Video games and Indigenous education: Let's bridge the 'epistemology gap'

ABSTRACT

There are clear challenges posed by rural and remote education in Australia. These challenges are caused both by physical and material factors, but more importantly epistemological divisions that have created a separation between Indigenous and non-Indigenous worlds. Video games have the potential to bridge this epistemological gap by explicating the differences between different knowledge systems and engaging students in exploring these differences. Crucially, these projects need to be co-constructed to ensure that not only the representations of Indigenous people surpass some dubious traditions, but that different epistemologies are adequately framed. There is an urgent need for research-informed game-based learning projects to begin to address the 'epistemology gap' and the challenges faced by all Australians.

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KEY WORDS

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Introduction

When Marc Prensky coined the term 'digital natives', he probably had little idea of the role of technology in facilitating epistemological dialogues between Indigenous and non-Indigenous Australians.

To begin with, 'native' is perhaps a term which raises eyebrows not only among post-colonial scholars. But more importantly, the vast majority of Australians are literally (not just digitally) immigrants in a country whose European occupation is merely a speck in a much longer cultural tradition. Prensky's over-generalisations thus completely fail to account for the potential of game-based learning to encourage dialogue between Indigenous knowledge systems and more positivist, Western approaches to knowledge and learning. One antidote to these kinds of generalisations is a thorough, consultative co-created game development process where Indigenous communities are properly involved in the development of games to be used for learning.

Video game culture in Australia is entering a new phase of maturity. According to the Digital Australia 2016 report, 98% of homes with children have video games, while 65% of game households have three or more devices used for gaming (IGEA 2015). However, games are not just for kids, nor are they only entertainment: 24% of adults have used games for workplace learning or training; 35% of children have used games as a part of their school curriculum; and 89% of respondents believe that video games can improve thinking among players (IGEA 2015). Clearly, video games are nearly ubiquitous in contemporary Australian culture, and their potential for application (once termed 'serious games') is becoming manifest. However, there is a stark paucity of game-based learning activities designed to address the challenges faced by Indigenous communities and learners. These challenges, while often material, are also epistemological, meaning that there is not only a gap in learning achievement and outcomes: there is a gap in understandings and knowledges about the physical and social world. There is substantial literature arguing that through 'situated cognition' and 'epistemic framing', video games can explicate and transform cultural models and even help players learn to see and know the world in different ways (Shaffer 2006; Gee, 2007; Shaffer et al., 2009; Corredor, Gaydos & Squire 2014).

INDIGENOUS EDUCATION AND REPRESENTATION IN GAMES: THE 'EPISTEMOLOGICAL GAP'

It is no secret that the history of settlement in Australia has created stark disparities in education and health outcomes between Indigenous and non-Indigenous Australians. Today, Indigenous Australians continue to experience substantial challenges compared to non-Indigenous Australians across many wellbeing indicators. In recent years, the National Indigenous Reform Agreement was implemented by the Australian Government to address defined Indigenous 'disadvantage', and included key targets such as reducing the gap in academic achievements for Indigenous students by half by 2018 (COAG, 2008). Many researchers, however, 'identify the "gap" as an epistemological divide and argue that, like any bridge, education measures aimed at "closing the gap" need to be constructed simultaneously from both sides' (O'Bryan & Rose 2015, p. 2). Unfortunately, while there are efforts in this direction, they are not matched by government policy and funding.

Aboriginal Australia has a history of dislocation which is familiar throughout the world, through white settlement and Stolen Generations, right up to the more recent paternalistic policies, especially in the Northern Territory (Altman 2009). However, this is not always the result of malicious or intentional harm; it is best described as the outcome of what we call 'the epistemology gap': a stark conflict between Indigenous and non-Indigenous ways of thinking and knowing. This contrast is highlighted by taking a critical approach to one of the longest-lasting legacies of the Industrial Revolution, 'the game of School':

School was deliberately, explicitly, openly designed to impose a new urban discipline as a means to avert social strife in rapidly expanding industrial cities…. It was a means to industrialize humanity. And that matters, because we tend to think of School as we know it as something necessary and inevitable. But it is not. It is just one particular game, invested in a particular time and place to achieve certain goals…. School is a game about thinking like a factory worker. It is a game with an epistemology of right and wrong answers in which Students are supposed to follow instructions, whether they make sense in the moment or not. Truth is whatever the teacher says is the right answer, and actions are justified based on appeal to authority (Shaffer 2006, p. 37; italics added).

Little wonder, then, that traditional Western education has had little success 'educating' Indigenous communities. Although we can't change the past, or heal these wounds, it is possible that truly collaborative, empowering game development projects might allow us to share and learn from each other, and bridge this 'epistemology gap'.

Intensive government approaches to addressing these challenges have seen the implementation of many top-down policies and programs in remote education, including the controversial Compulsory Teaching in English for the First Four Hours policy. This policy was implemented without community consultation and precluded bilingual education programs, which often had substantial community support and involvement (Dickson 2012). More broadly, communities in the 'tri-state' region are caught up in systemic discourses of achievement and accountability, with very little space allowed for Indigenous voices (Osborne 2013). To date, these policies have mostly been considered unsuccessful with the Closing the Gap report stating that Indigenous achievement has seen no overall improvement since the National Indigenous Reform Agreement was implemented in 2008 (Australian Government Department of the Prime Minister and Cabinet, 2015). This is the result of deeply paternalistic policy approaches based on evidence-based decision-making that are detached from local realities (Maddison 2012).

Remote and very remote Central Australia is a unique environment, containing many separate Indigenous communities with individual languages and cultural identities, who identify as Anangu. Anangu children in these communities speak English as an additional language (EAL) with many of them verbally fluent in several Indigenous languages prior to starting school. The adults in the community are also EAL speakers with varying English literacy levels. Traditional Anangu child raising practices involve families passing knowledge on to the next generation through storytelling, art and painting, and performance art including singing and dancing. Storytelling in Anangu culture intertwines Anangu identity, language, land and culture together. When Hare discusses oral storytelling, story songs and dances that families share with Aboriginal children, she points out the importance of these traditional literacy teaching methods: 'it's different than sitting down and reading a book. But it's all got real meaning' (2001, p. 43).

Recent research into the types of education that Aboriginal people value in remote Australia has resulted in findings that remote communities want to be a part of their children's education, and that communities value confidence/courage, strength and consideration of the child's spirit emerge as critical underpinnings for Anangu children to succeed in all learning contexts (Osborne & Guenther, 2013). As Katrina Tjitayi, an Aboriginal educator, explains:

> If a tree is not growing properly, we have to seek really hard to find the problem. When we look at the tree, we see only the top part but we need to look deeper at the roots. We must look deep inside to see what is not working. In Anangu education, sometimes we spend all of our time looking at the leaves and the branches, but we need to look well below the ground to understand what it is that is really happening for our children (Osborne et al., 2013, p. 10).

Anangu communities use storytelling as a teaching method. Stories are passed down through families using narrative to engage children and share and record culture and history (Hare 2012). If this is seen as a foundation of (rather than anathema to) effective learning, we might be getting somewhere.

Video games have long been considered an important site for both narrative and learning. Whilst Indigenous cultures have been featured in many video games, mainstream video games often offer heavily exoticised representations of Indigenous people reminiscent of colonial discourses such as Orientalism (Said, 1979). For example the Banjo Tooie (Rare, 2000) series depicts Native Americans such as 'Mumbo Jumbo' and 'Humba Wumba', who speaks broken English and remains inside her wigwam unless called upon by the main character to undertake shamanistic rituals to assist him to achieve

goals. Shamanistic magic, or visual tokens such as war paint, headdresses, Spirit Bows and tomahawks, have been attached to generalised Native American characters, including T. Hawk in Street Fighter (Capcom, 1987) and Nightwolf in Mortal Kombat (Midway Games, 1992. This 'Othering' of cultures promotes the idea of the familiar group (Europe and the West) and the other: the strange, exotic and native. Despite some inevitable processes of hybridisation (Bhabha 2012), this dualistic representation of the non-Indigenous/Self and Indigenous/Other is predominant in mainstream video games (Williams et al. 2009).

When discussing the misappropriation of Mäori symbols and culture in video games, Mahuta argues for Indigenous peoples to become involved with the creation process of video games and notes that in doing so, they will take the next step beyond protest and become active participants in the games industry (Mahuta, 2012). Direct collaboration with Indigenous people allows Indigenous people to co-opt video games as a platform for passing along wisdom to the next generation, with control over how their culture and characters are represented, and how their stories are told (Oppenneer, 2014). This co-creation is absolutely essential to any research project to ensure ethical and methodological rigour is maintained in the pursuit of 'justice-oriented research praxis' (Osborne 2015, p. 5). Such a strategy is essential for challenging the discourse of deficit and disadvantage that pervades discussions of Indigenous education.

Prey (3D Realms, 2006) is an example of this more positive, consultative form of game development. The main character in the game is a Native American named Domasi Tawodi, or 'Tommy'. During development of the game, the developers took an interest in the myths and stories of Cherokee culture and decided that the main character should himself be a Native American. Tommy was voiced by Michael Greyeyes, who is Native American Plains Cree. During the process, Greyeyes was able to work with the developers to co-create the character and depictions of Cherokee culture. In an interview, Greyeyes stated that he was 'impressed with the way [3D Realms] conceived of and wrote Tommy... Hollywood typically relegates our different indigenous cultures either into a single pan-Indian construct of some kind... or, most commonly as a historical figure, typically from a Plains culture... The writers [at 3D Realms] were always open to my comments - which I freely offered - and took my notes seriously, in nearly all instances changing dialogue or thematic content'

(Sheyahshe, 2008). Here is an all-too-rare model for genuine collaborative development.

Throughout Prey, Tommy comes to terms with history and develops pride in his cultural heritage. He begins to accept and value his skills and his people's connection to the land, nature and spirituality and ends the game proud of his identity and Cherokee heritage (Fabius, 2008). There is clearly an urgent need for this kind of co-creation in video games which represent Indigenous peoples and cultures. This kind of potential is coming to fruition in games such as the 2014 puzzle-platformer Never Alone (Upper One, 2014), which describes itself as a 'world game'. The game was created in an ongoing, inclusive collaborative process between the Iñupiat people of Alaska and game developers (Oppenneer, 2014). Historically, the Iñupiat people of the Cook Inlet region experienced family separation and linguicide. They were raised to feel ashamed of their cultural identity which has produced serious social effects: 'Despair, drugs and alcohol. These types of challenges are what many indigenous cultures face when they face rapid transitions' (Donlan, 2014).

As an empowerment strategy, the Cook Inlet Tribal Council decided to show Iñupiat children their culture was something to be proud of in such a way that 'the whole world thinks is cool' (Donlan C, 2014). They decided to do this through the creation of a video game and approached game developers for assistance. Both the Tribal Council and the developers agreed that from the start of the project, it was very important to work closely with the Iñupiat community, in order to 'create a game that reflected their culture in a way that was meaningful and accurate', referring to this process as 'Inclusive Development' (Oppenneer, 2014). Traditional Iñupiat stories were used in the game's narrative, and as the project developed, there were regular meetings and discussions between the developers, Iñupiat community members, cultural advisors and the Cook Inlet Tribal Council regarding all aspects of the game's design and content. 'The last thing we wanted was this game to be kind of a cultural appropriation. We didn't want this to be an outsider's view of what the Inupiaq culture was. We wanted it to come from the people themselves' (Bryant, 2014). As in Prey, game mechanics are used to represent deep Iñupiat cultural values around connection to the land, animals and mythology, and especially the notion of interdependency and the simultaneous threat and sustaining life-force of the landscape (Donlan, 2014).

In the Aboriginal community of Roebourne, Western

Australia, TheYijalaYala Project by Big hArt, an Australian company focusing on promoting social justice through arts, discovered that Aboriginal youth had a strong interest in video games. Designer Stu Campbell leveraged this interest to support the community's children to develop a video game, interactive story and other media. In order to initiate this process, Big hArt set up a presence in the community and involved themselves with community members such as linking in with the Information Technology teacher at the school before starting the project. In fact, the children of the community themselves made a large part of the Love Punks video game (Big hArt, 2012), cutting over 2000 frames themselves. The aim of the media was to break down the barriers between Indigenous communities and the rest of the world. The content of the media was based on traditional Aboriginal stories and required constant feedback and collaboration from community members and elders (Matheson, 2015).

Clearly, commercial video game development has all the potential of any creative endeavour, from visual art to literature to film. On the one hand, cultural products have the potential to do enormous harm, by stereotyping Indigenous people and other minorities, and reinforcing the neo-colonial dualisms that are continually reproduced through dominant cultural fabrics. On the other hand, video games have the potential to enable us to share and learn from each other, and utilise these knowledges to benefit both individuals and communities, not only through more inclusive, collaboration processes of co-development, but also by embedding game mechanics that validate and disseminate important cultural values and social realities. However, this is only a fraction of the potential of video games.

SITUATED COGNITION AND EPISTEMIC FRAMING

To properly appreciate the scale of the potential for video games to affect culture and society, we must first put them in the appropriate context. Aside from their near-ubiquity in the homes and lives of families and individuals, video games have shifted from being a relatively niche entertainment interest to making major contributions to health, learning, and work (IGEA 2015). According to Jenkins, games are a key part of our current shift to 'Convergence Culture', which erodes the boundaries between technological platforms and well as between the producers and

consumers of cultural production (Jenkins 2006). Video games are thus becoming not only ubiquitous, but deeply embedded in every part of our cultural life.

However, games are not just for children, and they are not just entertainment. As early as 2001, Prensky coined the term 'Digital Natives' to describe the coming generation of learners (in short, 'kids these days') as having an innate familiarity with the structures and processes of technology, and particularly games (Prensky 2001). However, like its counterpart the 'Net Generation', the notion of 'Digital Natives' has been largely dismissed as being a sweeping generalisation, failing to capture the diversity of engagement with technology among both students and educators (Phillips et al. 2009, p. 5).

Aside from its rhetoric, Prensky's thinking has encouraged educators to think through the ways in which our approaches to education need to adapt to more widespread technological innovations. One way of addressing this question is offered by James Paul Gee, a Professor of Linguistics at Arizona State University. Gee recounts his first experience with games, telling how his assumption that they were a simple form of entertainment was turned on its head by the experience of actually playing one:

> When I played the game I was quite surprised to find out that it was fairly long and pretty challenging, even for an adult. Yet a very young child was willing to put in the time and face the challenge – and enjoy it, to boot…. This game – and this turned out to be true of video games more generally – requires the player to learn and think in ways at which I was not then adept. Suddenly all my baby-boomer ways of learning and thinking, for which I had heretofore received ample rewards, did not work. (Gee 2007, p. 2)

Since this formative experience Gee has played many games and thought much more about how even commercial games reflect deep principles of learning that engage players in taxing activities, and encourage them to persist in the face of serious challenges and repeated failure. Games have the opportunity to give players the experience of an 'epic win' which suggests that not only is reality broken, it can be mended (McGonigal 2011). Gee adapts his theories of sociolinguistics to learning through games and proposes the notion of 'situated cognition' to explain how learning occurs in games. Like reading and all literacies, cognition is heavily contextualised. For Gee, games allow for storying in the virtual world, a place where, like the social world, 'meaning is material, situated, embodied when and if it is useful'

(Gee 2007, p. 87). This allows for a co-construction of narrative through gameplay where the cycle of 'probe, hypothesise, reprobe, rethink' is built into the very design of video games.

More importantly for our purposes though, games are able to encapsulate and embody specific cultural models, which are partial views of reality that form a basis for action and agency in the social world (Gee 2007, p. 149). Under Ash, is a game which allows the player to engage in a fairly familiar genre (first-person shooter), but from the perspective of a Palestinian 'freedom fighter' fighting against Israeli settlers (Gee 2007). This potential for bridging cultural models is now being used in peace building education, where students acquire substantially more knowledge about global conflicts based on playing a game designed to help shift their perspective (Kampf & Cuhadar 2014). Crucially, the shift in perspective was larger for conflicts and cultural contexts which were more distant for the players, suggesting the potential for bridging wide gaps in cultural understandings (Kampf & Cuhadar 2014, p. 248). This is very promising for game-based interventions designed to bridge the 'epistemology gap' between Indigenous and non-Indigenous Australians.

Theorising on the potential of games to explicate cultural models has developed substantially with Shaffer's notion of 'epistemic games', which are 'games that are fundamentally about learning to think in innovative ways' (Shaffer 2006, p. 10). These are games that directly facilitate the development of specific epistemologies. Shaffer's example (from a non-digital game) explains how The Debating Game, with specific goals, rules, and modes of engagement developed forms of historical epistemology amongst eighth-graders better than any reading from history books or sitting in history classes ever did (Shaffer 2006, p. 33). In its most sophisticated form, this theory leads to evidence-centred design, which is a 'framework for developing assessments by systematically linking models of understanding, observable actions, and evaluation rubrics to provide evidence of learning' (Shaffer et al. 2009, p. 1). Therefore, the urgent need for bridging epistemological gaps that we have identified is clearly addressed in the literature.

Put simply, video games have a vast potential for making concrete improvements in the real world. They are not just entertaining diversions or fun distractions, despite the fact that they command a good share of people's recreation time and disposable income. Indeed, these trends indicate that not only is reality broken (McGonigal 2011): schooling itself is broken (Gee 2007; Shaffer 2006). In the context of Indigenous education, action is urgently needed, and video games designed to bridge the 'epistemology gap' are the answer.

CONCLUSION: A CALL TO ACTION

This paper is a provocation, a gadfly, a call to action. The starting point is realising that the stark gap we see between outcomes for Indigenous and non-Indigenous Australians is not only due to a deficit in capacity or ability, or even (just) a lack of funding, resources, or good intentions. It is inextricably bound up in the stark disparity between Western, positivist epistemologies on which so much traditional schooling is based, and Indigenous knowledges based on the interconnectedness of land, family, community and song lines. While material interventions are certainly necessary, epistemological interventions are just as important.

Video games have significant potential in this regard. Not only are they highly mobile, flexible, engaging and extraordinarily popular, they are able to facilitate learning through the exercise of 'situated cognition' in ways that are simply not possible with traditional schooling. Furthermore, they can bridge differences between cultural models, even (or especially) where there are stark disparities between them. There is a strong body of literature, along with models and frameworks to support the development of 'epistemic games' that promote different ways of thinking among players/students. This has the potential to benefit both Indigenous and non-Indigenous learners, in a strategy designed to bridge the gap, or chasm, between the 'two worlds'.

Australia urgently needs video games like this. Rather than persist with strategies that are proven not to work, we need a new approach. There is not just a gap in the knowledge, or demonstrable market demand, for epistemic games that bridge the epistemological gap between Indigenous and non-Indigenous learners: there is an ethical imperative to do so.

> If we take everything game developers have learned about optimizing human experience and organizing collaborative communities and apply it to real life, I foresee games that make us wake up in the morning and feel thrilled to start our day. I foresee games that reduce our stress at work and dramatically increase our career satisfaction. I foresee games that fix our educational systems.

I foresee games that treat depression, obesity, anxiety, and attention deficit disorder. I foresee games that help the elderly feel engaged and socially connected. I foresee games that raise rates of democratic participation. I foresee games that tackle global-scale problems like climate change and poverty. In short, I foresee games that augment our most essential human capabilities – to be happy, resilient, creative – and empower us to change the world in meaningful ways. (McGonigal 2001, p. 14.)

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