suggests life itself to be a game and as such all aspects of it can be understood as games (Suits 1978). This view is not contradicted by the dictionary definition offered by Salen and Zimmerman that "Play is free movement within a more rigid structure" in so far as it is nearly impossible to identify any aspect of one's life that does not involve some aspect of "free movement within a... structure". Even in a situation of incarceration, an inmate still has the free movement around their cells and the freedom of their own thoughts. But difficulty arises when applying such a broad-spectrum definition, namely how to make the words 'game' and 'play' useful in less philosophically rarefied situations. In the literature, four topics stand out to be of particular interest in understanding the function and value of games. These are the way that games reward their participants; the expectation that games are competitive; the significance of rules in games and the importance of games being voluntary. These topics are considered by theorists in the following ways.

Intrinsic rewards in games and play

Culturally synonymous with fun, play is consistently paired with the sensation of enjoyment (Huizinga 1955, 3, Sutton-Smith 1997, 18, Csikszentmihalyi 1997). But this notion becomes strained and complicated when one considers leisure activities that involve degrees of displeasure such as losses when gambling or the physical pain endured in distance running or mountaineering. Discussing

the topic in terms of intrinsic and extrinsic rewards, Mihalyi Csikszentmihalyi considers the ways that activities are valuable or rewarding to their participants (Csikszentmihalyi 1990). Activities are either valued intrinsically for the sensation or experience of participating or extrinsically for the 'currency' or reward that is gained from successful completion (Csikszentmihalyi 1975, 5). Csikszentmihalyi shows that activities that successfully balance the challenge presented to a participant with the skill that they possess are likely to experience a sensation of psychic absorption he terms 'flow' (Csikszentmihalyi 1975). This sensation is highly satisfying and is epitomised by a loss of one's awareness of time passing; a loss of self-consciousness and a heightened awareness of the sensation of one's actions. Most significantly the sensation of the flow state is associated with a sense of competence and the ability to achieve goals. While referred to by different names, flow is experienced by practitioners of a wide variety of activities and is aspired to as being the optimal experience of participation. Flow can occur in leisure as well as work activities so long as the challenge to skill balance is met.

Play and games are revered for their ability to absorb and engross their players (Huizinga 1955, Salen and Zimmermann 2004). The significance of the concept of flow in understanding games is that the flow state is an intrinsically rewarding experience par excellence. Games reward participants by satisfying them while they are playing and without the need for extrinsic motivation. The highest form of this satisfaction is experienced while in a state of flow. It can therefore be seen that the aim of a game designer is to produce an activity that can reliably facilitate people into a flow experience. As yet there is no formula defining exactly how this can be done but through his work Csikszentmihalyi shows that stratergies that strike the right level of challenge to match the skill level of the participant are most likely to be successful.

Conflict and contest in games and play

Games are frequently discussed or defined in relation to issues of conflict or contest (Avedon and Sutton-Smith 1971, Binmore 1992, Huizinga 1992, Caillois 1961). In arguing that the act of contest

between opposing parties is integral to the structure of a game, supporters of this hypothesis are defining a game as being 'zero-sum' engagement. Drawn from the mathematical discipline of Game Theory, the term 'zero-sum' refers to interactions in which that which is gained by one participant must be lost by another. It follows therefore that such situations are ultimately unproductive because the addition of all gains and losses equals zero. The expectation that games are competitive in nature is common in the literature particular in work drawn from the field of computer game studies. It is significant to note the prevalence of competitive zero-sum computer games in a discipline so mathematically predisposed. That computer games are so frequently competitive may be more of a feature of the discipline than it is a feature of games. Alternative models for games can be found in the work of Brian Sutton-Smith (1997). In his argument that theories on play can be divided into seven groups, Sutton-Smith offers a schema through which to identify game types other than just competition. Sutton-Smith suggests that the theories on what play is can be divided into seven categories according to the rhetorical agenda that theorists used 'play' to support (Sutton-Smith, 1997). These rhetorics are that play occurs for reasons of progress, fate, power, identity, imaginary, self and frivolity. The value of identifying these rhetorics in the task of developing games is that they offer a broad checklist of what to look for when identifying the play in an activity. For example a competitive game predominantly engages progress, power and sometimes fate. In contrast a game such as puppetry or story telling might engage imaginary, identity or frivolity oriented actions.

Rules and parameters in games

Frequently identified as a significant defining feature of a game, "Rules", as Prensky writes, "are what differentiate games from other kinds of play. Probably the most basic definition of a game is that it is organised play, that is to say rule-based… [rules] put us inside the game world by letting us know what is in and out of bounds" (Marc Prensky in Salen & Zimmerman, 2004, 122). This view echoes Huizinga's (1992), who describes a 'magic circle' that metaphorically surrounds a game to indicate the boundaries of the game. The concept of the 'magic circle' has become embedded in contemporary thought on play and games. To understand why rules may be significant in the makeup of a game,

flow theory offers valuable insight. As stated above flow theory argues that a state of flow is likely to occur when the challenges presented to a participant of an activity matches their existing set of skills. To achieve this match the rules or parameters of a game act to reduce or intensify the difficulty of an activity so that it may better suit the participant's skills. Rules also produce consistency in an experience. While a new comer to a game will not know exactly what skills are required to play, once they have played, the rules make that activity consistent from one session to the next. In this way a player can predict, with some certainty, what the experience of the game is likely to be and so identify if that game is likely to evoke flow and so be enjoyable. Suits' view that a player of a game has to, "adopt rules which require [them] to employ worse rather than better means for reaching an end" suggests the importance of rules in establishing a game as voluntary act (Suits, 1978). In the challenge of achieving a specific goal there are multiple means available. These means may be considered with regards to their level of efficiency in achieving the goal. Suits argues that in a game the most efficient means are forbidden from being used leaving only less efficient means available. This disallowance of efficiency acts to transform an activity from being goal oriented to become one that is process oriented. It establishes a game as being voluntary because participation requires that a participant voluntarily restrict themselves from using actions that would make achieving the goal easier. In this way the rules of a game act to accentuate the experience as intrinsic to the activity as well as identify a game as a voluntary action.

Games and volition

Having the freedom to choose to play or not is the fourth concept often used to define games (Huizinga 1955, Caillois 1961, Sutton-Smith 1997, Suits 1978, Brown 2009). It can be seen that "The player devotes himself spontaneously to the game, of his free will and for his pleasure" (Caillois 1961, 6). It stands to reason that if an activity were not pleasurable then, given a choice, a person would choose not to do it. But according to Suits "A game is when, although you can avoid doing something disagreeable without any loss or inconvenience you go ahead and do it anyway" (Suits 1978). The value in perceiving that an action is voluntarily is great. The significance of volition in a game is that

it allows a participant a greater ability to match the challenge of the activity to their level of skill as is required to achieve a state of flow (Csikszentmahalyi 1997). In goal oriented activities – especially those in which goals, such as food or shelter, are perceived as essential – a participant is required to choose the most efficient means available to them to achieve the goal. This is because if they choose a means other than the most efficient they are adjusting their priorities away from the goal and towards the process. Therefore in a goal oriented activity a person has less freedom to choose their actions because the action requires that the goal be achieved efficiently. When relating this to flow theory, a person might be lucky enough that the achievement of a goal via the most efficient means available might coincidently challenge them to a level equal to their set of skills. But if it does not then there is little opportunity for them to adjust the activity in order to better match the challenge to their skill. This is supported in studies showing that a person will enjoy an activity more, and get more out of it, if they participate voluntarily than if they perceive they are under an obligation (Csikszentmihalyi 1975). This view of games being voluntary is common in the literature and is often discussed with regards to play and games occurring outside the regular activities of 'normal' life (Huizinga 1955, Caillois 1961, Salen and Zimmerman 2004). In this way games are seen as 'not serious', 'unproductive' or 'diversionary', and that playing games produces no material gain. It will be shown in the following section that while playing games may not be the most efficient means to achieve a specific immediate goal the long term evolutionary rewards make them hugely significant in the development of our species and our cultures.

Theories on play and games and their value to museums

While there is next to no literature to be found correlating games to the museum context, theories pertaining to play and games offer valuable perspectives that refresh and enrich established views on museum practice. In this section some significant examples of these are presented. This section also presents theories and contemporary discussion on the rise of game based marketing in commerce and suggests that this development may have significant impact on the museum sector. It is proposed that

this contemporary development is a facet of understanding games that makes it highly pertinent to maintaining the health of museums.

Play and games in a person's development

Sutton-Smith writes that "In the general literature about child development, most theories hold that play is some sort of adaptation, or that it provides for some useful development" (1997, 18) A common understanding of the role of play views its primary utilitarian function to be a way to safely develop the skills and physicality of a juvenile in their process of becoming an adult. This understanding of play as preparation is well established in popular culture and has had a significant effect on the educational theory of the past one hundred years. Vygotsky writes that the development of play coincides with the point in a child's psychological progress where they can engage desires which cannot be immediately satisfied (Vygotsky 1978, 93). In this way Vygotsky aligns play with desire for something that is not currently had. This alignment suggests at the correlation between play and motivation because the enjoyment of play is what motivates a developing individual to participate in activities that will in turn develop them. In this way the development that occurs in an individual happens obliquely to the intention of their participation (Sutton-Smith 1997). This value of play and its relationship to individual development is explored by John Kay in his study of obliquity. He describes that:

> Good problem solving and decision making are necessarily oblique because in the process of solving problems we learn not just about strategies for achieving our high-level objectives but about the nature of the objectives themselves (Kay 2011, 68).

In this way the problem solving and search for certainty that occurs while playing a game builds in the player knowledge of their high-level objectives. It is not possible for an individual to intentionally and directly build knowledge of their high-level objectives because direction requires knowledge of its destination. Games offer oblique objectives to aim for that present an individual challenges and puzzles in which to identify their preferred solution or direction. It is this accumulation of preferences that builds a picture of an individual's high-level objectives.

Play and games in culture's development

In *Homo Ludens* (1955) Dutch historian, Johan Huizinga, makes the ambitious assertion that culture is in essence play. He claims that the institutions of a culture such as language, politics, rituals, war and art are by their very nature forms of play. He states: "we do not mean that play turns into culture, rather that in its earliest phases culture has the play-character, that it proceeds in the shape and mood of play. In the twin union of play and culture, play is the primary." (Huizinga 1955). A resent example that illustrates this process of culture being founded in play can be seen in humans' path from fledgling attempts at flight to the development of international air travel. When experimenting with the possibility of human flight, neither Santos-Dumont nor the Wright brothers foresaw that their 'serious play' would development into such a culture changing technology as the jet aircraft. The exploration of these inventors was intrinsically motivated and driven by the want to see if humans could fly in heavier than air machines. In this way technological discovery can be seen as play because it is the exploration of potentials, the experimentation with a variety of actions. It is not an efficient process of making exactly what is wanted because it is trying to make what is wanted without known how to make it. The trial and error nature of technological discovery is playing with possibility to find solutions that best match the outcome wanted.

Games in museums

 With regards to the practicality of how to actually produce games for museum, the theories found in the literature on play and games offer significant value. Two examples being: Huizinga's assertion that the human species may be considered to be *homo ludus* – playing man - and Sutton-Smith's description of the seven rhetorics of play. If, as Huizinga claims, the institutions of a culture are effectively forms of play then there is striking relevance of play to museums. If museums are vessels for the preservation and presentation of culture then they should consider preserving the play embedded in objects in their collection. For museums to develop games that evoke play through their exhibitions is therefore consistent with their current goals. This is especially true if the play that is

provoked is similar to the play forms that developed the artefacts or content that the intended exhibition will present.

In this way when a museum seeks to identify what sort of game is appropriate for a given exhibition topic then they need look no further than the content that they are already working with. The task of identifying the 'play' and therefore the 'game' of a given set of museum contents may not be easy but Sutton-Smith's seven rhetorics of play may assist in this task. For example, to identify the play forms inherent in the cultural institution of 'museums' one could say that there are play elements of progress, power and identity. That museums have aspirations to be educational and to 'better' societies suggest a strong drive for progress. That museums have been used to assert hegemonic or colonial views shows there to be power oriented play. And for museums to present histories of 'local' culture and of 'other' cultures shows the presence of play with identity. Once the salient form of play has been identified for a particular set of content, then the rules that will define the game can be developed. As shown in the literature on computer game development this is something of a 'dark art' with no specific way to do it. The computer game development literature strongly endorses the value of game testing and refinement to ensure that the experience of an actual player matches what it was that they were intending to experience. Here again flow theory is significant in understanding some of the psychology that influences the experience of a player in a game. Further discussion of the psychology and neurology associated with playing games as well as how games are understood in the context of this thesis can be found in Chapter One.

Commercial value of games

The ways that people relate to games are changing drastically in contemporary culture. From developments in online collaborative gaming, to social networking sites, such as YouTube and

Facebook, to loyalty shopping reward systems and geo-caching games, such as Fourquare.com[1], the distinctions between 'game life' and 'real life' are blurring beyond the ability of most of us to recognise (Schell 2010). With the computer games industry out-selling the music and the film industries (Chatfield 2011) games are looking to be the coming decade's entertainment powerhouse (Schell 2010). Games have also attracted attention for their ability to influence, affect and reward participants (Chatfield 2010) as has been seen in recent developments in the application of games to marketing campaigns and commercial interactions. Commonly referred to as 'gamification' this game based marketing has grown out of the experience of computer game design on how to generate compulsive engagement in an activity through game dynamics. As lead proponent of game based marketing Gabe Zichermann writes: "Understanding this opportunity will empower you to create breakthrough strategies that leverage the power of social networks and human behaviour in ways designed to cut your marketing costs and bolster your bottom line." (Zicherman 2010, 6) Given the economic and social attention developing around gaming it seems difficult to imagine that similar trends would not continue to develop into the museum sector.

In conclusion, this literature review has surveyed the writing related to this topic. While there is literature available on the topics of museum trends and on topics around games, I did not find literature that drew these areas together. This indicates a gap in the current thinking which this study begins to fill by bringing play and game theory into museum studies and exhibition practice. As shown, theories drawn from the field of game and play studies offer valuable perspectives such as the role of intrinsic and extrinsic reward systems, the value of offering clear goals and the significance of presenting feedback on an individual's progress towards these goals.

Methodology

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[1] Foursquare.com is a game that requires players to frequently post or 'tweet' their whereabouts via smartphone in exchange for status badges.

This empirical component of this thesis is based on interviews with museum staff and is designed to capitalise on the wealth of knowledge held by practitioners working in the field. It is an exploratory analysis of an under-theorised area which seeks to engender debate on games in museum exhibitions. Using the Museum of New Zealand Te Papa Tongarewa as its case study, this study selected interviewees for their association with this institution and their professional expertise in the museum sector. Te Papa has been chosen as an example of an influential museum operating according to a new museological model. Te Papa is influential due to its size and status as New Zealand's national museum and it can be seen to be following the new museology in its willingness to reflect upon its practice, share authority, consult with the public and stake holders in developing policy and for being proactive in social and environmental issues (Te Papa Statement of Intent 2011-2014).

This thesis has drawn on primary data collected through these interviews. In this way the study employs an interpretivist methodology in which knowledge is constructed through the interpretation of "the views, opinions and perceptions of people as they are experienced and expressed in everyday life" (Sarantakos 2005, 40). This study focuses on the opinions and perceptions of practitioners associated with Te Papa to gain a current view of games in a significant contemporary museum. The opinions and perceptions of practitioners are deemed most significant because it is the practitioners working within institutions who produce exhibitions. If games are present and successful in exhibitions it is because practitioners put them there. In the selection of interviewees a purposive sampling method was used. Interviewees were selected for their knowledge of the production of exhibitions at Te Papa, either specifically regarding the production of interactive elements for exhibitions or more generally concerning curatorial or directorial perspectives of exhibition production. This study does not survey, to any great extent, Te Papa's policy documents as it was that practitioners would communicate any institutional policy relating to the topic if it was relevant to their practice

The selection of participants was based on practitioners' experience of working at or with Te Papa in capacities that enabled them to influence the production of exhibits. Individuals in positions such as curators, team managers, designers and concept developers were invited to participate in the study.

The choice to include practitioners who have acted as service providers to Te Papa was made to reflect the diverse influences on the production of an exhibit. That Te Papa contracts out much of its design work made it appropriate to include the views of contractors in this study. To gain a balanced view on the topic effort was made to invite the participation of practitioners who were perceived to be supportive as well as practitioners unsupportive of the proposition of incorporating games into exhibits. Effort was also made to include practitioners from a variety of specialty backgrounds, gender and ethnicities. Age was not considered in the selection of interviewees, as it was perceived the experience held by informants was the more important factor.

Interviews with each informant were conducted individually and in a conversational style. An interview schedule was used to guide the conversation but given the exploratory nature of the study respondents were invited to speak freely on the topic to allow for the emergence of broad ranging and insightful comments. Interviews were conducted at a time and place convenient to the informants. Three interviews were conducted in the informant's own office (Michael, Heather and Eric), two were conducted in meeting rooms (Lucinda and David) and two were conducted in the café on Te Papa's level 4 (Sean and Jared). Each interview lasted approximately one hour and in two cases interviewees (Jared and Eric) wanted to show me examples of exhibits on show that illustrated points they were making (in Jared's case the exhibits were at Te Papa and in Eric's case the exhibits were at Whanganui Museum). Audio recordings were made of the interviews from which pertinent responses were transcribed. The analysis of responses was made by first organising them according to the topics in the interview schedule. Further refinement of this organisation was made through the identification of similar comments and the pertinence of comments to theories on play and on games. Through this process themes emerged based on the frequency at which topics presented in the discussion and based on the relevance of comments to theory in the literature. As part of this process the interviewees were given the opportunity to review and alter or remove comments that had been selected for use in the study. This veto process was included in the study to encourage open and frank discussion during the interviews by giving the informants the confidence that any compromising comments could be removed.

The central research question was: what do practitioners currently think about games in museum exhibitions and how could museum games be improved? To address this I considered the following sub-questions:

1. What do practitioners perceive games to be?
2. Do practitioners perceive games in exhibitions to have so far been successful?
3. What do practitioners perceive to be features of the exhibition production process that enable or inhibit the success of games?

These sub-questions resolve the thesis question in an accumulative way. By identifying what practitioners perceive games to be, question one provides a basis for understanding how informants answer the subsequent question of whether they see games to have so far been successful. As has been shown in the literature review and is explored further in Chapter One, the task of defining what exactly a game is, is not easy. For this reason it is valuable in this study to establish what the word 'game' means for practitioners. Sub-question two identifies practitioners' attitudes towards the success of games in exhibits at Te Papa. To adequately understand what is meant by 'success' in this question it was necessary to establish what practitioners expect of games and of exhibitions. Sub-question three extends the inquiry by exploring practitioners' views on what is likely to be the cause of games' successes or failures. This question leads beyond this study by identifying possible avenues for further research that may benefit the practice of incorporating games into museum exhibitions. In Chapter One background material from theories on games is provided. This background chapter explores in greater depth significant views on games and play and establishes the theoretical standpoint of this study. Chapter Two presents research data gathered in the interviews to illustrate how practitioners perceive games. Chapter Three analyses and discusses what the interviewees see to be successful games at Te Papa and Chapter Four suggests what factors, according to the interviewees, inhibit or enable the success of such games.

Chapter One: Perspectives on games from outside museum studies

In this chapter definitions for games and play are established to form the theoretical basis for this thesis. As part of these definitions consideration is given to how fun and enjoyment relate to play and games. Debate on these topics forms the background to this study which the subsequent chapters refer to. In addition this chapter provides a platform on which the original research conducted in Chapters Two, Three and Four build.

A theoretical understanding of games

In this section I put forward the hypothesis that games are behavioural structures that operate to optimise play. To support this hypothesis I propose that play is the occurrence of liberal movement within parameters and that an individual's engagement with play is enjoyable because it is biologically rewarding to do so. Using this theory of play I argue that games are therefore behaviour patterns that are participated in with the intention of experiencing these biological rewards. In this section I discuss the value of perceived volition and relative obligation in games, as well as comment on the contemporary confusion between the terms 'play' and 'games'. It is suggested that this confusion is based on two factors: one is that it is difficult to identify games which use parameters that a player is already naturalised to and the other is that the word 'play' is frequently unwittingly used as a synecdoche for the word 'game'. I also present the view that the parameters outlined in flow theory (Csikszentmihalyi 1992) function as a guide to indicate how behaviour patterns can be arranged to optimise the experienced rewards of play. To do this I compare flow theory to the definition of games given by Bernard Suits (1978). I also show that Suits' definition of games is the most valid because it encompasses the other significant definitions of games without being limited by specific activities.

The difficulty of defining games

The greatest problem in the identification of a definition for 'game', particularly in differentiating between games and play, is that often the word 'play' is unwittingly used as a synecdoche for the word 'game'. This is explored through the discussion of Caillois' spectrum of play from *paidia* to *ludus*. Caillois suggests that the child-like, unstructured play that he terms *paidia* "whose impromptu and unruly character remains its essential if not unique reason for being" (Caillois 1961, 28) occurs as an elementary need for disturbance. To extend this theory; where Caillois identifies the 'disturbance' in unruly behaviour I suggest that it may be fruitful to recognise this 'unruliness' as a testing of parameters and exploration of individual freedom. Because all actions occur within parameters – at the very least the parameters of physics and biology but often within social parameters – as I have proposed all playful activity is an exploration of available choices within the parameters of that moment. In this 'play' the game is to find out what can be done, what the limits of the parameters are. It is this testing of limits and search for alternative actions that I view to be the adaptive behaviour that is rewarded neurologically through the sensation of fun. Caillois continues his discussion of *paidia* to assert that this playful exuberance develops into a desire to invent rules and that in turn this rule making and rule following becomes what he terms *ludus,* which is, "the pleasure experienced in solving a problem arbitrarily designed for this purpose... so that reaching a solution has no other goal than personal satisfaction for its own sake" (Caillois 1961, 29).

I therefore feel that there is no instrumental difference between the highly contrived rules of *ludus* and the innate or 'natural' rules of *paidia.* In both instances the fun is derived from engaging the available freedom and the adaptation of behaviour. If a distinction between these concepts were to be made then it would be the level of contrivance of the parameters played within. But to do so would show that both extremes, *paidia* and *ludus,* fall within the category of game because there is no point along this continuum that is not an expression of liberal movement within parameters. It cannot be said that at some point play becomes games. What can be said though is that when considering the spectrum from games to play there is a point at which people lose sight of the parameters within which they are playing. In this way I view the distinction between what is commonly considered to be 'play' and

'games' is that in 'play' people are sufficiently naturalised to the parameters with which they are engaging that they fail to notice them. Therefore 'game' is the term given to activities at the threshold, and beyond, at which people again recognise the parameters that they are playing within.

A definition of games

The most difficult task when trying to identify a definition for games is to identify how games relate to play. In literature on games the most common defining feature is that they have rules. Caillois identifies there to be a spectrum of games ranging from fleeting and impromptu forms to those which are highly formalised and repeatable: "[the] primary power of improvisation and joy, which I call *paidia,* is allied to the taste for gratuitous difficulty that I propose to call *ludus*" (Caillois 1961, 27. Italics from original text). This formulation shows that the rules of games need not be rigid or even consciously identified, but instead that spontaneous, unconscious rules pose different challenges to a participant and challenge their skills in these different ways. The most functional definition for 'game' found in the literature is proposed by Bernard Suits. Suits' definition is adequately broad to encompass all other definitions and avoids defining games according to typological distinctions. Suits states:

> To play a game is to engage in activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where such rules are accepted just because they make possible such activities (Suits 1978, 34).

In this statement I interpret Suits to mean a "specific state of affairs" as being either a physical end of a game – first across a line or highest points after an elapsed time period – as well as being an emotional state, such as the excitement of winning or the emotions evoked by following a story. Suits identifies the presence of rules which, as shown above, act as parameters that present appropriate challenges to the set of skills possessed by the participant. The parameters may be overt and easily identified as in the rules of chess, or they may be obscure like the rules that determine the success of an actor in a performance. In Suit's definition he uses the idea of 'inefficiency' to indicate that at any time an activity can be made harder – less efficient – to increase the challenge presented to the

participant. Finally Suits indicates the voluntary nature of games by saying that the "rules are accepted just because they make possible such activities" (Suits 1978). Here Suits recognises the reflexive nature of games. He proposes that games are engaged in with the knowledge that they are games and because the limitations that games provide offer enjoyment to a participant. The nature of this enjoyment is discussed below in the section on play and biological rewards. But first a definition of the term 'play' is required to differentiate it from the concept of a 'game'.

A definition of play

As shown above the primary defining feature of a game is its rules. But a game is not really a game until it is played. The way that a game structure relates to the concept of play is by recognising play as 'a freedom of movement within a more rigid structure' (Salen and Zimmerman 2004). In any mechanical system there is an amount of space between the moving components, this freedom is its mechanical play. This forms a useful metaphor to explain the play in games. In a mechanical system, such as an automobile, there is play present in its drive train, its gears and between all of its moving parts. The purpose of this play is to allow an appropriate amount of free movement so as not to impede the intended movement of the parts through friction. If there is no space between moving parts then the friction between them would be too great to allow movement. If there is too much space then the forces motivating the system – the combustion in the case of a petrol motor – would be inadequately unguided and would force the parts to clash against each other rather than smoothly influence each other. This entropic clashing acts to cause inefficiency or damage to the system as a whole. In an activity the 'rules', be they etiquette or law, are the structure that limit the choices available. This produces cohesion in the activity but allows adequate freedom for participants to have a sense of autonomy. From this perspective it can be seen that rules and structures are around us at all times – be they physical or social – suggesting that life is itself a game (Suits 1978). Such a broad interpretation of the term 'game' is philosophically valuable but pragmatically impractical for the production of games. To make the term useful the task now turns to identifying the aspects of a

game's structure that makes it a game and not any other behaviour structure. I do this by presenting views on the biology involved with the experience of fun received through play, and will later use this to develop the argument that games are activities that optimise play and the 'fun' of playing.

Play and biological rewards

Since the 1970s, the model of understanding brain function has evolved from the theory that neurons only transmit electrical signals across the synaptic cleft to the understanding that many molecules known as ligands – including classical neurotransmitters, steroids and peptides – also cross this gap and diffuse out from the transmitter source to engage with type-specific cell receptors. These ligands carry 'messages' from neuron to neuron, stimulating specific cells to react in specific ways according to their unique 'message'. This model conceptualises the brain as a network of cells communicating via chemicals for the purpose of filtering and forming associations between stimuli and bodily responses (Pert 1997). According to Pert this explains emotions to be the result of specific ligands bonding with specific receptors to stimulate the host cell to commence or desist from their cellular activity. Examples of this are the effects that opiate or endorphin peptides have on the 'consciousness' of an individual. These peptides carry 'messages' that cells with the appropriate receptors should commence their function. This function causes the altering of 'emotional' sensation that is synonymous with the ingestion of opiates or the release of natural endorphins through exercise. There are many different ligands all of which trigger different cellular actions, some produce sensations known as emotions while others affect biological functions such as digestion or respiration rate. In this study I am looking specifically at the correlation between certain behaviours that stimulate the release of ligands which cause the positive emotions of enjoyment and fun. This action is significant because it is the theoretical basis for the fun of learning and that learning, which is meaningful to an individual, is biologically encouraged. A full exploration of this process falls outside the scope of this study except to state that it holds the above mechanistic view of the processes of neurochemistry to be fitting and appropriate for understanding the seemingly esoteric workings of human emotion. It is in

this light that the study deals with the affecting qualities of play and, by virtue of association, the affecting qualities of games.

In recognising that the emotional effect of fun is generated in the cellular receptors responsible for processing sensory data, we can see that it must be the qualities of the external context – the experience – that is producing the data that the neurons positively support or negatively discourage. If the experience is biologically beneficial, such as eating or resting, then the neural communications are likely to configure to support it by releasing transmissions that evoke a 'positive' sensation such as comfort or satisfaction. Likewise the experience of smelling the scent of a predator is likely to evoke a 'negative' emotional experience, such as fear, in an effort to motivate the individual to evade the danger. So what then is being endorsed through the sensation of 'fun' when an individual is presented with a situation in which they have the degree of freedom described above in the definition of play?

One hypothesis is that it is biologically valuable to attempt to produce certainty in moments of uncertainty (Csikszentmihalyi, 1975). In a moment of freedom one is required to choose which of the available courses of action they prefer. For this reason I agree with Csikszentmihalyi and view that the action being rewarded with the sensation of fun is the search for certainty in uncertain situations. To continue the predator/prey analogy, if an animal in a wild situation is presented with a scent that they had not experienced before, and so could not recognise, it would be evolutionarily beneficial to attempt to gain certainty as to whether the scent were of an unknown predator or not. It is this understanding of the evolutionary benefits of gaining certainty that I am calling puzzling. From this I hypothesis that games are contrived activities that allow participants to engage in the act of puzzling and so experience the associated biological rewards. These puzzles may be kinetic, as is the case in sports – the puzzle of managing and positioning one's own body in relation to the players and elements of the game-, intellectual, as is the case in board games or emotional, as is the case in the creative arts (Boyd 2009). The above discussion sits neatly with Sutton-Smith's theory of adaptive variability in which it is suggested that "play's engineered predicaments models the struggle for survival" (Sutton-Smith 1997, 229). Instead of suggesting that play is the modelling of adaptive

evolution, I suggest that play is itself the act of being adaptive that evolution then 'filters' and 'selects' the most valuable forms. Sutton-Smith explores the theory that describes acts of play as maintaining "variability rather than precision of adaptation", this he cites as being "the central characteristic of biological evolution" (Sutton-Smith 1997). Inspired by Stephen J. Gould's work on adaptive variability, Sutton-Smith correlates the need for variability in a species to adapt to environmental conditions with the variability of the concept of play. Gould writes:

> Precise adaptation, with each part finely honed to perform a definite function in an optimal way, can only lead to blind alleys, dead ends, and extinction. In our world of radically and unpredictably changing environments, an evolutionary potential for creative responses requires that organisms possess an opposite set of characteristics usually devalued in our culture: sloppiness, broad potential, quirkiness, unpredictability, and, above all, massive redundancy. The key is flexibility, not admirable precision (Sutton-Smith 1997, 221).

It is my view that our neurology has evolved to support playfulness in all our actions through a willingness to be adaptive. This to me suggests why previous definitions of play tend to fall short of encompassing all acts of play because they were based on the assumption that 'play' and 'work' were separate acts. To recognise that 'play' is in fact embedded in work and leisure activities allows for the process of being adaptive to be present in both.

Games optimise play

With the above definitions that games are a set of parameters or rules and play is freedom within parameters which together produce a satisfying biological experience, the question that remains is how activities we call games are instrumentally different from activities that we deem *not* to be games. It has also been shown that humans, and other species, have developed neurological systems that encourage behaviours in which choice and problem solving are encouraged. Potentially this neurological reward system is responsible for encouraging behaviours that are adaptive, and therefore benefit a species' evolution (Sutton-Smith 1997). As suggested by Suits, a game activity involves rules that "prohibit more efficient in favour of less efficient means" (Suits 1978). In Suits' definition we see that his 'inefficiency' is not only making the challenge arbitrarily more difficult but that it also disallows the most obvious and familiar course of action. In effect the inefficiency of a game requires

35

that a participant be adaptive and look for alternative means to achieve the goal. Through this the purpose of a game is to force a participant to seek alternative courses of action to that which is most obvious. The restriction optimises the play in an activity by encouraging adaptability in a participant which in turn evokes fun and enjoyment. The practical aspects of this optimization are best explained through flow theory (Csikszentmihalyi 1990). If the fun and enjoyment of flow are biological encouragement to repeat specific actions, then flow theory indicates that it is biologically advantageous for an individual to experience a match between the challenge of an activity and their skills. As shown the 'fun' of play is a neurological reinforcement of a particular behaviour. This behaviour is the act of adapting given resources to achieve a goal. Such resources are the choices available in a situation about how actions or objects may be used. Regardless of whether goals are significant or petty the parameters that govern their achievement can be arranged to evoke the fun of play. A game is therefore an activity occurring within parameters that optimises the balance between the challenge of the activity and skill of the participant to release the behaviour reinforcing ligands.

The contemporary significance of considering games

This section presents and discusses the emergence of the use of games in the field marketing. The use of some game based marketing strategies already occurs in many museums in the form of a museum presence on social networking websites. This study assumes that the use of such popular strategies is likely to increase. It is shown in this section that while effective in generating customer loyalty some aspects of game based marketing may be counterproductive to the intentions of museums. For this reason museums should develop in-house knowledge of games and their dynamics in order to accurately assess the appropriateness of developments of customer engagement including the engagement in exhibitions.

Game Based Marketing

Emerging in popular discourse in 2010, game based marketing (GBM) – also referred to as gamification funware – is the strategy of presenting non-game activities, such as: work, education, healthcare, finance, commerce, through game like mediation. GBM employs the psychological tropes present in games to create emotionally affecting experiences while channelling participants through sets of prescribed actions. It is the potential for game dynamics to produce enjoyment while channelling public behaviour that has made GBM such an appealing approach for marketers. The approach and theory of GBM have largely been drawn from the experience of computer video game designers over the four decades since the development of the interactive entertainment industry. For this reason the theory and writing on GBM is heavily computer game oriented. While some discussion is had on non-digital games, the vast majority of the work employs digital computation and screen based interaction to mediate the games produced. While this appears to be a very young phenomenon, critics claim that GBM is in fact little more than the new buzzword for strategies that have been employed for years. These claims view 'buy ten get one free' and 'frequent flier' type marketing campaigns as early uses of game dynamics. While this may be accurate it is hard to deny that the frequency with which new and varied game dynamics are being used in marketing is increasing at an exponential rate. There is also hope held by many that game dynamics may be used to positively affect public behaviour in socially responsible, non-consumption oriented ways. As gamification figurehead Jane McGonigal proposes, game structures may be used to organise individuals to help solve the current global challenges such as climate change and resource depletion (McGonigal 2011).

In contemporary commerce games have become widespread among marketing campaigns and are increasingly being used as structures for a variety of managed interactions between firms, their clients and their employees. Primarily used as a device to stimulate customer loyalty, games are increasingly used as the basis of marketing campaigns (Zichermann and Linder 2010). Designed to capitalise on the appeal of games, such campaigns aim to develop brand recognition and loyalty by rewarding consumer behaviour that is aligned with the goals of the company. By mediating the engagement through a game structure companies can guide the behaviour of their customers by offering rewards

and incentives that reinforce specific behaviour patterns. How gamification differs from previous forms of incentivisation is that increasingly the rewards offered have no real world value, instead the offer is of rewards that only have a specific game value (Zichermann and Linder 2010). Often these in-game rewards are status 'badges' that indicate to other players in-game achievements. In effect such campaigns are offering customers a 'fun time' in exchange for choosing their product instead of their competitors.

Commonly cited examples of game based marketing are Nike +, Foursquare and Facebook. Each of these have game like elements, referred to as game dynamics, that shift the focus of the commercial engagement away from the direct exchange between a customer and a vendor towards a motivating narrative that frames the trade within a game like quest. In the case of Nike + the narrative presented to customers is that if you join Nike + (which requires the purchase of specific Nike and/or Apple products) you can turn the mundane activity of exercise into a vibrant and exciting social networking opportunity. In Foursquare players 'check in' with their location and comment about what they are doing as part of the motivating narrative of 'sharing hot tips about your town to make it a more exciting place to live'. Foursquare players can also earn 'badges' and 'mayoralty' by visiting certain physical locations more often than other Foursquare players. Interestingly the players of Foursquare are not the customers of Foursquare. Foursquare makes its money as a market research tool and lead generating company. In effect it has made a population of loyal users whose behaviour it tracks, analyses and sells to interested third parties. Similarly Facebook has developed a significant population sample whose relationships, interests and 'likes' are logged, analysed and sold.

The process of 'gamifying' an engagement involves restructuring that engagement so that it foregrounds and optimises specific *game dynamics* that have been found to be particularly engaging or enjoyable when used in games. Commonly cited dynamics are points systems, achievement levels or status, the appointment dynamic and 'experience' bars (Priebatsch 2010). Current thought on GBM and its dynamics is not unified nor commonly agreed upon. It appears however, that examples of game dynamics are fairly consistent with flow theory (Csikszentmihalyi 1990). In this way it can be

seen that the *game dynamics* of game based marketing are examples of practical applications of flow theory to the field of marketing.

The value of game based marketing

One of the most valuable qualities that GBM has to offer is the potential to motivate individuals to undertake actions that they may not have previously been inclined to do. GBM does this by representing an activity in a way that makes it seem manageable to achieve and couples discernable benefits to the completion of that activity. Such a tool could hold great value for museums in the task of attracting and then informing their audiences. GBM could be highly effective in presenting to the public the activity of visiting a museum in a way that mitigates the perceived obstacles that discourage museum attendance.

In a similar way GBM could be used to organise exhibitions to present the intended content in ways that persuade a visitor that acquisition of the presented knowledge is possible to achieve and that once achieved certain benefits will be acquired. These benefits may be point based and form a game score while visiting an exhibition. This process would work for propositional knowledge - such as recognition of facts or information - as well as qualitative understanding, such as a visitor's interpretation of an historic or art object.

Another quality valuable to institutions is the development of positive association that GBM can build between the public, an institution and content delivered. When receiving content through an engaging and enjoyable experience, participants are more likely to want to re-engage with that content; either in their normal lives or by revisiting the institution to 'replay' the experience. The transmission of information through games can be mono as well as multi directional depending on how the game is structured. An example of multi directional information transfer is the DARPA Network Challenge. This was a competition that required participants to locate 10 large, red balloons at undisclosed locations across the United States of America. In the network challenge The Defense Advanced Research Projects Agency (DARPA) offered US$40,000 to the first individual or group to locate all

ten balloons. With the use of the web and social networking strategies, this goal was achieved in less than 9 hours. The purpose of the challenge was:

> To explore how broad-scope problems can be tackled using social networking tools. The Challenge explores basic research issues such as mobilization, collaboration, and trust in diverse social networking constructs and could serve to fuel innovation across a wide spectrum of applications (DARPA 2009).

The DARPA challenge is a good example of how GBM can be used to guide behaviours. In it the US defense department used a game structure to conduct research on how a civilian population might organise itself to achieve a goal.

Potential problems with game based marketing

The defining feature of gamification to date has been the process of externalisation and demonstrability. The points, progress and status systems used in 'gamified' activities function to externalise the value structure of the activity. It does this for two reasons. The first is to attract the attention of the participant to the value system being used and the second is to allow the 'Game Master' – the institution running the game – to ultimately control the engagement. Points and progress bars make visible a participant's progression through a given series of engagements. This is particularly appealing to a new participant of an activity. A neophyte to an activity does not yet have the familiarity with actions needed to recognise their own progress. Progress indicators are valuable because it gives them clear feedback on their advancement through an activity. This allows them to identify their location within a series of unfamiliar events and estimate what they have yet to do to achieve their goal. In this way one can see that progress bars allow a beginner a sense of security in an unfamiliar context in a similar way that a guide gives a tourist a sense of security in a foreign or dangerous environment. While these undeniably have positive potential they also hold hidden dangers. Two specific points of concern is the agenda of the game master and the hidden negative behind extrinsic rewards.

The most significant problem with game based marketing approaches in museums is its reliance on extrinsic rewards to motivate participation. As indicated, game based marketing frequently use points,

badges or status symbols to motivate continued engagement. The problem with an extrinsic reward system is that it has the potential to extinguish whatever intrinsic motivation an individual may have had for the activity (Pink 2011, Deci 1975). "Rewards can deliver a short term boost [in motivation], [but] the effect wears off and can reduce the longer-term motivation to continue the project" (Pink 2011, 8). Pink bases this comment largely on the research of Deci in which subjects were asked to complete puzzles, some for money and some for no external reward. Deci's findings contradicted prevailing psychological expectations which stated that individuals are motivated by external rewards. Deci writes; "When money is used as an external reward for some activity, the subject loses intrinsic interest for the activity" (Pink 2011, 8). In light of these findings, comments made by Gabe Zicherman are particularly disturbing. Zicherman, a marketing advisor, stated that "intrinsic motivation is over". He then validates this statement by saying that "depending on consumer's intrinsic motivation to take actions for you as a brand is over" (Zicherman 2010). Zicherman acknowledges that this perspective is challenging for non-profit organisations that have traditionally relied heavily on the intrinsic motivation of clients and supporters to remain in business. For museums this is a particularly sobering view as their core business is essentially intrinsically rewarding interaction with objects of knowledge. For this reason it is timely and significant for museums, individually and as an industry, to consider their response to this social shift that is currently under way. The need will increase for insightful initiatives in dealing with this social shift as well as intelligent management of the alluring marketing and exhibiting strategies that may run contrary to the goals of a museum.

Summary

This chapter has provided a background context to games and play and their potential usefulness to museum practice. It has shown that to engage with play and games is enjoyable because we are biologically encouraged to do so. Play is the testing of the limits of ourselves and therefore expands our abilities. This expansion of ability is, by definition, learning. To encourage the act of learning that

is valuable evolution, the human neurological system has developed in such a way that an individual's involvement in learning activities are positively encouraged through the release of polypeptides. What is being rewarded is the involvement with, and expansion of, the interests of each individual. This development of idiosyncratic interests propagates valuable redundancy in the individual and in the species. By developing and maintaining skills that are not immediately required, an individual fosters a malleability to react and respond to new factors in their environment – either threatening or potential resources – that require their adaptation. It is from this perspective that I argue that play, and therefore games, play a fundamental role in our social fabric. It is play that has seeded the development of cultures and technologies in our species (Huizinga 1992) and it is play that continues to motivate us to strive to understand our context and achieve our visions and dreams. Therefore play is significant to museums because they are implicitly involved in the re-presentation of objects that are themselves the result of human inquiry and achievement. Since museums hold educational aspirations it is highly appropriate that they incorporate games that promote play into their exhibitions. This encouragement to play will enable visitors to engage in their own processes of finding understanding and pursuing learning.

This chapter has demonstrated that a movement is under way to incorporate games into marketing campaigns. These campaigns are highly engaging and are intended to promote loyalty in customers to the institutions that produce the game based marketing campaign. Such campaigns most often use extrinsic reward systems to manage the behaviours of their customers. While there are certainly valuable lessons for museums in this development it is significant to note that extrinsic reward systems have been shown to undermine intrinsic appreciation that an individual may have for a given activity. For this reason it is timely for museums to consider their approach to games so that detrimental choices are not made during this period of 'hype' around the benefits of games. This chapter establishes as background information the value of games according to the available theory on the topic. Despite the potential of games that this chapter demonstrates, museums have not yet employed them to their full effect. Museum scholars have also paid little attention to this topic and so the sector is somewhat blind to how games are being used, what they are achieving and what they are

able to achieve. Therefore it is important to find out what professionals' current understanding of games is, how they see them fitting into exhibitions and why they are not employing this valuable approach more often. This study begins to uncover answers to these questions. Having established a theoretical baseline of what play and games are, I now survey practitioners working in the museum sector to ascertain their views on games, the value of games in exhibitions and the practicalities of incorporating games into museum exhibits. In doing so this thesis contributes to museum studies by providing the ground work for future research into this exciting new area.

Chapter Two: The current understanding of games in museums

In this chapter I analyse the responses given in the interviews with museum professionals to ascertain their attitudes toward games. This analysis and discussion of the data is a step in the process of theorising the relationship between games and museum practice by identifying the appreciation of and attitudes towards games by practitioners. This chapter explores each informant's understanding of what play is and of what games are and correlates these comments in relation to my argument about a new theory of museum play as and when applicable.

The interviewees' understanding of, and attitude towards, play and games

Description of the interviewees

The selection of interview participants for this case study has been based on the three following criteria: their experience in the process of producing exhibitions, their specific involvement with exhibitions produced at Te Papa, and their potential to influence the course of an exhibition production process.

David Crossan

> David is the Technical Director for Gibson Group. Gibson Group is a Wellington based media production company specialising in film and television as well as media based installations. Gibson Group has held contracts with Te Papa produce exhibition design and content, most notable being the *OurSpace* exhibit. David was selected for his perspective within a museum service provider such as Gibson Group. He points out that the opinions quoted here are his own and do not necessarily reflect those of his company

Eric Dorfman

Eric is the Director of Wanganui Museum and chairs the Board of Directors for the exhibition development group Eklektus. In his career Eric was for a time the Senior Manager Science Development at Te Papa. In this role he led a small unit of people that sat between the exhibition team and the natural history team in developing projects that were of interest to both. Eric was selected for his professional museum experience and specifically for his involvement in the *Poisoners* exhibition at Te Papa.

Heather Galbraith

Prior to her recent appointment as Associate Professor of Fine Arts at Massey University, Heather had been the Senior Curator-Art at Te Papa. In this role she sat as a member of the collections and research strategy team. Heather was selected for her well informed perspective on the exhibition of fine art and in particular, fine art exhibition, at Te Papa.

Jared Forbes

Jared is the Director and Creative Director of Lumen Digital. Lumen is a service provider offering interactive solutions to a broad range of clients. In this role Jared has worked with Te Papa on a number of occasions to produce interactive elements for exhibitions. Jared was selected for his in-depth understanding of design and media concerns as they relate to museums and specifically his involvement with the *Mixing Room* exhibition and the *Pacific Beats* exhibit at Te Papa.

Lucinda Blackley

Lucinda is the Team leader of Interpretation at Te Papa. The role of the interpretation team is to look after the way that Te Papa communicates with its visitors as well as being the visitor advocate in an exhibition production process. Lucinda was selected for her perspective as lead advocate for the visitor experience at Te Papa.

Michael Houlihan

Michael is the Chief Executive of Te Papa. This position is a one of joint leadership with the Kaihautu (Māori leader) – Michelle Hippolite. Michael was selected for his perspective as the Head of Te Papa.

Sean Mallon

Sean is the Senior Curator Pacific Cultures at Te Papa. In this role he looks after the collections and curatorial issues relating to Pacific Cultures across the region from Papua New Guinea to Rapanui and as far north as Hawaii. Sean has been selected for his long-term involvement with Te Papa and his insights into non-European perspectives on the process of exhibiting.

In the following sections it is my aim to convey the perspectives of the interviewees as best I can without passing judgement on the validity of their perspectives. My aim is to provide telling statements that indicate each of the interviewee's points of view.

Interviewees' perceptions of play and games

As shown in Chapter One, the relationship between the concept of play and the concept of a game is complex. When discussing what a game is, it is important to identify its perceived relationship to play. For this reason interviewees were asked to describe what they thought play is, as well as what they thought games are.

Throughout the interviews my general impression was that the topics of play and games were not areas that the interviewees had considered greatly. Some interviewees expressed this directly such as in this comment made by Michael: "Well I don't know much about this." Or Sean's remark: "At least you know I haven't read up on game theory" When asked to describe his understanding of games, David stated: "I don't know if I can come up with a definitive answer but I can give you some viewpoints". Or Eric's reply when asked how much he had looked into theories on games:

> It's hard to know, I studied game theory as part of my [socio-biology] degree so a lot of that has just been imbedded in my thinking... so I don't know how much has crept in, it was just sort of there. So I'm not sure to tell you the truth, certainly not specifically for the exhibition but I imagine it would be a help.

When asked if his understanding of games was based on theory Jared responded that, "it's just observation".

A common response made by informants regarding the nature of play and games was that play was the broader the two concepts. Examples of this are David's, Sean's and Michael's comments:

> Play is wider than games; games are a sort of a subset of play. (David)

> I'd like to think it was quite broad. A range of behaviours. (Sean)

> I think play is broader; games I think are a bit narrower. Games are potentially an aspect of play. (Michael)

Salen and Zimmerman suggest that the concept of games is a subset of the concept of play at the same time as play being a constituent part of a game (Salen and Zimmerman 2004, 72-73). As shown in Chapter One this confusion can largely be clarified through the acknowledgement that 'play' is frequently used as a synecdoche for 'game'. The above comments suggest that the informants use the

term play to refer to activities that are adaptive or involve choice but which are not as formalised as games with explicit goals and rules.

Michael went on to acknowledge that the concept of 'game' was also wide ranging. When noting that people's engagement with work at times resemble game play, Michael commented "But games also have lots of meanings don't they, because I could be playing a game in the office and other people won't recognise that I'm playing." Here Michael touches on the difficulty that often games are not acknowledged as games because observers fail to recognise the play in the situation. This observation also illustrates Suit's view that activities commonly identified as work can easily be played as a game given the appropriate attitude of the participant.

What respondents thought play was?

A common theme among respondents, was that play is free, unstructured and creative. When asked what she thought the difference between 'games' and 'play' is, Lucinda responded by stating: "I suppose games have a structure, whereas play is very much unstructured, totally for the kids to come up with their own rules" As shown in Chapter One the view that play is unstructured is common in contemporary western culture as is the view that play is mainly for children. Jared drew a distinction between play and games in the following way

> There is play and then there is a game. At [my company] we produce play elements as well as games. Play elements are a construct, that we create, that allows a person to be creative within, and that's play. Then there are 'games' in which the person has to work within my construct. In games the player doesn't really have an opportunity to be creative themselves. Then there are challenges which are a little bit of both. That we've set up a construct and the participant can manipulate it and be playful within. They can choose the outcome. It's not linear.

In this comment we can see that Jared draws typological distinctions between play, games and challenges according to the form of an activity. When considering this comment we see that in each instance the activity that Jared describes has been constructed and that these constructions vary in the amount of freedom of choice they offer a participant. In comparing this comment to the definition of

games given in Chapter One we see that Jared's descriptions of play, games and challenges are all games but games that vary in the level of *paidia* and *ludus.*

During the interview the way that Jared distinguished between play and games made me think of the computer game Grand Theft Auto. In Grand Theft Auto participants are able to either follow challenges of specific game narratives, designed by the game's producer, or navigate freely through the virtual world and make up their own 'challenges'. These styles of play are called linear or non-linear ('sandbox') game-play. I asked Jared how he thought his distinction between games and play related to the linear and non-linear game styles in Grand Theft Auto, he said: "That's interesting as well, allowing people to build worlds within constructs, that is play. If you are constructing your world you are playing. If you are playing your world you are in a game. This comment struck me has having great resonance with Sutton-Smith's (1997) assertion of play being adaptive variability and the development of motivating narratives. It can be seen that the act of adapting available information, and organising it in to a narrative to better explain one's environment, is a process of "constructing your world".

In a similar way to Jared, Michael perceived that:

> In a play environment there aren't necessarily predefined outcomes in the way that you do have in a game. You sort of know at the start of a game what the outcome is going to look like, whereas if you enter into play with someone, maybe you're not conscious of what the outcome is going to be.

In interpreting this comment we see that Michael saw play as more a creative process, and less structured, than game participation. That the outcome of a play environment was not predefined suggests a participant had the possibility to either create their own outcome or that the outcome was hidden and required discovery. In these two comments it appears that to Jared and Michael play as a sort of organising process or construction process in which a player builds a structure in a non-structured context. It appears their view is that in a game a player accepts an existing structure and that in play a participant creates their own structure.

Indication of the blurring between definitions of play and of games can be seen in the following comments from Heather. In them she wants to define play as unstructured, or free of rules, but when describing how play is unstructured refers to the structure of social interacting as a defining feature.

> In terms of play, I don't think you need to have a set of rules or parameters, that social interaction is often a key definer. You can also play on your own but you are often playing with something, whether it is an object or some kind of matter; water or string or wind.

This illustrates the way the play cannot occur without some kind of structure. As shown in Chapter One play is a freedom within parameters but that parameters may be structured to offer negligible or an abundance of available freedom. In the above comment Heather illustrates the way that un-formalised play can happen within the parameters of social interactions or the exploration of the parameters of physics through water, string or wind.

Michael too commented on the social aspect of play by saying that "Play implies a sort of social mobility which is about mutual recognition of different roles, interaction and that interaction won't occur if the play starts getting rough." Michael reflected on this and added that "Of course I suppose there is rough play? But games I think go on to be competitive." In this comment Michael begins to deal with the issue of when play reaches the limits of and exceeds its parameters - starts to get rough. The formalisation of games and the nature of their being voluntary allow participants confidence and security in the knowledge that parameters of the interaction will not be breached because participants have voluntarily agreed not to. In this way a game is an agreement that outlines the terms of engagement. The value that this offers is that participants can invest themselves more fully through knowing the limit of the investment required. This relates to Csikszentmihalyi's (1990) observation that an optimal experience will have clear goals and clear feedback. The above comment also indicates the way that formalised competition as a game parameter can be contrived to allow participants the experience of confrontational 'rough play' if they so wish.

Another common theme was that play is an unconscious and physical activity as is shown in the following comments from Heather and Sean.

> Play is embodied and often something that is exploratory, the process of the doing is how you further the play. I think it's a combination of unconscious action of intuitive response as well as intentioned action (Heather).

This idea of embodied and unconscious exploration suggests that Heather sees play as having an instinctual or pre-intellectual quality. Theories on play offer a similar view by identifying that play occurs in humans as well as many other animal species (Sutton-Smith 1997). "When I think of people playing I don't think of people being static, I think of it involving some kind of action." Heather commented.

Sean also saw this embodied and active nature of play. He stated that, "It's a deliberate or sub-conscious interaction with an object, or a thing. The way you think on a conscious or unconscious level." This connection between play and cognition is salient when considering the neurobiology involved in play and fun. Especially significant is the correlation between play and the cognitive processes of developing or maintaining adaptive behaviour or creativity (Sutton-Smith 1997).

As shown, the informants generally consider play to be unstructured but, through their comments, indicate that play is itself an act of forming structures or organising a situation. This observation has a strong correlation to Caillois' theory on the range of play activities from free unstructured play to highly organised games (Caillois, 1975).

What respondents thought games were

Respondents predominantly indicated that they thought games required some sort of system of rules or parameters. Sean comments that: "In games there is a shared understanding of what is at stake and what sort of boundaries there might be." This comment sounds remarkably similar to Michael's definition for play in which he states that play and not games is a "mutual recognition of different roles." Contradictions such as this are common in the study of play and games. Sean went on to indicate that he did not believe that the boundaries or parameters of games necessarily had to be predefined "you can have spontaneous reactions in a game, seeing or discovering the parameters as

you do it". He sees games as occurring: "on a gradation from spontaneous self-directed games to games that are very structured with a certain understanding or determination on the part of the developers of how things should unfold." Here again we see the understanding that games occur on a continuum from unstructured to structured similar to Caillois' theory on the *paidia* and *ludus*.

Heather's comment supports this view: "I think games need to have a set of parameters or rules, whether they are flexible or amorphous is another question." She adds that games "require players; they can be played on your own but they more often require interaction with others, whether it is physically or online." This comment suggests that the parameters that are valuable in a game experience need not come from the game structure alone. It suggests that the parameters or restrictions may well come from the actions of another participant. For instance in a game of chess the rules of the game are one set of parameters but the way that one's opponent places their pieces is another set of constantly changing parameters. When comparing this comment with Heather's previous remark that in play "social interaction is often a key definer" it seems that Heather does not view a great difference between the play and the game concepts. As already stated the ambiguity surrounding play, and therefore games, is frequently noted in the literature on this topic, so Heather is not alone in this.

This interaction with others, as Heather sees it, also operates as a motivating force: "There is a degree of competition in terms of a kind of catalyst or motivator to a quest, so the quest is really important." Heather's inclusion of the value of there being a quest in a game indicates the presence of a narrative that acts to contextualise and make sense of the parameters and restrictions of a game. As shown in Chapter One and in the literature on knowledge, humans make sense of their world through narrative. In this way a game narrative makes sense of the activity and information involved in the game.

Another theme in the comments on games was that respondents commonly saw games to include some sort of competition. In Heather's comment above she suggests that competition is a feature of games, especially as a motivating force. Sean also acknowledges the correlation between games and competition, but is not certain that it is a defining factor: He added: "Maybe some games should have

a slight element of competition built into their design." Michael also observes the common perception that games are competitive but suggests that this connection may be culturally specific:

> I suppose in a Western cultural aspect, a game has an element of competition, whereas play doesn't. Play is about social engagement. It's not necessarily about winning.

This is a significant acknowledgment for a multicultural institution such as Te Papa. Sutton-Smith and Caillois show that various cultures have various forms of prevailing games (Sutton-Smith 1997, Caillois 1961). It has also been shown that the prevailing form of game tends to reflect the social structure of the community (Sutton-Smith 1997). If a community is predominantly fate oriented then their games will be predominantly fate oriented. It is therefore not surprising that the most common form of game in Western societies is competitive given that modern Western culture is predominantly progress oriented. It has also been suggested that on an individual level people tend to prefer games that are similar to their personal outlook on life (Csikszentmihalyi, 1975).

Eric places this correlation between games and competition into a more structured form by discussing his experience of mathematical game theory gained through his studies in socio-biology. He states:

> The principle aspect of game theory that I think is useful is the complete lack of altruism in social engagement. Game theory looks at what an individual will do given a different set of circumstances and how they will compete with each other given how they are impinged on by the environment.

He also states that:

> The argument against game theory in biology is that, in theory, individual members of an animal species don't act with self-awareness. But the idea is that over enough evolutionary time the patterns emerge as if they were acting rationally and logically.

It is likely that mathematical game theory holds many valuable tools for understanding the ways that individuals interact with each other and with their environment. However a comment made by Michael begins to illustrate a potential difficulty in game theory's assumptions about altruism: He said "Maybe this is just a bad metaphor, but I think that if the office environment is playful then that is a better environment than one in which people are playing games." This suggests that while it may well be true that a species acts without altruism when viewed on the very large scale of evolution, on

the scale of personal interaction there is still great value for individuals to perceive that not everybody is out to beat them.

What mathematical game theory is particularly good at is modelling the interactions of individuals who are engaged in a competition for the same resource (Binmore, 1992). In this way it models processes of achieving goals, whether it is anything from personal survival to success on the stock market. Michael notes the value of goals by saying that "I suppose in a sense no one would play games if there wasn't an outcome."

A significant aspect of coupling competition with a goal to achieve a specific outcome is that it makes success uncertain. This theme was referred to by informants in the following ways. Jared notes what he sees to be a difference between a game and a challenge: "A challenge is something slightly different, it's sort of more that it doesn't really have a start or a stop. It's something that you can just continually involve yourself with." This is in contrast to his definition of a game: "I think a pure game has more than one end point. It's an event with a start point and an end point with a result that you can improve on." This definition draws into discussion the points of freedom of choice, lineal progression and repeatability. When combining this definition with Jared's previous statement that "In games the player doesn't really have an opportunity to be creative themselves", we can see that Jared's understanding of games is that a participant has freedom enough that their choices will produce one of a number of possible outcomes. But that this freedom is limited to the point that it cannot actually be creative. It can be seen that Lucinda agrees with this view given her comment "With a game you do actually need to be able to have different outcomes and have choice and your choices actually impact on what happens." Regarding this Michael contemplated the relationship between games, choice and outcomes: "I don't know much about this, but if you go to what is the principle of a game and what are the components that makes it a game or not a game, it's interesting to mention choice, is outcome part of it?"

The theme of interactivity being present in games was prominent among the responses given. When asked to describe what she understood games to be, Lucinda replied by saying:

> Our definition of a true *interactive* is where someone can control the outcome rather than just following a particular sequence of just pushing buttons… This sequenced button pushing may involve them doing something but it's not actually an *interactive*. So with a game you do need to be able to have different outcomes and have choice and that your choices impact on what happens.

This correlation between interactivity and games is salient for museums to consider, especially with regards to the museological tradition of using *interactives* to present content. It was discussed by some interviewees that Te Papa had a strong early push to incorporate mechanical *interactives* into their exhibits. But the nature of what an *interactive* is exactly seems not to be consistent among the informants. For example in Lucinda's description above the word '*interactive*' seems to be used synonymously with the word 'game', or at least an understanding that games are a subset of the concept of *interactive*. But this view is not shared by Sean as seen in his statement:

> The difference between a game and an *interactive* depends on how structured it is. An interactive might be a Cook Islands drum kit like in *Planet Pasifika*, I don't know if that is a game. I guess if it's got a competitive element it would be more a game than just a straight *interactive*.

An interesting theme that arose from the interviews was that games were seen to be a form of art. During our conversation I asked Heather whether she thought the activity of art engagement seemed to her to be a game itself:

> Absolutely, it is a quest. Very few artists offer works that are singular in their meaning. They often are incredibly layered; they don't take you to somewhere finite. They open up a whole range of quandaries and problems or propositions. I think artists are definitely game players. I think that while the curator can play the role of constructing and placing together some different pieces of the jigsaw, in essence, they are presenting the box of the pieces rather than the fully fleshed, placed picture.

A similar line of conversation arose while talking to Eric. I asked if he thought that making a game was akin to making an art work. His response was: "Well I think it is an art work, in a way an exhibition is an art work and games are art works. You need somebody who is at the helm, frankly in any endeavour."

The opinion that games were a form of entertainment was a theme that was surprisingly not commonly voiced in the interviews. The only informant to comment on this was Michael: "There is

an expectation that games might be entertaining" Said Michael during his description of what he considered games to be. "But play isn't always entertaining" he speculated.

Relevant to the theme of games as entertainment was the identification of the highly compelling nature of games. Significant to the topic of using games as motivation especially in marketing, David comments on the compelling nature of games in the following way:

> One of the things that has fascinated for me about games is the very tight loop of effort and reward. If I can give an example of this, it is sitting there struggling to complete some level in a game, you don't make it so you start again, and you keep going again and again. It's past your bed time, you've already invested more than you should have and you believe that if you went to bed now it would be wasted effort, the more effort you put in the bigger your investment the more effort you feel you have to put in. You keep piling on this effort and eventually you win the level and you go "woo hoo... let's do the next level"... The game is designed to be like that, it's designed to tap into this obsessive-compulsive behaviour. It's a fascinating thing about games, the possibility to produce this very tight effort to reward cycle. You get effort reward cycles in everything that you do. I play musical instruments and I love playing them, but you have to put in a lot of effort to get those rewards. Some things that you do, like study, take a long time for rewards to be reaped. If there was something about games that I would be worried about, that would be it.

These comments from David raise some of the issues around the negative aspects of games, especially their ability to compel people to behave in ways that may not be in their best interest. Jared comments on this compulsive behaviour in museums:

> Certain elements of video games, certain parts of the receptors that those trigger, the competitive side of you, you leave those out. You don't want someone to go "right, I'm gonna just stay on this until I absolutely nail it." You need them to feel that they have completed the challenge to feel rewarded, have a positive experience but not to want to [keep going to do better].

Summary

This chapter has presented the data collected through interviews with museum professionals and explored their understandings of games and play. Generally informants were supportive of the prospect of games being incorporated into exhibitions and spoke with enthusiasm on the topic. The prevailing views saw games to be structured with rules and outcomes and that they were predominantly competitive in nature. Some informants identified the presence of narrative in games and some identified the need for uncertainty that is enabled through choice and the potential for

56

multiple outcomes. Some vagueness was observed in the responses given when informants tried to identify the difference between games and play. Most frequently informants proposed that play was unstructured but descriptions of 'play' often used the structuring elements of specific activities to define it. This uncertainty indicates the potential for a deepening of the interviewees' understanding of play and games and is consistent with the identified gap in the literature regarding play and games in the museum sector.

In this chapter it has been found that the interviewees hold insightful but not theoretically informed views on play and games. As shown in the literature review and in Chapter One there is a wealth of theory on this topic that holds potential for application in the museum sector and which supports the goals of an institution such as Te Papa which is an advocate of the new museology. In this way internal discussion on the role and nature of play and games in museums is particularly valuable. Such discussion would develop an institution's consciousness of the topic and would open up as yet unexplored avenues for the delivery of content and interaction with the public. Chapter Three extends this inquiry by presenting responses showing what the informants perceive the intentions behind producing exhibitions are, how they see games could support these intentions and whether they believe games exhibited at Te Papa have been successful in achieving this.

Chapter Three: The success of games in museum exhibitions

Chapter Three analyses and discusses responses given by the informants that indicate their opinion of the current success of games in exhibitions at Te Papa. This discussion is in three parts. The first part contains comments indicating what interviewees understand exhibitions to be and what they see to be their purpose or value. Part two presents comments on what the interviewees perceive to be the value of games in exhibitions. Together these two sections form the basis of what it means to be 'successful' in the subsequent discussion on the success of games in exhibitions. Part three of this chapter presents comments that directly indicate whether informants believe instances in which games have been implemented have been a success. Through the ensuing discussions, this chapter also assesses whether or not the practitioners aspire to operate according to the ideals of new museum theory.

Part one: What interviewees understand exhibitions to be and what they see to be their value

Through the analysis I have identified three rubrics under which the salient responses have been organised. These headings identify opinions about exhibitions roles: representing authentic truth, facilitating an individual's development or being a participatory experience. These purposes are not mutually exclusive and frequently complement each other. It is clear from this evidence that museum professionals believe exhibitions have a multifaceted role.

Exhibitions as representing authentic truth

While commenting on his thoughts about the value of games in museum exhibitions Jared remarked:

> They need to have a sense of authenticity or authority; you don't need to dumb stuff down. It seems that people forget that the truth is stranger than fiction so why wrap something in the veneer of a lie when the absolute truth of it is just as fascinating, if not more so, than your fantasised representation of a system.

From this statement, and the context in which it was made, it can be seen that Jared's view is that museum exhibits are at their best when they are authentic and authoritative. Jared uses the term

authentic on a number of occasions when discussing differences between museum interactions with other types of engagement. This view is however somewhat at odds with new museum theory. New museum theory seeks to avoid or disestablish grand narratives that totalise knowledge into authentic truths. Jared's comment is significant in this survey because it is made from a predominantly non-museological perspective. Jared's background is in design in which he operates a successful media design firm. Throughout our conversation I was most impressed by Jared's astute appreciation of how the public actually responds to exhibition environments. My impression was the Jared was not particularly invested in museological theories on how knowledge should be presented but was highly attuned to what the contemporary public actually expected from their museum experience. In this way I view Jared's opinion that museum exhibitions are about authenticity reflecting a popular view.

By comparison it can be seen that Eric's view of exhibitions is that they are mediations between the public and the truth of objects.

> We do back of house tours and things like that, and museums frequently do that. And there you just see the raw material just laid bare before you on shelves. So to me exhibitions are about contextualising objects. That's it! That's what exhibitions do, they contextualise objects.

By equating exhibitions with the contextualisation of objects within historic or scientific narratives, Eric's comment indicates the value of exhibitions as packaging devices to enable a lay-observer greater appreciation of the 'raw' unorganised data that an object embodies. An interpretation of the above comment is that Eric's view straddles the epistemologies of positivist and subjective knowledge. That the unmediated 'back of house' objects are "raw material" suggests them to be a sort of irrefutable 'data' from which information can be drawn and presented. This view appears to ignore that organisational process involved with collecting, which is inherent in the establishment of a museum collection, which is so criticised in new museological theory. I interpret Eric's view as representative of a transitional view on exhibitions. In this transitional view practitioners maintain a positivist expectation that objects 'hold' knowledge but concurrently recognise the significance of appreciating that the meaning of objects is constructed from individual and cultural perspectives.

This interpretation assumes that the popular epistemology of Western culture is currently shifting from the positivist position – that knowledge is absolute – toward the post-structuralist understanding that knowledge is subjective.

A view on exhibitions that illustrate what a subjective exhibition may be like was put forward by Heather:

> It's essential to recognise them as constructed experiences. They don't just arrive, they are put together. You are inviting visitors into a space in which they are going to be exposed or encounter a particular set of things whether those things are objects or audio/visual or whatever it might be. They are, in essence, a false or theatrical environment that is being created and I think you can play that with that to varying degrees for very different outcomes.

Heather did not offer her view on the nature of these "sets of things" nor where might come from, but her background as fine art curator would make it safe to assume that she appreciates them to be intentionally constructed "things". She did however offer a personal experience of having appreciated traditional museum objects in a mode of presentation that allowed her to construct her own narrative.

> There's something about an old school museum process. I used to spend a lot of time at the Natural History Museum in London and my most favourite displays were the crazy old Carnegie cases where you just had like two hundred bird claws, where you had to look at the little labels and had to try and imagine and think who or what these claws belonged to.

The challenge for museums to find their understanding and definition of truth and authenticity is significant and on-going. The academic understanding of truth has shifted over the past century. It is therefore significant that the museum sector accommodates this academic shift and presents it appropriately to its audiences. It is important to note that the agenda of museums has always been to facilitate people into new social roles and that perhaps this shift in epistemologies is the current challenge for museums to facilitate.

Exhibitions facilitating an individual's development

Sean gave the following response to the question of what he thought exhibitions were:

> It's really hard to pin it down to just a few quotes. They are representations of stories, histories and themes, through groups of objects that have been put together and aligned with different media, texts, and other interpretive devices. And an exhibition is an assemblage, if you like, of different techniques and forms of display that you hope will engage people and give them information that they might not know and hopefully allow them to walk away with some new knowledge.

This description reiterates the constructed or assemblage nature of exhibitions and adds that the purpose of these assemblages is to transfer knowledge to visitors. Supporting this view is Eric's assertion that "Exhibitions are also about getting ideas across." When discussing the nature of experience and education in museums Lucinda remarked:

> I don't think exhibitions should be didactic, and I don't necessarily believe in the museum's authorial voice. But I do believe that learning is a very important part of what we do and I think people learn better when they experience something, when they do something. So participatory models are really good for learning.

This comment reiterates the centrality of learning in the exhibiting process particularly when learning is supported by activity.

During the interviews I wanted to explore the breadth of what informants viewed exhibitions to be. I asked Heather what she thought people are doing when they engage with art work.

> I think there is a range; there are so many distinct answers. There is obviously a distinct perceptive and cognitive process that is happening, whether it's visual experience or an audible one or olfactory one or whatever it is. Some people are more comfortable with giving themselves over to an experience and having that sort of combined physical and emotional encounter and you see other people engaging on a very analytical or intellectual level where they are trying to understand or decode or engage with the subject or the context of the thing. And when you talk to these people they are making connections to their lives and to what they understand.

> I think the joy comes from that experience of discovery. People do like seeing themselves reflected in things around them, but they also do like nudging and seeing where things go and how much they are capable of and testing those boundaries and limits. So when we talk about quests or discovery and these sorts of things, for me they seem to be inherently about enjoyment or satisfaction or achievement, these things that are really important human drivers but that may not be spoken of in such formal terms.

These comments astutely illustrate the process of inquiry that occurs while engaging in art as well as artefact based exhibitions. Heather suggests the centrality of the experience of discovery in this

inquiry process and that much of the pleasure taken from such experiences is drawn from the act of

testing limits. This view that exhibitions are "inherently about enjoyment or satisfaction or

achievement" suggests that the value of an exhibition is intrinsic to the activity of exhibition visitation

and intrinsic to the individual visitor. The value of such intrinsic rewards is discussed in Chapter One.

In Chapter Two the fragility of intrinsic rewards is presented and related to the approaches of game

based marketing. The perspective that exhibitions are intrinsically rewarding seems equally salient to

exhibitions of history and natural history as it is to exhibitions of works of art. In this way Eric's view

that museums are "where the public meets the provenance of an object and the stories behind them.

Where they link the tangible with the intangible." Eric added that this process has a fragility that

requires care and attention:

> It's also dangerous to be too prescriptive with the meaning that they are meant to make.
> Allowing the audience to close the circle for themselves is important, I think, not only for
> making a multiplicity of conclusions but also making those conclusions relevant for the
> visitors.

From these comments it can be seen that a significant challenge in the process of developing

exhibitions is that of presenting sufficiently developed lines of thought while not being too

prescriptive. To allow visitors to develop their own understanding and meaning of the content. This

process is made especially difficult when, as Heather suggests, each visitor has different requirements

for their meaning making process.

> You always come with a loaded deck of cards as a viewer; you come with your own suite of
> associations. Interpretive material can open up other doors and windows and make
> connections between things that you may or may not have made yourself, but I think it's
> really important not to have the definition of meaning too loaded within those materials, they
> should be more about offering up some thoughts and ideas and suggestions and then letting
> people have their own voyage of discovery. But the making of meaning doesn't happen in a
> vacuum; it always needs to draw on other things.

Sean's view is in agreement with this as shown in his response when asked if he thought education

was a key feature of museum exhibitions:

> I think that that is the intention, that you want to educate people. But I think people bring their
> own desires to an exhibition and will get their own stories and create their own narratives
> within that space depending on their own knowledge and the experiences that they bring to it.

This suggests that Sean's view of education is more nuanced than a simple one way transmission of information or facts. It suggests that his view of education has multiple entry and multiple exit points and as such is centred more on the act of transformation than it is on the type of transformation or a specific intended result from a transformation.

Jared holds a similar view of the affecting quality that exhibitions should have:

> You want to be inspired. You don't need to give everyone all the answers here. If you create an exhibit and a kid comes in and they leave fascinated about learning more about mountains then you've achieved every part of your goal. You might get them in one tiny moment that sparks their imagination. Don't ever try to give them all the answers.

He continued this line of thought by adding that he thinks:

> [Exhibitions] are an opportunity for you to remove yourself from your everyday reality and immerse yourself in something that you may otherwise not care or even think about on a daily basis, which you perhaps should; either art or science or culture. Museums are no longer the holders of the information they are points of inspiration. And that's what they should be today.

Michael's view complements this as shown be his statement:

> The area that I'm most interested in is the intellectual impact around the collection. It is vitally important that the intellectual ideas we are looking to communicate, people can learn from and maybe ultimately transform society and its attitudes.

Michael returned to this idea of museums playing a transformative role in society later in the interview. He stated: "I think the really interesting challenge for museums today is how can we be transformational and how can we have social impact? That for me is the most important philosophical driver for a museum. But that's just me."

Lucinda's view indicated that she appreciated there to be many ways that an exhibition might be transformational. In answer to the question of what she saw exhibitions to be, Lucinda answered:

> Exhibitions are always for the visitor, in terms of being able to see collections and understand why those objects are important and why they are relevant. What the bigger stories are around them. I think it is really all focused on the visitor, not necessarily in terms of formal learning, but in terms of experiential impact and enjoyment, family enjoyment, also learning things and appreciating things about the wider environment.

Exhibitions as participatory experiences

Lucinda's focus on the experiential nature of exhibitions foregrounds the significance of the more subliminal aspect of the museum experience. This being the way that visitors feel while going about the activities or encounters that a museum exhibition provides. In Lucinda's comment it can be seen that she suggests that the experience of formal learning may not be the experience that visitors are necessarily wanting when they visit museums. Later in our discussion I inquired further into Lucinda's views on the social role of Te Papa, in particular the significance of Te Papa as a free public space for people to go on a rainy day, a sort of social 'third space':

> Certainly we are a social space and that's what we want to foster. A member of my team always says she'd love teenagers to be coming here on dates, that kind of thing. But there are tensions between the Experience team's desire for it to be a social participatory space and the commercial drivers.

Aligned with the view of museums being a social participatory space that Lucinda mentioned, Eric commented:

> It's sort of the museum 3.0. We've had museums 1.0 which is a whole bunch of dusty things in cases, and museums 2.0 which is... well who knows what museums 2.0 is, but there's people in it, and then I think museums 3.0 is a lot more about exploring the creative options around connectivity and interactivity.

It is this connectivity and interactivity and their relevance to new museum theory that museums are currently trying to find fluency in. This issue of how to accommodate connectivity and interactivity is explored in recent literature (Simon 2010). In this way Michael commented on the 'teething' process experienced by the museum sector through the task of incorporating theory into practice

> I think the curatorial world is becoming an incredibly uncertain world. Museums are still talking about engagement and in fact the world has moved way beyond engagement. The world is into co-creation and it's into the publication of that product and museums haven't even got anywhere near co-creation.

Part two: comments on the value of games in exhibitions

Having established an understanding of what the interviewees see to be the purpose behind the production of exhibitions, part two builds on this understanding to establish what the informants expect the value of games in museum exhibitions to be. Most of these answers were made in response to the question of what the informant saw to be the value of games in exhibitions. Some have been taken from areas of discussion on other topics but which are salient to the current topic.

When asked if he thought that games are valuable to museums Jared responded:

> Yes, by creating really compelling experiences that people can't have at home or out in the real world. Through scale, but again they need to have a sense of authenticity or authority; they can't just be a silly thing in a museum.

In this comment Jared suggests that museum games should be unique or novel and that they should be different from a person's 'normal' life experience. This in itself suggests the view that the museum is a sort of 'magic circle' outside of normal life. It also suggests the museum experiences should be 'spectacular' through this novelty and through scale.

Lucinda also agreed that games were of value to the museum but for different reasons to Jared. In answer to the same question Lucinda responded:

> Definitely, for loads of reasons. I think in terms of learning, if you can slip it into a game, people are far more likely to take it on board. Just in terms of doing, enjoying something is going to make it far more likely that they are going to think about it. If you do studies of people and what they remember a year after, then they'll be remembering that, the actual doing something. And the length of time they'll spend doing a game as compared the length of time they'll spend in front of a label. Just the pure enjoyment of doing, it is a big thing. It's a big reason that families come into Te Papa because they know that there will be something that kids enjoy. So they keep coming back.

Lucinda's emphasis on the pedagogical value of games and the experiential value of actively doing something shows Lucinda's expectation that games will primarily support the learning outcomes of exhibitions especially by making learning more enjoyable.

Sean continued this educational line of thinking by stateing that he saw the value of games in exhibition to be an, "opportunity to engage in other styles of learning, people don't all learn the same

way or necessarily enjoy reading. People can learn a lot from games without having to study a text on a wall; the broader the range of interpretation devices the better."

Sean also identifies the potential for games to support a museum collection:

> For example [in] some narratives or story lines, or periods of history, you might have very few collection items to use as interpretive tools, so I'd go digital. If I had a rich selection of objects at my disposal I'd go for objects, and maybe supplement them with games that enhance learning opportunities.

However Michael saw a point of contention between the coupling of games with educational intentions described above. He commented that:

> A lot of this sort of media interactivity is about directed narrative and certainly the world at the moment is not about directed narrative it's about creating your own story and curating for yourself really. So I think there is an interesting challenge around this in terms of games because are the games the tool of the curator or are the games something that people out there are going to create and produce.

This view seems to be more aligned with the ideals of new museology. By allowing or encouraging visitors to "create and produce" rather than "slip [learning] into a game" aids the minimisation of totalising grand narrative. In this way games may enable a visitor to find their own understanding of a set of information rather than be used in a 'spoon full of sugar' type approach.

Eric held a similar sentiment as is shown in his comment:

> I like the game approach to presenting information because it allows a lot more freedom of interpretation to every object. You're driving a visitor to not only make meaning out of it but to explore different aspects of it. If you get them to come at different angles I think that then a lot of that problem is solved. You're still providing background and support but in terms of meaning you're not requiring any preconditions of the visitor.

Eric's appreciation that games have the potential to support an individual's exploration of multiple interpretations of an object seems to neatly couple the learning and creative roles as given above. Exactly how to go about this is an area requiring a great deal of further research as Eric commented in our discussion: "How to do it is still where the field needs to go. It needs a better 'cookbook'."

Heather suggests that an approach to this might be a clearer acknowledgement of the game likeness of exhibitions themselves:

> I think exposing those slightly more core propositional or quest based aspirations of museum exhibits is a more interesting road to go down... I really like the premise of extending the

museum exhibit as a game, and therefore gamely manifests might be able to be slightly more embedded within structures rather than being seen as interactive after thoughts... I think the awareness of the game construction could be utilised and played with in a much more interesting way.

Michael offered a similar view on the acknowledgement of the game nature of exhibitions: "I wouldn't say museums are consciously saying when you come through the door at Te Papa you're in a game; which would be a really interesting concept for a museum."

When asked if Heather thought that the incorporation of games in exhibitions had been successful at Te Papa, she responded:

Yeah, I do. I think it's a really important part of Te Papa's brand in some ways. In terms of families knowing that there will be game play elements that it will be accessible. I think in terms of Te Papa being a welcoming exciting place that people want to keep coming back to its important that we keep doing that.

Part three: the success of games in exhibitions

Part three presents findings from the analyses that indicate the informants' views on the success of games in exhibitions at Te Papa. As shown in part one of this chapter the informants generally support the intentions of new museum theory. Frequently commented on was the desire to transform, inspire or enable visitors through learning. Comments were also made on the value of personal interpretation and the making of meaning which indicates an intention to be inclusive of the individual perspectives of visitors as well as be actively involved in developing communities. A desire for reflexivity did not factor highly in informant's comments about exhibitions although there were frequent comments made about the internal evaluation process in exhibition production as will be discussed in Chapter Three. Additionally informants indicated that they aspire to presenting, as best as possible, truth and knowledge through exhibitions. Part three discusses the topic of the perceived success of games in exhibitions by presenting comments interviewees made about specific game exhibits that they felt to be successful or unsuccessful.

Part three is organised around eight exhibits that were frequently referred to during the interviews. These exhibits are: the *Moa* and the *Survivor* exhibits in the *Blood, Earth, Fire* Exhibition; the *Build a Dolphin* exhibit in the *Whales* touring show; the interactive video wall in *OurSpace*; *The Poisoners* Exhibitions; the *Guess the Century* flip card game in *Slice of Heaven*; the *Pacific Beats* music mixing table and the *Kupe* sailing game in *Tangata o le Moana*.

In this section all of the exhibits discussed are referred to as games because, as indicated in Chapter One, the definition for games used in this thesis is that a game is a context engaged in with the intention to optimize the positive experience of play.

Moa game

When discussing the production of games which she had been involved with, Lucinda commented that the *Moa* game was,

> Trickier because there was more complicated information, like how would we recreate the call of the moa from the tracheal rings. So that's a reasonably complicated piece of information, but that was boiling it down to make a game so you can select from the length of neck in terms of what kind of call you're going to get out and what animal you would attract for that call... or how do you tell what a moa ate from the coprolites, how do you make a game out that? So people have to pick the seeds out and then grow them into plants. So that was trickier because there was reasonably complicated information that we had to boil down and make something fun with.

With the intention to find out more about how games are developed at Te Papa, I asked Lucinda to describe for me her recollection of the process of developing the *Moa* game:

> Most of the effort normally goes into working the game structure out. You may not know everything, and you do want to leave some room for the developer to add their skill, but you do want to get the basic concept and communication objectives of the game nailed, you spend the majority of the time doing that. Then we tender it out to different companies, which we have to do for government policy if it is over a certain amount. Then we chose the people who have the best response.

This comment illustrating Te Papa's approach to developing games is enlightening and may point to a potential difficulty in the production of games when compared to the following comment made by Jared:

We like to say that we're best utilised at an early stage of development of an exhibit. That's because we can marry up the concept with the technical parameters and create something that is a more holistic experience. Rather than coming up with an idea and it having to be watered down because it can't technically be achieved. It doesn't happen all the time but our work is best when that's happened.

These comments show that the preferred approaches of Te Papa and its service providers are somewhat at odds. That Te Papa prefers to do most of the game design in house before tendering out the interactive and aesthetic design work, appears to restrict service providers in producing their best work. This would not be a problem if the end result was the production of successful games. Unfortunately the criticisms below suggest that this is has not been case with the *Moa* game. Eric states:

One of the problems I have with a lot of the computer interactivity at Te Papa is that is not well contextualised. There is one in *Blood, Earth, Fire* in which one of the things you do is sort through moa poo to figure out what they ate. A mother was telling me the other day, they were in wellington, their child wanted to go to Te Papa to sort through the moa poo, which was great. But does that child know why that was even in there? Which is because we have the model moa on one side and the moa bones on the other side and we are trying to say that by using the dung over there, and sorting through what's in it, we can come up with the scene of what kind of habitat the moa lived in. But I don't think that that kind of thing is well made. To me the kinds of games that you do are so light on that you just have to wonder if there is much up take on the actual reason it was put in there.

This criticism of the game for not being "well contextualised" resonates with Jared's comment about producing a "more holistic experience". This comment from Eric, who had himself been a technical consultant on *Blood, Earth, Fire,* suggests that greater consideration should be paid to the cohesion between game exhibits and the objects and concepts in the exhibits around them. Jared shares this sentiment by criticising the *Moa* game for presenting unrealistic, or inauthentic, narratives around the scientific process presented in the game:

The premise here is that we know about a moa's life because we can find their poo. We can imagine what a moa would have sounded like because of certain physical aspects. These are simple things to convey. And again they've placed them into this game like thing that doesn't really have anything to do with the facts. The premise is that you have to find the things in the poo before you get out stunk... it just wraps it in this unnecessary fantasy stuff...You adjust the length of its throat, which you can't, and so you change the pitch of its voice, which you can't. "Oh no you've got it wrong and attracted a different sort of mate". I don't understand what the message is or why you would... again why would you wrap something in such a fantasy when there are ways of telling the information that would be just as engaging without telling lies.

Jared refers to this approach of presenting unrealistic narratives as the 'hand of god' approach. He believes that this approach is inappropriate for museums because, as he puts it, it is inauthentic. In considering Jared's comments about examples of 'hand of god' type exhibits, I believe that what he is objecting to is a lack of cogency between the narrative of the game and the scientific or historic view being presented. I do not believe that he thinks only authentic or factual narratives can be presented in museums, as will be shown in discussion on the *Build a Dolphin* game, but that narratives should be cogent with the academic disciplines from which the content of the exhibit is drawn.

While it can be seen that the intention behind the *Moa* game was to draw together and present in an amusing way the scientific processes used in research on moa remains, criticism of the game suggest that this effort was not successful.

Survivor game

Concerns similar to those stated about the *Moa* game were raised with regards to the *Survivor* game in *Blood, Earth, Fire*. The concept behind this game was described by Lucinda:

> What we wanted to do was create a great cross generational, fun experience that talked about the introduction of plants and animals into New Zealand that have basically wrecked havoc on the environment, in other words alien plants. And we did sit around and talk about all these different mechanisms of telling that story, such as an animated journey of a waka, and what you put in your waka and brought over, or your sailing ship from England. All these ideas came up to be quite 'worthy' and quite boring, so we had a bit of a brainstorm and we decided to go back to that first principle of being an alien in a different landscape. Which had the same effect as the animals in the case opposite but they added the fun element of creating an alien environment... We definitely wanted game elements and we worked with computer developers to make sure there is choice. We were very conscious that there was no way that you could win. You can survive but you would destroy the environment and that was definitely intentional.

Jared commented on this game by saying that:

> The premise here is a real leap. You have to become an alien that has come to an alien planet and has to bring certain things to survive. The learning outcomes are clear but the messages are strange. To me it's just unnecessarily confusing.

He continued:

It's just off brand, and it's just odd, when you could have made a compelling game like experience for a child that introduced the facts. This is a move so far away from the story of what we are about to experience that it's just completely redundant.

Jared's criticism of the *Survivor* game is that, as with the *Moa* game, its premise is too fantastic and unrelated to the history and science of the rest of the exhibition. Jared viewed the shortcomings of this game to be a feature of the briefing process. He made a point of indicating that his criticism was not directed towards the designers of the digital interfaces of the *Survivor* and the *Moa* games. He felt for their part they had done a really good job: "They did exactly what was asked for, the problem is conceptual. The design of these things is beautiful and they work really well and they're fun."

From a theoretical perspective this game has some further flaws. While the merit of the intention to make this game unwinnable can be understood from a learning perspective, it is significant to note that such an inability to achieve the goal of a game is not good game design practice. Flow theory shows that for a state of satisfaction to be achieved clear and direct feedback should be given on the participant's progress to achieving the identified goal. That the targeted goal is unachievable in the *Survivor* game shows that clear feedback on the player's progress is not given.

Build a Dolphin game

The third example of a game at Te Papa is the *Build a Dolphin* game produced for the touring *Whales* exhibition.

The *Whales* exhibition, I think that was very successful, they worked very much on making it cross generational, and there were a lot of computer games in there. I think that worked well.

Jared, who was the service provider commissioned to produce the *Build a Dolphin* game for the *Whales* exhibit, thought the game was successful but remarked on the difficulty he had in getting some of the game dynamics approved. Jared described the build a dolphin project in the following way when discussing his view on 'the hand of god' approach:

So what we needed to do was create something that a kid could learn about the hydrodynamics of a dolphin and what makes them such good swimmers, without them being able to change a real dolphin, because you can't. So we set up a premise and that was that you are a researcher and you have a robotic dolphin that can be manipulated in different ways and you adjust these parameters that will make it better at swimming.

In this comment Jared describes his intention to produce a scientifically plausible scenario which allowed for the manipulation of dolphin morphology. When discussing some of the difficulties that he thought Te Papa was having with what was proposed, Jared commented:

> I also don't like it when [in a game] there is a disconnect between your inputs and the results. They need to be instant, direct and instant, otherwise it's not interactive. Its click and go, click and go...That's what we struggled with; I wanted [participants] to be able to adjust the parameters and then see the results instantaneously. But for some reason [Ta Papa] wanted them to then go to another mode to test [their] design. Preferably I would have made it completely fluid, so it was a real physical system, where your results were your results.

By commenting on his preference to produce a "real physical system" Jared indicated the extent to which he sees a game environment should correlate to scientific understanding. This comment also shows that he has empirically identified the value of direct feedback in an activity in a way consistent with flow theory (Csikszentmihalyi 1990).

OurSpace

The game exhibit that interviewees were least impressed with was the interactive video wall in the *OurSpace* exhibition. As Heather commented: "For me it's an interesting concept but the experience of it is really underwhelming." Comments made about the *OurSpace* wall indicate that its main flaws are a lack of content, a lack of clear goals and an over reliance on technology. As Heather commented:

> I think for its time it was a massive achievement in terms of how you can use technology in a museum environment. Even since that time the technological advancements have been so enormous I think that's the challenge of investing in that kind of kit is that you don't know how long it will be until it is completely outmoded.

Eric's comments reiterate this: "The problem with *OurSpace* is that it relies so heavily on technology and there's nothing behind it, it's completely soulless, and I think it's a bit of a shame." He continued by suggesting that Te Papa was being too adventurous in exploring alternative display methods and that it lost touch with museological content in the process:

> I think that [*OurSpace*] is particularly unsuccessful in terms of there being so little content. I think perhaps Te Papa was wandering in the interpretation wilderness and getting big flash groups, which aren't museologists. It's much more showy.

However Heather commented that perhaps Te Papa was not being adventurous enough: "I really felt that it's is a huge old thing and I think Te Papa needs to be much more adventurous about the way it involves that kind of content as well as infrastructure development." Heather also commented on her confusion over what the goals of the exhibition were for the visitor and for Te Papa.

> I'm not quite sure what the end goal is. Is it to get as many photographs as possible to accurately reflect the way in which we capture or think through still images? How we reflect ourselves through what images we take. But it was kind of loaded and forced in that there was a whole lot of content fed in to get it up and running, and I really don't know what the take up of it is.

Comments made by Lucinda during our discussion offer some insight into why this lack of content and lack of focus may have occurred:

> I was on the original group that evaluated the two tenders for *OurSpace*. But after that [the new director of Experience] did institute a closed steering group, and Interpretation were not involved in any capacity. It was very much its own project and had no reference back to skills we had in-house... It became its own thing, and it doesn't work.

I asked Lucinda what *OurSpace* was intended to be about. She answered: "It was meant to be about national identity, who are New Zealanders. The idea that we had originally liked in Gibson's proposal was that people could contribute their own media to it. What it meant to be a New Zealander in the experience of New Zealand". This potential for visitors to contribute their own media to the *OurSpace* wall indicates the inclusive and co-creative nature that seems to have been at the heart of the project. But, as comments indicate, the final product has not delivered on this potential: "It doesn't fulfil any of the objectives originally proposed for it. In fact when they did a recent evaluation of it they couldn't find reference to any objectives in the paperwork. So there's nothing to test. Did it fulfil its objective? Well there aren't any". The reasons why the new museological intentions of inclusivity and co-creativity were not able to be capitalised on in the production of *OurSpace* is a topic worthy of further inquire, as it seems Te Papa is undertaking. But the comments given in this study suggest that a significant aspect was that too great an allowance was given to the service provider and too little assertion of museological intent was made.

Responses given indicate that the *OurSpace* video wall is considered unsuccessful by interviewees who commented on it. Even David, who had been involved in its production and was predominantly proud of the result, voiced some reservation:

> To be critical about the result, there are two ideas; one is whether or not people would be comfortable to be creative in a public space and the other was the last minute inclusion of the cameras, because it made that the default mode of expression. It turns it into a photo booth. What that has done is undermine what could have been.

It appears that a feature that significantly contributed to this is that *OurSpace* was produced outside of the usual museological assessment process that exhibitions at Te Papa are normally subject to. That *OurSpace*'s main failings are its lack in content, clear goals and it having too great a reliance on technology possibly reflects this lack of assessment process.

The Poisoners

A significant counter point to *OurSpace* is *The Poisoners* exhibition because the circumstances of its production meant that it too was subject to relatively few assessment procedures.

> *Poisoners* exhibition came as a directive from Nigel Cox (director of Experience at the time), he said we want to do an exhibition on natural history, with a miniscule budget, it has to be a block buster, it's got to be educational, popular but also have some meaning...It had to cover this huge range of things for almost no budget and that is actually why we made it into a game, because the audience will actually drive the exhibition content themselves.

In this comment Eric indicates his view on the potential that games have for scaffolding interactions that enable participants to become active within exhibitions and build the content for themselves. This want to incorporate user driven content is similar to the intention behind the *OurSpace* video wall. A significant difference between these two exhibitions is that *The Poisoners* offered a structure within which visitors could navigate. The design of *OurSpace* was antithetical to this and refrained from offering any indication of what was intended from the interaction even though there was a clearly briefed intention to explore New Zealand identity. A second interesting feature found the comparison of comments on *The Poisoners* and on *OurSpace* is that they both share production processes greatly

alleviated of the normal assessment processes. *OurSpace* because of its director's want to outsource

its production and *The Poisoners* because of budgetary and time restraints. As Eric commented:

> Financial constraints gave us boundaries that we had to work within, but which were ultimately very useful... Partly because it meant that we could cut through a lot of the red tape that Te Papa almost always has. We didn't have to do the several iterations of huge planning documents and things like that, and it was very successful.

This perspective was reiterated by Heather in her comment on the legacy of *The Poisoners* within the

culture of Te Papa:

> [*The Poisoners*] which I didn't see but which for all intents and purposes was a really great project for people to work on. It's been held as one of these kind of under the radar projects that didn't have to go through all the formalised development processes but was able to be much more free associating and risk taking and fun to make as well as fun to experience.

Lucinda's commented on *The Poisoners* exhibition with a similar sentiment to Heather:

> Yeah, that was incredibly successful, and there is a real desire to repeat that…Now there is a lot of will to repeat it because it worked really well. The thing that really made that happen, apart from Nigel, was that there was no money. So it was just people getting creative, and the staff loved doing that, they were working from 7 in the morning to 10 at night gluing little soldier figures together. Not just because it was necessary but because they loved it. It was fun. It was a playful exhibition. Which really reflected the playful nature of the people who worked on it.

Eric's views of the potential for game based exhibition methods were expressed in the following way:

> It's been such a popular concept subsequently that I think that exhibition games really ignite people's excitement and involvement. Given the whole movement of the engaging museum and interactivity it gives another tool in the toolbox options that you can use.

Having seen first-hand the success of *The Poisoners* and that its success was largely due to the

minimisation of assessment processes, Eric remarked: "I think it showed that the Te Papa planning

process could be looked at critically". By this Eric suggests that Te Papa's planning process can at

times be oppressive and restrictive in the production of successful exhibitions, and in this instance,

game based exhibitions. But the 'critical look' that Eric suggests should include the example of

OurSpace in which assessment measures were also reduced but did not produce as successful a result

as *The Poisoners*. An aspect that is pertinent to this is the point that *The Poisoners* was produced in a

museologically focused environment where as *OurSpace* was produced in a Media oriented one.

Guess the Decade

The most recently produced game at Te Papa that was discussed by the interviewees is the *Guess the Decade* flip card game. Lucinda described: "For the twentieth century exhibition we developed a game where you pick the decade from a lot of photos. So it was a bit of a guess, you had so many options and you could just guess it, which has actually proven to be really popular." Jared agreed that this exhibit was successful by saying it was, "Kind of cool though, well executed" and that, "This fulfils all of the requirements. This is a game." These comments suggest that the *Guess the Decade* game is a successful example of games in museum exhibitions. Lucinda told of the development of *Guess the Decade* as being,

> A reasonably easy one, conceptually. When the idea came up everybody said 'Oh yeah, that will work really well'. In terms of guessing the decade from these particular photos, the researcher had come up with thousands of photos, so it was actually quite an organic process. We did work out the structure and thought that we'd use cards. But that one came relatively easily.

I discussed with Jared the merits of making a screen based simulation of a real world game of cards as has been done in *Guess the Decade*, he replied: "You could just have physical cards, usually anything that a visitor touches or can move dies. A lot of the time digital things are used to simulate stuff." It is striking that Jared would be so relaxed about the idea of digital interfaces being used to "simulate stuff" given his ardent assertions that museum exhibits "need to have a sense of authenticity". As suggested, I suspect that Jared is perhaps extolling the merit of cogency in exhibits rather than authenticity. But given that *Guess the Decade* has a circus or fairground theme, set to a sound track of Victorian era pipe organs playing the 1897 Czech composition "Enter the Gladiators", one wonders whether this aesthetic is particularly cogent with the exhibition's theme of twentieth century New Zealand? Perhaps something like an 'It's in the bag' game show type styling might have been better fitting.

Another comment made by Lucinda pertinent to this discussion regards the learning outcomes of the *Guess the Decade* game and that it was more about, "the pure enjoyment of quizzes." This acknowledgement is important because, while it is a successful game, the *Guess the Decade* game

might not be a successful museum game. As previously stated Lucinda believes in the value of "the pure enjoyment of doing." to be a valuable aspect of games in museums, but that she also believes "learning is a very important part of what we do" suggests that a successful game would combine the elements of enjoyment and learning.

It can be seen that the Guess the Decade game is easily recognised as game because it uses the imagery and connotations of playing cards and employs the tried and true game structure of a quiz. While it works as a game, is recognisable as a game and is enjoyable as a game it does not fulfil other features stated by informants as being aspects of a successful museum game.

Pacific Beats

In a similar way to *Guess the Decade*, the *Pacific Beats* in *Tangata o le Moana* engages visitors in an enjoyable interaction but is light on educational outcomes. As Jared, the producer of the table, commented when asked if there were any educational intentions behind the exhibit: "No, this was purely experiential, just a way for people to experience and appreciate." Jared also stated that: "This is play, it's not a game. There's no fixed outcome it's a set of parameters that you can be creative within." As Sean commented it's, "more of a database." Agreeing with this view Eric stated that it's, "not really a game, more of an *interactive*. You don't change the state of it in anyway; you could play it like a player piano... It should have a more intellectual, more satisfying outcome." But Sean offered a counter view to this. He commented that:

> Some exhibition interpretive media didn't really have a strong brief with defined learning objectives; however, they had some really positive outcomes. One of the most successful ones is the Pacific Beats music mixing table because it brings people into the space, they figure the table out, they enjoy it, it's a group activity. There's no strong learning thing for that, it's just an experience that you can enjoy and have in the space. It's those little moments, those memories that people take away from the exhibition that have some value that I can't quite pin down but people will always talk about it.

The significance of Sean's comment is that it foregrounds the importance of satisfaction through collaboration rather than intellectual satisfaction as Eric has. Jared noted that:

The interesting thing here is that this is something that it is actually multi-user. You will see unrelated groups of visitors come in and will start socially interacting through devices like that. And that's something that museums should try to encourage through games.

These comments frame the challenge for museums in their task to incorporate games into exhibits. This is the challenge to create engaging, enjoyable activities that are socially and intellectually satisfying. Experiences that at times are open enough for people to explore and create and at times are focused enough motivate people to achieve a specific goal.

Kupe sailing game

The game that had been on display the longest was the _Kupe_ sailing game in the _Tangata o le Moana_ exhibition. Sean told that the _Kupe_ sailing game: "was part of the original suite produced for Day One, a company did all that work. They had very structured learning objective." he continued by describing the history of the game:

The _Kupe_ sailing interactive had a good life, it started off in the Mana Whenua exhibition, we recycled it, it got visually enhanced once, and then once again for the Tangata o le Moana exhibition. But it's still well behind the quality that kids are used to at home on Playstation or X Box, but it had some very simple learning objectives which I think transferred really well to people who actually made it through the game. And that's why we recycled it.

Sean later lamented the efforts made to try and keep up with the pace of development in commercial computer games: "It happened with the Kupe game, we tried to upgrade when we should have stayed retro... In hindsight the more stylistic version of Kupe produced for Day One in Mana Whenua would still hold up today, where as they've tried to go more realistic." While walking around some of the exhibits during our interview Jared commented on the _Kupe_ sailing game: "This is real quite old but it's actually real time graphics which is actually quite interesting... there is quite a bit of effort in making this."

When commenting on the game nature of this exhibit Jared remarked: "It's completely linear, you can't diverge, that is just an interactive narrative to me, without any sort of game like qualities, 'cos you can't make any mistakes." But Jared became less sure when asked if this linearity and non-

divergence was a feature of it not being a game or a feature of it not being a good game? "I suppose it's just not a good game, 'cos it does have what I would call a game, which is a fixed outcome, but you can't improve your result you either get there or you don't. Yeah I still don't think that that's a game."

Summary

As shown in the discussion in part one of this chapter, interviewees predominantly viewed exhibitions to be contexts in which visitors develop understandings and meanings of objects and knowledge. By and large respondents thought this development of understanding of meaning occurs through a complex weaving of personal perspective with the information presented. This view is consistent with the theories of the new museology but, as has been indicated, may not yet be part of the understanding or expectation of visitors. Interviewees also indicated that they saw exhibitions as having developmental or educational qualities but that this education is best achieved when the information presented is open ended and not a didactic one way transmission of information. Some informants preferred the term 'transformational' and thought that exhibitions should evoke an emotional or philosophical development. Comments were also made indicating that exhibitions were intrinsically rewarding and that the growth of a visitor was best through active or collaborative interactions. In these views we can see that the group interviewed was fairly unified in their understanding of what exhibitions are and that their views align with the aspirations of new museum theory. One notable exception to this was Jared who held that exhibitions are presentations of 'authenticity' and authority. It is worth acknowledging that definitions may not always be synchronous between museums and their service providers. In this way Jared's use of the term authenticity may not have exactly the same meaning as when the word is used in museum studies literature. It will be shown in Chapter Four that Jared seems to value the cogency that an 'authentic' object or experience offers. While describing successful and unsuccessful aspects of games in exhibits it becomes apparent that it is a cogency with

perspectives on history and science that Jared deems to be authentic rather than the word's connotations of truthfulness or fact.

When considering the role of games in exhibitions, informants reported that they see games having the valuable ability to produce compelling experiences. They viewed games as supporting learning by extending a visitor's engagement period with an exhibit and by engaging various modes of learning. It was also suggested that games may have potential in enabling visitors to be creative and productive in exhibitions and that games allowed for greater freedom of interpretation of objects and information. These views show that the informants understand that games have value in the implementation of the goals of the new museology.

While the interviewees reported that they see potential for games to support learning in compelling and accessible ways, this chapter has shown that in their opinion games at Te Papa have for the most part been unsuccessful in achieving this. This finding brings into focus the importance of establishing effective game production and assessment strategies in museums so that the potential of games may be more effectively utilised. The following chapter now turns to an inquiry of which specific aspects of exhibition production at Te Papa inhibits the success of games.

Chapter Four: Factors that inhibit the implementation of games

This chapter identifies the features of exhibition production that informants perceive to hinder the successful integration of games. It presents comments specific to the issue of implementing games in museum exhibition practice. The primary aim of this chapter is to suggest areas of further research that may be fruitful in the process of developing practical strategies to successfully implement games in exhibitions at Te Papa. During the interviews informants were asked what factors they perceived acted to inhibit or enable the incorporation of games into exhibitions. The following comments have been drawn from this line of questioning and from comments made when discussing other topics which have relevance to this issue. In the analysis two main themes were identified among the interview comments as being the most significant inhibiting features of Te Papa's production process. These are the perceived cost of producing games and Te Papa's exhibition evaluation processes.

The perceived cost of games

As noted in the literature it is increasingly important that museums are fiscally responsible and operate within increasingly narrow margins. For Te Papa the significance of being seen to provide value for money is great given that its funding comes predominantly from tax payers via central government. As Sean comments "When public money is involved it is important to look closely at who the audience is and what they may take away with them from an exhibition." With regards to the implementation of games in exhibitions Sean raised three points for consideration. One was the cost of production of games; another was the cost of maintenance required for an exhibit and the third was the rate of redundancy of an exhibit and the associated cost of refreshing an out of date exhibit. I have used these three points as sub-headings in the discussion on the perceived cost of games

The cost of production

During my talk with Sean I had the impression that he was mainly considering the topic of games in museums as being an issue of computer games in museums. He commented that this was an area he had spent time considering as is indicated by his comment "If kids fight the terrorists on their Play Station or fly attack helicopters on their PC at home, what do we have to produce to engage them here in the museum?" This is by no means an easy question to answer. If the public are familiar with the level of production quality experienced in commercial computer games then how receptive will they be of productions that are not of that level? I believe that it is this apprehension that fuelled comments from other informants such as this made by David:

> I don't think funders are really ready for the expense of producing that sort of thing. I think the potential there is enormous to create something which communicates your ideas during the course of play where people are absolutely hooked on playing but get the message.

As Sean commented: "It became more and more difficult to keep up with the quality of mass-produced games and the time people had to play with them at home." But this anxiety may be mollified by expanding the consideration of what games are from just computer based games to include non-digital productions. As Eric points out in his description of production of The Poisioners exhibition, game structures in non-digital formats can be used to great effect in low budget exhibitions

> *The Poisoners* exhibition came as a directive from Nigel Cox. He said we wanted to do an exhibition on natural history, with a miniscule budget, it had to be a block buster, it's got to be educational, popular but and also have some meaning... and it has to be cross generational… It was basically trying to stick everything possible in to a very, very lean budget that was probably about ten percent of an ordinary budget.

Eric went on to describe the development process and how he identified the development of a game structure for the exhibition to be the best course of action. "What I did was, probably because I come from a science background, I sat down and made a list of all the constraints and thought 'what is the model that ticks off all these different constraints?" Eric stated that the game structure was really the only iteration in the design process. He felt that given the constraints, to produce the exhibition as a game was really the only approach that would work. He continued his description indicating that the constraints turned out to be beneficial to the project. As already shown, Eric found the financial constraints aided that project by allowing the development team to avoid having to complete the usual

planning documents required. Like Eric, other interviewees commented on games as having a cross-generational appeal, Lucinda commented:

> The *Whales* exhibition; I think that was very successful. They worked very much on making it cross generational and there were quite a lot of computer games in there, I think that worked well. We try and do [games] whenever we have a cross generational exhibition we try and make sure there are things in there for kids. I'm not saying that computer games should always be aimed at children. I think it's really fun to do some for adults as well. But generally it's for kids.

I asked Lucinda why she thought there is this common perception that games are primarily for children.

> The other thing that would affect the effectiveness within the exhibition would be the size of the team. Generally you would have a close working relationship with a curator, concept developer, interpreter, and project developer with a designer; would be the core team from early on. But for something like the Oceania exhibition there were eight curators on board and that makes it difficult when everything is a democracy, you have to fight very strongly for your area of responsibility.

These comments suggest that the term "cross-generational" is most frequently used to indicate that within an exhibition there will be something for each generation. Within an exhibition that is cross-generational the prevailing approach appears to be to incorporate games, particularly computer based games, to make an exhibit more appealing to children. While this is not an entirely inappropriate approach it does however overlook the point that the average age of computer game players in New Zealand is 33 years old (Brand 2010). It appears that, if nothing else, the assumption that games should be for children represents a missed opportunity for museums to engage an important segment of their audience.

The key features that can be drawn from these comments are that games are often assumed to be too expensive to produce. This is generally based on the assumption that games should be digital and should keep pace with commercial standards. It has been shown that successful games in exhibitions need not be digitally based nor expensive to produce. It has also been indicated that given the associated costs, the production of computer games for exhibitions is usually only employed in support of child oriented learning outcomes. While this strategy is effective in attracting the attention of children who, given their youth, are not as competent at reading or interpreting as adults, it does not account for the national statistic that the average computer game player is in their early 30s.

The cost of maintenance

The cost of maintenance is a strong theme running through the interviews. Sean explained that "When we started out there was a lot of emphasis on creating mechanical interactives in exhibition spaces, the strongest focus for this was in the Discovery Centres." Sean commented when asked to describe instances of games being incorporated into exhibitions at Te Papa. "Over time these mechanical *interactives* required a lot of maintenance." It is well known in the museum sector that the public are remarkably destructive of mechanical aspects in exhibitions. Anecdotally, a colleague once remarked that he would engineer a gear mechanism in an *interactive* – intended to be used by primary school children – using tractor parts so that it would be adequately durable. Sean noted that it was his view that this on-going cost contributed to the institutional attitude towards this style of exhibition. As he put it: "I think the durability and the maintenance required worked against the incorporation of mechanical interactive in long term shows." It is not suggested that all games need to be interactive in this way but it is certain that some exhibits would benefit a high degree of kinetic engagement. Therefore it is beneficial to identify approaches that can enable kinetic engagement that are durable and that do not require perpetual remedial actions. In this way comments made by Jared may offer avenues for further research and development in the area of producing exhibits that are resistant to the destructive tendencies of the public. "Your system needs to be robust, discourage that kind of behaviour in some way. But even that sort of behaviour needs to have a result, either a good or a bad one." Jared offered his thoughts on his experience of producing an interactive game table for the New Zealand Maritime Museum. The table was a multi station game in which a solo participant or a team of up to six had to work together to sail a virtual America's Cup yacht around a course. In this exhibit each station had an interactive element that replicated real tasks on a yacht.

> An interesting thing about some of the systems we've produced is that they have forced feedback. In *Blue Water Black Magic* we used magnetic clutches in the helm that work just like anti-lock brakes in a car, so the wheel is actually free swinging... The software is constantly looking at what is going on and putting the correct amount of drag on something. So then if they want to just drive it over it allows them to, it doesn't ever stop it, because it will break... So there is no connections only magnets so; it's incredibly robust.

This example demonstrates the significance that recent developments in digital technology may have in the use of mechanical interactivity in museums. While mechanical interactivity has in the past been highly problematic with regards to users exerting too much force in their exploration of the object, it can be seen that a combination of mechanical and digitally controlled feedback may produce interactions in which participants no longer feel compelled to be quite so rough.

The rate of redundancy of games

The third topic associated with the perceived cost of incorporating games into exhibits is the issue of how quickly they lose their relevance for visitors. Sean pointed out "The speed of technology definitely impacts the life span of games here." This comment was made in conjunction with Sean's previous statement about museum games needing to keep up with the quality of games that visitors have at home. But Sean contradicts himself with his comment stating that the *Kupe* sailing game had in fact remained on the show for over ten years running. This comment shows that games can have quite a long life span - in this case spanning two long term exhibitions – and that because the objectives of a museum game are different to a commercial computer game the need for them to 'wow' a user with high technology is not so great as Sean's subsequent comment indicates "In hindsight the more stylistic version of *Kupe* produced for day one would still hold up today, whereas they've tried to make [it] more realistic." This suggests that efforts to keep pace with commercial graphic quality have worked against the success of this game. This illustrates how important it is for museums to be conscious of their difference from the commercial game context. It illustrates the danger in relying too heavily on the newness of technology to evoke awe and intrigue in visitors. This observation is supported by a comment of Eric's in which he stated:

> What Te Papa is criticised for sometimes is that they sacrifice some of the depth for the glitz and that comes through time and time again. And that is in some ways by design. That the founding philosophy was trying to do something new.

While this comment extends beyond the specific topic of games in Te Papa it does touch upon a closely related matter, that being the incorporation of new media into the museum environment. A

significant recent example of this is the *OurSpace* wall at Te Papa. When asking David about Gibson

Group's approach to 'future proofing' the wall to avoid technical redundancy he answered

> I think it's really to do with familiarity. There is a kind of myth that goes around about
> newness, I think. 'new' is a relative term, if you've not seen it before, it's new. [To] visitors
> who are coming to Te Papa for the first time, it's all new. We avoided using technologies and
> visual cues that were tied to anything that people would be familiar with.

Within this line of reasoning there appears to be a number of philosophical and pragmatic flaws. The

first, and most obvious, is that this approach seems to be targeting visitors on their first visit to Te

Papa. To place such emphasis on the unfamiliarity of the technology used seems to place in jeopardy

the quality of a visitor's experience on their subsequent visits to the exhibit. This approach seems to

favour international visitors who experience the exhibit once and then return to their home countries,

but does not account for local visitors who, once familiar with the 'new' technology, have to find

other meaning in the exhibit for the remainder of the exhibition cycle. This may be up to a decade as

is expected for *OurSpace*. David commented on the technology used in *OurSpace*:

> We push everything to the limit. Most people's experience of computers is that you're buying
> budget, lower-end hardware. So, you know, maybe in half the life time of the project – maybe
> three or four years – the average punters machine has caught up, but they won't be running
> that software.

David acknowledges that the 'freshness' of the hardware has a three to five year shelf life, but stated

that the software used will remain unfamiliar.

> The other thing about that software is the level of integration. If you think about the video
> wall, there are six machines behind the twelve panels and you can take a piece of media and
> drag it across all these screens and you can do this in a multi user environment. You will
> never ever see that on a desktop machine because there is no need for it. So I don't see that
> stuff dating in the same way. It can't. It will never be familiar.

David is quite probably right in stating that this kind of interaction will never be seen in a domestic

context, but he seems not to account for the rate of uptake of this technology in commercial

environments. At a conference in 2010 I viewed a presentation of a gesture responsive interactive wall

– very similar in nature to the *OurSpace* wall – being developed for use in an outdoor clothing store.

Anecdotally I have also heard of a similar wall under development for use in a bank foyer. In this way

such technology is likely to become incredibly familiar in the very near future and will probably

become highly loaded with commercial and marketing connotations. Such connotations may impact

greatly the interpretation of the *OurSpace* wall in the near future. Admittedly, one can never be sure

of how a new technology will be integrated into society and that to avoid innovation out of fear of

how such social integration may occur could easily lead to stagnation and traditionalism. However the

preceding discussion does illustrate the need to avoid heavy reliance on the 'newness' of a technology

to produce the awe and intrigue of an exhibit especially in long cycle exhibitions. However this view

contrasts comments made by David during dialogue on new technology: "If you're trying to do

something new, and want it to stand the test of time, you want it to look fresh after so many years.

You can't use something that is out of date on the day you install it."

This comment suggests a possible divergence of intention between media oriented and museum

perspectives. David's view that an object has to be up to date at the time of installation seems to be at

odds with the historical nature of museums. One would think that the presentation of 'out of date'

objects is the basis of much of a museums activity. Granted, David was referring to presentation styles

and without a doubt there is valid argument for presenting old objects in new contexts. But the point

remains that this approach of making a presentation as new as possible should be made consciously

rather thanicic just assumed.

I have used David's comments above provocatively to illustrate the need for museums to develop

their own strategies around the use of technology and in particular game technology. I have no doubt

that David's approach is highly effective in the fast changing media industry that he and Gibson

Group are primarily involved in. However such strategies may not translate effectively into the

museum context. Therefore in-house awareness of the issues is vital in order to effectively assess

proposals received from service providers that may be oriented toward non-museological contexts.

Te Papa's exhibition evaluation processes

The second feature of the production of exhibitions discussed in relation to the inhibiting factors on

games at Te Papa was the exhibition evaluation process in the development of exhibitions. While

informants generally saw the value of monitoring the production of an exhibition to ensure that

guiding concepts and intentions are being fulfilled, they also voiced concern over the effectiveness of

the way that the current model was being implemented. This is a complicated and wide reaching issue

that cannot be fully explored in this thesis. The following discussion does not therefore attempt to

present conclusive arguments on the causes of the current difficulties but allows the interviewees'

comments to illustrate a correlation between assessment processes and the difficulty of implementing

games. These findings suggest that there is great need for further research in this area as the issues are

complex and seems to affect a wide range of the museum's operation.

Sean commented on the extensive briefing documents that had been required as part of production of

exhibitions and in particular interactive elements. He states "I'm not sure if the briefing process made

better exhibitions but it did make you think and work towards clear objectives about what you

intending each interactive in the space to achieve." My impression was that Sean's attitude seemed to

be generally in favour of the briefing process and that he had misgivings about the demise of

comprehensive briefing

> The briefing process was very thorough, it is now inconsistent... The big, expensive products
> are still briefed, but a lot of the smaller productions are developed less formally.

Others of Sean's comments indicated that he also saw the value of less rigorous approaches to

producing exhibitions and interactive exhibits:

> Some exhibition interactives haven't had strong learning objective driven briefs, but we've
> had some really positive outcomes. One of the most successful is the Pacific Beats music
> mixing table because it brings people into the space. They figure it out, they enjoy it; it's a
> group activity. There's no overly determined learning objective for it, it's just an experience
> that visitors can enjoy in the space. It's these little moments, these memories that people take
> away that have some value that I can't quite pin down - but people always talk about the
> interactive and refer to it.

This suggestion of an unquantifiable or ambiguous quality to exhibits has great resonance with the

topic of this thesis. To incorporate games that evoke play is what is being suggested and, I believe, is

what Sean has identified in the comment above. The question is how to intentionally incorporate such

games so as to achieve a reasonably high degree of certainty and consistency in their application. This

is something that Sean appears to also be considering

> I look for moments where you can entertain an audience and I've learnt that that is a very
> valuable part of exhibition development. When I first started out I thought that every

interactive, every piece of media, every display had to have specific learning objectives. But I'm a lot more relaxed about it now because I think I've come to appreciate the different ways people use exhibitions and how they experience museums, and sometimes the most frivolous fun thing can do a lot of work.

The remainder of this section presents and discusses comments regarding the committee based assessment in exhibition development, visitor market research and user testing of exhibitions under development and the level of in house expertise in game development at Te Papa. These three topics have been identified as the most significant and frequently referred to by informants in the interviews.

Committee based evaluation

As already stated, *The Poisoners* exhibition was a highly successful game based exhibition which has been frequently cited as being an exhibiting style or method that Te Papa would like to replicate. Eric, who played an instrumental part in the production, commented on the difficulty for Te Papa in producing more exhibitions like *The Poisoners*:

> I've seen the success first hand, whereas with the turnover at Te Papa there's not that many people who actually worked on *Poisoners* left. Really I think it comes down to the cumbersome exhibition process.

A point that Eric was adamant about was that the success of *The Poisoners* was reliant on the exhibition production team having a single driver. When asked what he saw to be the blockages to producing good games in exhibitions Eric answered:

> In order to produce a game you need one person driving it... In *Poisoners* I had the role of concept leader; they have gotten rid of that role in an exhibition development sense. It was like I was a film director. Exhibitions and films are very similar, in terms of their process and structure.

It is interesting to note that this attitude seems to contradict the ideology of new museological theory. Striving for consultation, collaboration and inclusivity, the new museological approach aspires to having less singularity in the production of exhibitions and more collaboration between practitioners and communities. But comments made by informants suggest that the collaboration and consultation is not necessarily conducive to innovation or development. As Lucinda commented:

> The other thing that would affect the effectiveness within the exhibition would be the size of the team. Generally you would have a close working relationship with a curator, concept developer, interpreter, and project developer with a designer; would be the core team from early on. But for something like the Oceania exhibition there were eight curators on board and that makes it difficult when everything is a democracy, you have to fight very strongly for your area of responsibility.

This sentiment is echoed by Eric in his comparison between *The Poisoners* exhibition the production of the *Blood, Earth, Fire* exhibition.

> As an example, I worked on *Blood, Earth, Fire* not as a concept leader but as a subject expert. I think that it didn't really have a strong central guiding hand. It was an exhibition by committee and I think it feels like it, and I think most of the exhibitions in Te Papa have that kind of diffuse feel where there is a lack of personality.

This idea of exhibitions having personality, and that this personality is a valuable quality, is interesting. It suggests that a degree of uniqueness, idiosyncrasy and perhaps peculiarity is something that contemporary visitors value in their museum experience. This sentiment has strong correlations to the Gould's description of adaptive variability in which he cites 'quirkiness' and 'unpredictability' as admirable evolutionary traits (Sutton-Smith 1997, 221) .

Lucinda offered an insight into why these large groups of collaborators can at times inhibit the goals of the project inadvertently

> One of the issues here is clear lines of responsibility. Officially we have responsibility for some areas and then input into others but that can get a bit muddied. The project manager also has to have a bit of responsibility for managing that demarcation. In the end the person who is expert in an area should have the say rather than leaving it open to people who aren't expert in the area.

But this clarity of responsibility becomes difficult in Te Papa's collaborative groups. From outside the institution the committee process can appear to be confusingly opaque. As Jared commented:

> I'm always confused about how people get selected for work. When you present an idea, which you're really passionate about and you throw yourself at, and they say 'no sorry' and then you see what does get accepted. Sometimes I wonder how did my idea not go through and how did that get produced? You then talk to them and a lot of the time it could be that one person picks up on one part of the project and says 'that's not acceptable'. There are a lot of people and everyone needs to have their say and one person could veto a very good idea.

Lucinda's following comment suggests that she too sees the consultative nature of Te Papa's exhibition production at times result in risk adverse solutions.

> Sometimes I think in an exhibition process, when it is internal stake holders in Te Papa, we can spend years talking about things and that can water down the product. It can be just slightly over thought and possibly risk averse as well. When so many people need to be consulted to approve every idea it can be a bit of a leveller. Although you know the quality will be very good, it can impact when you are aiming for excellence because you can't always take those risks.

I asked Lucinda if she thought staff found this frustrating.

> Yeah, it does take a long time to do stuff at Te papa, the process is really good in that it makes sure that everything that gets out on the floor is really high quality but it does mean that it's hard to be fleet of foot, and hard to experiment and try stuff out. Some of the smaller institutions are working with iPads and trying that out, where as it takes us an awful long time to go through the process of being able to do that.

Other informants encountered problems with the consultation process at Te Papa in different ways. When discussing the need for cohesion across an exhibition Jared remarked on the way that aspects of the production process seemed relatively under considered: "You'd be surprised, you're never actually asked to look at the design or the aesthetics of the overall experience and make sure that yours matches up." If this is so then it is not difficult to understand why, as Eric commented, exhibitions at Te Papa often feel like they are produced by committee and have "a lack of personality". While discussing risk taking and innovation in museums I asked Jared what he thought contributed to an institution's willingness to be open to taking risks. He answered: "To me it feels that a lot of people feel squashed by this place. It is our one national institution like this and it is big for New Zealand, and I think it weighs heavy on a lot of the internal staff."

User testing and visitor market research

This section discusses comments made about the effectiveness of user testing and visitor research conducted at Te Papa. It will consider some of the difficulties in conducting these tests and the role that such surveys play in exhibition production.

From the responses it can be seen that there are two areas that cause the interviewees concern. One is the pre-installation user testing intended to resolve any interface usability issues, and the other is the review of an exhibition's success after it has opened known as the summative evaluation. Each phase

of testing has its own challenges. As will be shown the pre-installation testing does not generate reliable testing scenarios and is not responsive to the production process. Concerns were also raised by informants about the post-installation evaluation process. Responses indicate that the current methods used in this evaluation may not be collecting as much information as they could, information that would be useful to the development of subsequent exhibitions.

When discussing the user testing process, David commented on the development process of the *OurSpace* wall and the interactive wall developed for The Museum of Copenhagen.

> We had prototypes which we could get people in and test stuff, but you never get the complete thing in situ. So any kind of testing that you're doing is really full of assumptions. We've got a screen through there and if you go through and play with that screen, you get a certain kind of experience. But if you're standing out in the middle of a square and maybe its winter or maybe there are crowds of people around and it's noisy and there's people on bicycles. That's a totally different experience. You can't assume that the results that you get from one are going to apply in the other. But of course there are some things that do test well, like if somebody doesn't understand how some particular widget is working in a GUI (Graphic User Interface), you can be fairly sure that it isn't going to be any easier out in public.

As David went on to point out one of the biggest inhibiting factors regarding user testing is the client institution's anticipation of everything being resolved by opening day. "I guess what I'm saying is that user testing is fundamentally important, but unfortunately in the museum area, and with spending large amounts of public money, often people are worried about opening day being as soon as possible or as soon as its finished." He continued:

> The problems are that if you're having to build new things in the prototypes you often don't have everything all at once, especially in a project like *OurSpace*; you're doing things in parallel. So for really useful user testing that could have a real impact on the UI [user interface] you would have to convince the client that once they had the product, which they've paid an enormous amount of money for to be delivered on a particular day, that you weren't going to open it to the public for a couple of weeks while you did user testing and made some changes. It's never going to happen.

The question that this raises is why an in situ testing process cannot be incorporated into the exhibition production? Such a feature would be similar to the software industry's practice of 'beta' testing new products. This process of trialling products on actual users could engage a limited audience or the general public to try out and give feedback on their experience of that product. This practice would offer museums valuable real world data on how visitors use and respond to their

products which could inform remedial actions. It would seem that if an exhibit is going to be in place for ten years, or is intended to be toured, then surely it would be worth spending even a month tweaking the exhibit once it is up and running? This process would also be an opportunity for community participation. For members of the specialised or general public to be consulted in a direct and meaningful way would generate a great deal of buy in and good will.

While the benefits of such an idealistic proposition are clear, its implementation would most certainly require development in order for it to become a truly useful part of the exhibition production process. Some issues for consideration could be that opening the process up to yet another layer of consultation may simply act to exacerbate the difficulties with committee consensus or, as interviewees noted, other more practical concerns may continue to prohibit its usefulness. David remarked:

> The fundamental issues are: one is, of course nobody wants to delay the opening of the project. Two, there have been a lot of commitments by the time you get to that point and delivered something. There have been a lot of commitments to particular ways of doing things and it's very difficult to back out of them. If you go 'oops, that looks like we could have done it better' then you're going to be pushing shit up hill.

And as Heather commented:

> It so hard to get anything changed once an exhibition is up because the project budget effectively ends. There is a modest sum of money put in for enabling conservation change outs and very basic maintenance issues. Whereas that ability to respond to visitor feedback or live with it for a month of two months and say 'this is really not working, we've got to revisit it or tweak it', Phew!

Heather views this issue of making changes to 'finished' exhibitions as being systemic in institutions of Te Papa's kind.

> I think it's symptomatic of institutions that have a rolling program of exhibitions because immediately the resources shift on to the next port of call. I think it is also a feature of this institution and of how there was so much effort put into the development of this new model of institution and focus on day one, that after it opened the new challenge arose, that being what to do once it was open.

The process of visitor research also concerned the informants, particularly with regards to Te Papa's current process ascertaining the success of an exhibition once it is on the floor and open to the public.

While discussing his thoughts on museums being socially transformative, Michael expressed his

misgivings about contemporary visitor research practices:

> If you look at the classic visitor research questions that we ask here it is 'how did you enjoy your visit?' and this is asked in every museum in the world, and with one or two exceptions, I can tell you now, you are going to get 96% to 98% satisfaction rating. A slightly more sophisticated question would be 'did you learn anything today'. All of a sudden it drops down to 50% to 60% saying 'yes'. The question we don't ask is 'in terms of your visit here today, has it or will it change your attitude or your behaviour'. I imagine that if we did we would probably be down in the 3% or 4% range.

This is a clear indication that Michael believes that the prevailing surveying methods do not probe

sufficiently deep to ascertain the level of affect that museums have on their visitors. Lucinda's

comment also indicates that she sees shortcomings in the current testing methods:

> I think there has been a tendency to do a lot of counting and doing quick interviews on the way out and people probably tend to over report satisfaction. So we always get very high visitor satisfaction ratings for all the exhibitions, but that information is not necessarily what we need to rigorously evaluate the success or otherwise of what we produce.

Obviously it is difficult to support an argument for innovative exhibition methods when the results

from surveys indicate that the exhibitions are 96% to 98% successful. Lucinda continued:

> At the moment everything is based on what visitors say. What I would really like to do more is observation of what people are actually doing rather than what they say. Do some tracking in the gallery, how long is someone standing in front of this, how long are they actually using it for? What are the cold spots in the gallery? What are the parts that people are just walking straight past and not engaging with at all? Really do some more in depth analysis.

The usefulness of the observational approach and the possible ineffectualness of the current testing

process are reiterated by David:

> The biggest problem with the user testing at many museums is that they often take a very naive approach to the user testing. For a start they don't employ people whose expertise is in user interfaces, they do a sort of post use survey technique They don't do observations, for instance, they don't watch to see what is causing problems. So if a problem manifests itself they have no idea what it might have been caused by. Their model for how to assess these things isn't the right one. If you were working in the industry doing software design, user testing is quite a different process.

When discussing reasons why the testing process at Te Papa is not producing statistics that are

valuable to production teams Lucinda remarked:

> Because it is Visitor and Market Research, I think they've been far more focused on market research. So it's very much focused on the market. For example they did work on the optimal pricing point for European masters exhibition. I think when Te Papa first started they were a part of experience and then they moved to commercial. And I think that that impacts.

I responded to this by asking if the problem is possibly that the VMR department are not really testing for what the exhibition is trying to do. "Yeah, their focus has been on numbers and how to get people through the door." she replied. In wrapping up Lucinda's and my conversation on surveys and testing I asked whether she felt that Te Papa's testing process stacked up internationally: "We tick all the boxes, but I don't think we do enough observation."

Summary

This chapter has considered the observations of the interviewees regarding aspects of the exhibition production process that may be inhibiting the successful implementation of games. It can be seen that the inhibiting factors are not specific to the implementation of games but are generally inhibiting innovation and the identification of where innovation is required. It has been suggested that the perceived cost of production of games, the committee nature of exhibition production and the lack of rigour and commitment to test exhibitions are the most significant inhibiting factors.

Comments in this chapter have also shown possible avenues to minimise these inhibiting factors. With regards to the perceived cost of producing games it has been suggested that games in exhibitions need not be any more expensive than traditional modes of exhibiting. In fact, as Eric indicates, game based exhibitions can be significantly cheaper to produce than traditional exhibitions while still fulfilling museological goals. And, as Sean's comments indicate, when produced well and with awareness of how games operate in museums, even relatively expensive computer based games can have a great longevity and so represent value for money.

It is the opinion of informants that the committee nature of exhibition production at Te Papa is restrictive and at times has a negative impact on the final result, although opinion is divided as some informants felt that the peer assessment process ensured high quality exhibitions. This is a complex issue and is significant to the institution in a multitude of ways. To deal with this issue may call into question some of the founding tenants of Te Papa as well as challenge the effectiveness of the

inclusivity held so dear by supporters of new museological theory. This study does not attempt to answer this question but identifies it as a significant avenue for further research in the study of museums.

The final feature that this study identifies as inhibiting innovation, and therefore inhibiting the innovation of game based exhibits, is the testing and exhibition evaluation process used at Te Papa. It has been shown that informants view the user testing phase of interactive elements to be too reductive and that they do not adequately account for real world impacts on the interaction. Some informants perceived that current post installation assessments do not adequately test how visitors are actually using and engaging with exhibits or how visitors are being affected by them. This chapter has illustrated features of the exhibition production process that are impacting the success of games at Te Papa and which contribute significantly to the findings of this study presented in the Conclusion.

Conclusion

When in the process of writing the Introduction for this thesis, I returned to Te Papa to record the information on the plaques of the three boulders in the plaza. While I was there two teenage boys, aged around 16 or 17, ran across the plaza and in turn leapt onto the boulder symbolising Tangata Whenua and proceeded to jump from one boulder to the next. Given their added years and height, these boys ascended and leapt between the boulders with far greater ease than the three younger boys that originally inspired the course of this study as described in the Introduction. Consequently the two teens soon tired of this activity and left. As they did so one remarked to the other, "Well that was a lot easier than it looked." It is with this sentiment that I conclude the current study. Games at Te Papa presently do not evoke the richly satisfying sensation of flow for many sectors of the public because they are not adequately challenging their skills. As indicated in reports: "Over the last three to five years Te Papa's visitor demographics have been changing to a more traditional museum going profile" (Te Papa's statement of Intent 2011-2014, 24). To remain relevant across the broad spectrum of society, I propose that an increased deployment of games to facilitate the experience of flow would be an appropriate and beneficial approach.

This thesis set out to examine the question: what do practitioners currently think about games in museum exhibitions and how could museum games be improved? By conducting research with museum professionals at Te Papa and associated design companies this study has produced a view on the attitude towards games held by Te Papa's professional community. It establishes a theoretical understanding of play and games and in doing so offers a perspective on the value that games may hold for museums in fulfilling the goals of their exhibition program. The study presents the finding that while informants had not specifically studied the topic of games their views were insightful and at times corresponded to aspects of theories found in the literature. However there was frequent contradiction between different informants' views and between answers given by the same informant. This indicates that there is at present no uniform understanding on games or of play at Te Papa. Drawing on the opinions given by interviewees on what the purpose of producing exhibitions is and

on how they perceived games may benefit exhibitions, Chapter Three found that so far games at Te Papa have predominantly been unsuccessful. Some of the reasons for this low success rate were identified in Chapter Four. It was found that the perceived cost of producing games, the committee nature of exhibition production and the current exhibition assessment processes are significant inhibiting factors in the production of games at Te Papa.

This study shows that while it may be most efficient to follow familiar courses of action, doing so is not the most likely approach to producing new knowledge. For the generation of new knowledge unfamiliar paths, of which the destination is unknown, must be travelled. I argue that it is this exploration of previously unknown alternatives that constitute play. In play we adapt what we have available into innovative configurations to form new concepts, objects or behaviours. At the heart of new museum theory is the encouragement of such construction of new knowledge and action in the awareness of members of the public. In new museum theory reflexivity is encouraged to avoid intellectual and institutional stagnation. Inclusivity is aimed for with the understanding that it will make museums accessible and relevant to all members of the public and not just a select few. Activism is encouraged with the intention to proactively assist in the generation of new knowledge and understanding. The underlying intention of museums has not however changed with the arrival of new museum theory. This intention has been to improve the society in which the museum is situated. The understanding and expectation of what is meant by 'improvement' has changed but the desire to improve remains. At Te Papa the desire to improve society is evident in its aspiration to educate and to "change the world" as asserted in its Statement of Intent (Te Papa Statement of Intent 2011-2014). From this I conclude that Te Papa is in effect endeavouring to encourage its visitors to play. This sentiment is reflected in Te Papa's Statement of Intent in which it declares its aim of "making learning a playful and entertaining experience" (Te Papa Statement of Intent 2011-2014, 24). But as has been shown in this study practitioners who produce Te Papa's exhibitions are not well versed in theory on play nor are they particularly cognisant of available strategies on how to optimise play through game construction. I therefore conclude that increased awareness and discussion of theoretical and practical

perspectives on play and games would yield the greatest improvement in the quality of games produced at Te Papa. I would recommend more research, debate and discussion on games in museums and the acknowledgement of games and play studies as rich sources of valuable knowledge. I hope that the current study has done something to advance this process and in so doing has made a contribution to the field of museum studies.

Games and play are significant but frequently overlooked features in the fabric of a society. They excite, motivate, educate and emotionally move us and without them much of what we know today would have never existed. For these reasons museums stand in a unique position to reflect upon and enjoy the play of games. Museums could employ games to ignite an enthusiasm for knowledge and understanding in their visitors in ways as yet unexplored. The understanding of games at Te Papa has so far not been broad or nuanced. At the beginning of the second decade of the twenty first century, arguably a decade that will be dominated by games, Te Papa has great potential to be a world leader in this area. With a strong focus on visitors and an enthusiastic and perceptive staff, Te Papa has the necessary attributes to develop a successful and reliable game production practice and to become a great game based museum. By incorporating successful games into exhibitions Te Papa and other museums have the opportunity to encourage visitors to construct meaningful knowledge by enticing them into a state of play.

Appendix A: Description of games at Te Papa

Moa game

This is touch screen based activity in the *Blood, Earth, Fire* exhibition. It is displayed on a waste high screen angled so that it is engaged with while standing up. This activity aims to communicate information on how knowledge on moa is developed through the analysis of moa coprolites (fossilised dung) and skeletal physiology. This activity is positioned between a glass fronted display case containing fossils and skeletal remains and a cordoned display area holding a scale reconstruction of a moa.

Survivor game

Survivor is a touch screen based activity in the *Blood, Earth, Fire* exhibition. It is displayed vertically on a wall at chest height. The aim of this activity is to communicate the impact of introduced plant and animal species on New Zealand flora and fauna. The narrative of the activity is that a participant plays the role of an alien who has to choose plants and animals from their home planet to bring with them to a new planet to survive. This activity is located opposite to a large glass display cabinet containing taxidermic examples of species introduced into New Zealand.

Build a Dolphin game

The *Build a Dolphin* activity is touch screen based and was produced for the *Whales | Tohorā* touring exhibition. The aim of this activity is to communicate dolphin morphology through the narrative of participants playing the role of a robotics researcher. The participant is required to adjust variable aspects of a robot dolphin's form. These adjustments affect the performance of the dolphin's ability to swim.

OurSpace exhibition

OurSpace is an exhibition in three parts; these are the rides, the map and the wall. The rides are two kinetic cinema pieces that present New Zealand activities (high ride) and the Brothers volcano in the Kermadec Arc (deep ride). The map is a large satellite image of New Zealand displayed on the floor of the gallery with sensor-activated images of New Zealand locations. The wall is an 18m interactive video wall on which visitors are invited to present their own or selected images via computers in the gallery or from home via the web.

The Poisoners exhibition

Described as an interactive 'murder-mystery' exhibition, *The Poisoners* offers visitors the narrative of having to solve the puzzle of who killed the fictional Professor Felix Splicer. Based on the board game Cluedo, this exhibition presents objects such a snakes (venom) and spiders (toxin) from Te Papa's collection as potential 'murder weapons'. Participants collect and piece together hidden clues to identify the murder among the suspects.

Guess the Century game

Guess the Century is a touch screen based 'card game' exhibited as part of the *Slice of Heaven* exhibition. In this activity participants are presented questions about New Zealand History in relation to images from Te Papa's image archive. Questions are presented questions in sets of five from which participants are given score. The screen is angled on a freestanding pedestal at waist height with a larger slave screen on the wall behind it.

Pacific Beats music mixing table

This exhibit consists of a downward casting video projection falling onto a round table top and is part of the *Tangata o le Moana* exhibition. Motion sensors detect the movement of participants' hands over the surface of the table to navigate through a songs list and to turn on and off the various tracks within a song (for example the vocals or the base line). The song list is made up of contemporary and tradition artists from the pacific region.

Kupe sailing game

Located in the *Tangata o le Moana* exhibition, this screen-based activity asks participant to sail a virtual ocean going waka across the pacific to Aoeteroa. This activity is aimed at informing visitors on traditional navigation techniques. In its present form this activity is vertically wall mounted at chest height.

Appendix B: Schedule used in interviews

Discussion questions:

- Could you please describe for me your role at, or association with, Te Papa?

- In this role how great an influence do you have to affect the course of an exhibition being produced?

- What do you understand "games" to be?

- What do you understand "play" to be?

- What forms do you see games currently taking in Te Papa's exhibitions?

- Do you see the games that occur in Te Papa's exhibitions to be successful?

- In what ways do you perceive games to be valuable to museums?

- What has motivated you to incorporate games into exhibits that you have worked on?

- Could you describe your experiences of when you have tried to incorporate games into exhibitions?

- In your experience, what factors enabled the incorporation of games into exhibitions?

- What do you see to be factors that inhibit the incorporation of games into exhibitions?

- What do you see as the future of games in museums?

Bibliography

Anderson, Gail. 2004. *Reinventing the museum: Historical and contemporary perspectives on the paradigm shift*. Walnut Creek: AltaMira.

Avedon, Elliott M., and Brian Sutton-Smith. 1971. *The study of games*. New York, NY: John Wiley & Sons.

Baker, Michael J. 1996. *Marketing theory and practice*. Hants, UK: Macmillan.

Barker, Emma, ed. 1999. *Contemporary cultures of display*. New Haven: Yale University Press.

Belcher, Michael. 1991. *Exhibitions in museums*. Leicester, UK: Leicester University Press,

Bennett, Tony. 2004. *Pasts beyond memory: Evolution, museums, colonialism*. London and New York, NY: Routledge.

———. 1995. *The birth of the museum: History, theory, politics*. London and New York, NY:

Bertron, Aurelia, Ulrich Schwarz, and Claudia Frey. 2006. *Designing exhibitions: A compendium for architects, designers and museum professionals*. New York, NY: Springer Publishing Co.

Binmore, K. G. 1992. *Fun and games: A text on game theory*. Lexington, MA: D.C. Heath.

Black, Graham. 2005. *The engaging museum: Developing museums for visitor involvement*. London and New York: Routledge.

Bourdieu, Pierre, Alain Darbel, and Dominique Schnapper. 1997. *The love of art: European art museums and their public*. Oxford, Cambridge: Polity Press.

Bourriaud, Nicolas. 2002. *Relational aesthetics*. Dijon: Les presses du reel.

Boyd, Brian. 2009. *On the origin of stories: Evolution, cognition, and fiction*. Cambridge, MA: Harvard University Press.

Brand, Jeffrey E. "Interactive New Zealand 2010 report". Interactive Games and Entertainment Association. http://www.igea.net/wp-content/uploads/2010/08/INZ10-Interactive-New-Zealand-2010.pdf (accessed May 30, 2011).

Brown, Stuart, and Christopher Vaughan. 2010. *Play: How it shapes the brain, opens the imagination, and invigorates the soul*. Melbourne: Scribe.

Caillois, Roger. 1961. *Man, play and games*. New York, NY: The Free Press of Glencoe.

Carbonell, Bettina Messias. 2004. *Museum studies: An anthology of contexts*. Hoboken, NJ: Wiley-Blackwell.

Caulton, Tim. 1998. *Hands-on exhibitions: Managing interactive museums and science centres*. London and New York, NY: Routledge.

Charon, Joel M. 1985. *Symbolic interactionism: An introduction, an interpretation, an integration*. Englewood Cliffs, NJ: Prentice Hall.

Chatfield, Tom. "7 ways games reward the brain". TED Global 2010. http://www.ted.com/talks/lang/eng/tom_chatfield_7_ways_games_reward_the_brain.html (accessed June 29, 2011).

———. 2010. *Fun Inc.: Why games are the 21st Century's most serious business*. London: Random House.

Chatterjee, Helen J., ed. 2008. *Touch in museums: Policy and practice in object handling*. Oxford: Berg.

Csíkszentmihályi, Mihály. 1975. *Beyond boredom and anxiety: The experience of play in work and games*. San Francisco CA: Jossey-Bass.

———. 1997. *Finding flow: The psychology of engagement with everyday life*. New York, NY: Basic Books.

———. 1990. *Flow: The psychology of optimal experience*. New York, NY: Harper Collins.

Csíkszentmihályi, Mihály, and Isabella Selega Csíkszentmihályi. 1992. *Optimal experience: Psychological studies of flow in consciousness*. Cambridge: Cambridge University Press.

Dahlberg, Lena, and Dr Colin McCaig. 2010. *Practical research and evaluation: A start-to-finish guide for practitioners*. Thousand Oaks, CA: Sage.

DARPA. "DARPA news release". DARPA Network Challenge 2009. https://networkchallenge.darpa.mil/darpanetworkchallengewinner2009.pdf (accessed June 28, 2011).

Dean, David. 1994. *Museum exhibition: Theory and practice*. London and New York, NY: Routledge.

Deci, Edward L. 1975. *Intrinsic motivation*. New York, NY: Plenum Press.

Dernie, David. 2007. *Exhibition design*. London: Laurence King.

Deterding, Sebastian. "Meaningful play". Google Tech Talks, January 24, 2011. http://www.youtube.com/watch?v=7ZGCPap7GkY&feature=relmfu (accessed May 9, 2011).

Dewey, John. 1998. *Experience and education*. West Lafayette, IN: Kappa Delta Pi.

Duncan, Carol. 1995. *Civilizing rituals: Inside public art museums*. London and New York, NY: Routledge.

Erikson, Erik H. 1977. *Toys and reasons: Stages in the ritualization of experience*. New York, NY: W. W. Norton & Co.

Falk, John H., and Lynn D. Dierking. 2000. *Learning from museums: Visitor experiences and the making of meaning*. Walnut Creek, CA: AltaMira.

———. 1992. *The museum experience*. Washington, DC: Howells House.

Falk, John H., and Lynn Dierking. 1995. *Public institutions for personal learning: Establishing a research agenda*. Washington, DC: American Association of Museums.

Falk, John Howard, and Beverly Sheppard. 2006. *Thriving in the knowledge age: New business models for museums and other cultural institutions*. Walnut Creek, CA: AltaMira.

Falk, John Howard, Lynn Dierking, and Susan Foutz, eds. 2007. *In principle, in practice: Museums as learning institutions*. Walnut Creek, CA: AltaMira.

Farago, Claire J., and Donald Preziosi, eds. 2004. *Grasping the world: The idea of the museum*. Farnham: Ashgate.

Fireman, Gary D., Ted E. McVay, and Owen J. Flanagan, eds. 2003. *Narrative and consciousness: Literature, psychology, and the brain*. New York, NY: Oxford University Press.

Furnham, Adrian. 1990. *The protestant work ethic: The psychology of work-related beliefs and behaviours*. London and New York, NY: Routledge.

Gordon, Phillip. "The neuroscience of emotions". Google Tech Talks, October 13, 2008. http://www.youtube.com/watch?v=tShDYA3NFVs&NR=1 (accessed May 15, 2011)

Greenberg, Reesa, Bruce W. Ferguson, and Sandy Nairne.1996. *Thinking about exhibitions*. London and New York, NY: Routledge.

Greenfield, Adam. 2006. *Everyware: The dawning age of ubiquitous computing*. Berkeley, CA: Peachpit Press.

Hein, George E. 1998. *Learning in the museum*. London and New York, NY: Routledge.

Hooper-Greenhill, Eilean. 1999. *Museum, media, message*. London and New York, NY: Routledge.

———. 2007. *Museums and education: Purpose, pedagogy, performance*. London and New York, NY: Routledge.

Houtgraaf, Dirk, and Vanda Vitali. 2008. *Mastering a museum plan: Strategies for exhibit development*. Leiden: Naturalis.

Huizinga, Johan H. 1992. *Homo ludens: A study of the play-element in culture*. Boston, MA: Beacon Press.

Itō, Mizuko. 2009. *Engineering play: A cultural history of children's software*. Cambridge, MA: MIT Press.

Jones-Garmil, Katherine, ed. 1997. *The wired museum: Emerging technology and changing paradigms*. Washington, DC: American Association of Museums.

Juul, Jesper. 2005. *Half-real: Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.

Kando, Thomas M. 1975. *Leisure and popular culture in transition*. St. Louis, MO: C. V. Mosby.

Kant, Immanuel. 1959. *Foundations of the metaphysics of morals and, What is enlightenment*. Indianapolis, IN: Bobbs-Merrill.

Karp, Ivan. 2006. *Museum frictions: Public cultures/global transformations*. Durham, NC: Duke University Press.

Kay, John. 2011. *Obliquity: Why our goals are best achieved indirectly*. London: Penguin.

Koster, Raph. 2005. *Theory of fun for game design*. Scottsdale, AZ: Paraglyph.

Kraus, Richard. 1984. *Recreation and leisure in modern society*. Glenview, IL: Scott, Foresman and Co.

Lang, Caroline, John Reeve, and Vicky Woollard. 2006. *The responsive museum: Working with audiences in the twenty-first century*. Aldershot and Burlington VT: Ashgate.

Latour, Bruno. 2007. *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press.

Lee, Pamela M. "New games." *Australian and New Zealand Journal of Art* 10, no. 1 (2010): 35-55.

Lord, Barry, and Gail Dexter Lord, eds. 2001. *The manual of museum exhibitions*. Walnut Creek: AltaMira.

Macdonald, Sharon. 2006. *A companion to museum studies*. Malden MA: Wiley-Blackwell.

———. 1998. *The politics of display: Museums, science, culture*. London and New York, NY: Routledge.

Macdonald, Sharon, and Paul Basu. 2007. *Exhibition experiments*. Oxford and Malden MA: Wiley-Blackwell.

Macleod, Suzanne, and Sheila E. R. Watson. 2007. *Museum revolutions: How museums change and are changed*. London and New York, NY: Routledge.

Marincola, Paula, and Robert Storr. 2001. *Curating now: Imaginative practice, public responsibility*. Philadelphia, PA: Philadelphia Exhibitions Initiative.

Marstine, Janet. 2006. *New museum theory and practice: An introduction*. Malden, MA: Blackwell.

Maslow, Abraham H. 1987. *Motivation and Personality*. Hong Kong: Longman Asia.

Mäyrä, Frans. 2008. *Introduction to game studies: Games and culture*. Thousand Oaks, CA: Sage.

McGonigal, Jane. "Gaming can make a better world". TED Talk, Longbeach California, February 2010.

http://www.ted.com/talks/jane_mcgonigal_gaming_can_make_a_better_world.html
(accessed May 4, 2011)

———. 2011. *Reality is broken: Why games make us better and how they can change the world*.
London: Penguin.

Message, Kylie. 2006. *New museums and the making of culture*. Oxford: Berg.

Miles, Roger S., M. B. Alt, D. C. Gosling, B. N. Lewis, and A. F. Tout. 1988. *The design of
educational exhibits*. London and New York, NY: Routledge.

Museum of New Zealand Te Papa Tongarewa. "Statement of Intent 2011-2014". Legislation and
accountability - Museum of New Zealand Te Papa Tongarewa, Wellington, NZ,
http://www.tepapa.govt.nz/AboutUs/Pages/Legislationandaccountability.aspx (accessed
July 16, 2010)

Myers, David. 2003. *The nature of computer games: Play as semiosis*. New York NY: Peter
Lang.

Paley, Vivian Gussin. 2005. *A child's work: The importance of fantasy play*. Chicago, IL:
University of Chicago Press.

Perecman, Ellen, and Dr. Sara R. Curran. 2006. *A handbook for social science field research:
Essays & bibliographic sources on research design and methods:* Thousand Oaks, CA:
Sage.

Perry, David. "Are games better than life?". TED Talk, February 2006.
http://www.ted.com/talks/david_perry_on_videogames.html (accessed May 4, 2011)

Pert, Candace B. 1997. *Molecules of emotion: Why you feel the way you feel*. New York, NY:
Simon & Schuster.

Piers, Maria W., ed. 1977. *Play and development: A symposium*. New York, NY: The Norton
Library.

Pink, Daniel H. 2011. *Drive: The surprising truth about what motivates us*. London: Penguin.

Priebatsch, Seth. "The game layer on top of the world". TEDxBoston, Boston, July 2010.
http://www.ted.com/talks/lang/eng/seth_priebatsch_the_game_layer_on_top_of_the_world
.html (accessed May 5, 2011)

Priest, Graham. 2000. *Logic: a very short introduction*. Oxford: Oxford University Press.

Roberts, Lisa C. 1997. *From knowledge to narrative: Educators and the changing museum*.
Washington, DC: Smithsonian Institution Press.

Rose, Dr Gillian. 2006.*Visual Methodologies: An introduction to the interpretation of visual
materials*. Thousand Oaks, CA: Sage.

Rose, Steven Peter Russell. 1993. *The making of memory: From molecules to mind*. New York,
NY: Anchor.

Rossman, James Robert. 1989. *Recreation programming: Designing leisure experiences*. Champaign, IL: Sagamore.

Sachatello-Sawyer, et al. 2002. *Adult museum programs: Designing meaningful experiences*. Walnut Creek, CA: AltaMira.

Salen, Katie. 2006. *The game design reader: A rules of play anthology*. Cambridge, MA: MIT Press.

Salen, Katie, and Eric Zimmerman. 2004. *Rules of play: Game design fundamentals*. Cambridge, MA: MIT Press.

Sandell, Richard. 2002. *Museums, society, inequality*. London and New York, NY: Routledge.

Sarantakos, Sotirios. 2005. *Social research*. New York, NY: Palgrave Macmillan.

Sarbin, Theodore R. 1986. *Narrative psychology: The storied nature of human conduct*. Westport, CT: Greenwood Press.

Sarup, Madan. 1993. *An introductory guide to post-structuralism and postmodernism*. Athens, GA: University of Georgia Press,

Schell, Jesse. "Design outside the box". Dice 2010. http://www.g4tv.com/videos/44277/DICE-2010-Design-Outside-the-Box-Presentation/ (accessed June 29, 2011)

Schubert, Karsten. 2000. *The curator's egg: The evolution of the museum concept from the french revolution to the present*. London: One-Off Press.

Schultz, Wolfram. "Getting formal with dopamine and reward." *Neuron* 36, no. 2 (October 10, 2002): 241-263.

Seabrook, Jeremy. 1988. *The leisure society*. Oxford: Basil Blackwell.

Seltman, Muriel, and Peter Seltman. 1985. *Piaget's logic: A critique of genetic epistemology:* London: George Allen & Unwin.

Serrell, Beverly. 2006. *Judging exhibitions: A framework for assessing excellence*. San Francisco, CA: Left Coast.

Shedroff, Nathan. 2001. *Experience design 1*. Indianapolis, IN: New Riders,

Simon, Nina. 2010. *The participatory museum*. Santa Cruz: Museum 2.0.

Storrie, Calum. 2007. *The delirious museum: A journey from the Louvre to Las Vegas*. London: I. B. Tauris.

Suits, Bernard. 1978. *The grasshopper: Games, life and utopia*. Toronto: University of Toronto Press.

Sutton-Smith, Brian. 1997. *The ambiguity of play*. Cambridge, MA: Harvard University Press.

———. 1986. *Toys as culture*. London: Psychology Press.

Sutton-Smith, Brian, and Anthony D. Pellegrini. 1995. *The future of play theory: A multidisciplinary inquiry into the contributions of Brian Sutton-Smith*. Albany, NY: SUNY.

Thomas, Selma, and Ann Mintz, eds. 1998. *The virtual and the real: Media in the museum*. Washington, DC: American Association of Museums.

Turner, Professor Victor. 1982. *From ritual to theatre: The human seriousness of play*. New York, NY: PAJ Publications.

Varela, Francisco J., Evan Thompson, and Eleanor Rosch. 1995. *The embodied mind: Cognitive science and human experience*. Cambridge, MA: MIT Press.

Velarde, Giles. 2001. *Designing exhibitions: Museums, heritage, trade and world fairs*. Farnham: Ashgate.

Vergo, Peter, ed. 1989. *The new museology*. London: Reaktion Books.

Vygotsky, L. S. 1978. *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Waite-Stupiansky, Sandra. 1997. *Building understanding together: A constructivist approach to early childhood education*. Stamford, CT: Cengage Learning.

Walsh, Kevin. 2002. *The Representation of the past: Museums and heritage in the post-modern world*. London: Routledge.

Warnock, G. J. 1967. *The philosophy of perception*. Oxford: Oxford University Press.

Weil, Stephen E. 1990. *Rethinking the museum and other meditations*. Washington, DC: Smithsonian Institution Press.

Wilkinson, Richard, and Kate Pickett. 2010. *The spirit level: Why equality is better for everyone*. London: Penguin.

Wilson, John. 1988. *Politics and leisure*. Boston, MA: Unwin Hyman.

Winnicott, Donald Woods. 1980. *Playing and reality*. London: Penguin

Witcomb, Andrea. 2003. *Re-imagining the museum: Beyond the mausoleum*. London and New York, NY: Routledge.

Wolf, Mark J. P., ed. 2001. *The medium of the video game*. Austin, TX: University of Texas Press.

Wright, Will. "Will Wright makes toys that make worlds". TED Talk, Monterey California, March 2007. http://www.ted.com/talks/will_wright_makes_toys_that_make_worlds.html (accessed May 4, 2011)

Zicherman, Gabe. "Fun is the future: Mastering gamification". Google Tech Talks, October 26, 2010. http://www.youtube.com/watch?v=6O1gNVeaE4g&feature=player_embedded#at=13 (accessed May 5, 2011)

Zichermann, Gabe, and Joselin Linder. 2010. *Game-based marketing: Inspire customer loyalty through rewards, challenges, and contests*. Hoboken, NJ: John Wiley & Sons.

Zigler, Edward, Dorothy G. Singer, and Sandra J. Bishop-Josef. 2004. *Children's play: The roots of reading*. Washington, DC: Zero To Three Press.