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Designing for relatedness: learning design at the virtual cultural interface

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This paper draws on the initial analysis of data from an education design research study that investigated the experience of Indigenous higher education students in online learning. The interrelated themes of racial identity and relatedness were found to be significant to the experiences of these students. The paper examines a number of widely used learning design models and online facilitation approaches to determine the extent to which identity and relatedness are considered in the design of online environments and in the facilitation of learning. It concludes with a series of recommendations as to how an institution may mediate a level of relatedness for its students in online learning environments.

Keywords: Relatedness, design models, e-learning, Aboriginal and Torres Strait Islander.

Setting the scene

This paper explores emergent concepts and practices associated with identity and relatedness as they apply to learning and teaching (L&T) and the way in which Aboriginal and Torres Strait Islander higher education (HE) students experience this in online learning. Relatedness is understood in various ways across cultures: for example, in relation to kinship and country in Indigenous contexts (Martin, 2003), through social capital theory (Coleman, 1988), and in online environments through networked learning (Goodyear, Jones, Asensio, Hodgson, & Steeples, 2005) and connectivism (Siemens, 2004). Relatedness in the context of this study refers to the trust and reciprocity in bonding, binding and linking relationships (Woolcock & Narayan, 2000) that is mediated inside and outside of virtual learning environments and which affirms cultural and racial identity and practices. The conceptual location where these ideas and practices are negotiated and reframed is at the virtual cultural interface, extending Nakata's (2007) concept of the cultural interface as a space where collaborative meaning making takes place and where worldviews can be renegotiated through cross-cultural interactions.

This paper draws from an education design research (EDR) study conducted at Charles Darwin University (CDU), a regional university in the Northern Territory (NT), Australia. Due to its isolated geographic location and the NT's relatively small and dispersed population of 243,800 people (Australian Bureau of Statistics, 2015) CDU has a strong focus on external delivery. In 2014 62% of its students were enrolled externally (Reedy, Boitshwarelo, Barnes, & Billany, 2015), with almost all its units being offered online through CDU's learning management system (LMS). Aboriginal and/or Torres Strait Islanders comprise 30% of the population of the NT, the highest of any Australian state or territory (Australian Bureau of Statistics, 2015), and 5.5% of CDU's HE enrolments (CDU 2015). This compares well to the overall percentage of Indigenous students in Australian universities of 1.4% (Universities Australia, 2014). However, Indigenous student retention at CDU is 20% lower than for non-Indigenous students: 79% against 59% (CDU, 2015). This disparity illustrates there is significant change required in the learning environment to achieve equitable outcomes for Indigenous students.

The study was, therefore, undertaken in order to better understand the lived experience of Indigenous higher education (HE) students participating in learning environments where online study is increasingly the norm. The themes of identity and relatedness, described in this paper, are well researched in the fields of Indigenous health, wellbeing and education (Dudgeon, Milroy, & Walker, 2014), however, little is known of their impact on Indigenous HE students in online learning. The study draws on previous work that indicates that cultural difference impacts on the experience of learners in online learning environments (Hall, 2009; Russell, Kinuthia, Lokey-Vega, Tsang-Kosma, & Madathany, 2013) and needs to be considered in online learning design (McLoughlin & Oliver, 2000). The paper explores the extent to which cultural difference, around the notion of connectedness, can lead to a sense of relatedness in the online environment. This is initially seen through the eyes of

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Indigenous students and then by examining different online design models, comparing those that focus on online interaction against those that promote online presence, and how this may be applied when designing learning environments. It considers the notion of online presence and the development of an online identity, and how this may be applied to these environments where representation of cultural identity is important. The paper considers some of the issues faced by students when navigating online interactions in what is fast becoming the default way to communicate within courses. And lastly it considers how education designers and academics may design online learning experiences to moderate this phenomenon for Aboriginal and Torres Strait Islander students.

Research Design

Design

This paper is based on a qualitative study in which Indigenous research approaches (Martin, 2003; Rigney, 2006) guided the conduct of a non-Indigenous researcher within an EDR framework (Anderson & Shattuck, 2012; Reeves, McKenney, & Herrington, 2010). The voices of the participants were privileged through a 'participant-oriented evaluation phase' within the EDR framework and data were collected through yarning, an approach to gathering rich narratives about a participant's lived experience regarded as culturally appropriate for Indigenous peoples (Bessarab & Ng'andu, 2010).

Participants

Participants were drawn from students enrolled at CDU in 2014-15 and students who had withdrawn from online study up to two years prior to the study. To facilitate the identification of participants, the Office of Indigenous Academic Support (OIAS) contacted all Indigenous students in under- and post-graduate coursework units by email to endorse and promote their participation. A relatively low number of students (11) responded, with nine going on to participate. Purposive sampling (Babbie, 2007) was used to identify additional participants from existing university and social networks. In total, sixteen students (11 female, 5 male) participated, ranging in age from 22 to 66 years. This sampling method also ensured the study was inclusive of perspectives across gender, age, discipline areas and geographic location and represented multiple disciplines of study.

Research Methods

In depth interviews were conducted with participants using the technique of yarning (Bessarab & Ng'andu, 2010; Kickett, 2011). This is a familiar and informal conversational style that can help participants feel comfortable and relaxed. It provided participants with the space to represent themselves and their journeys through education and online learning in their own voices. It also allowed the researcher to build relationships with the participants, to become 'known' to them. Interactions commenced with "social yarning" (Bessarab & Ng'andu, 2010, p. 40) to establish relationship prior to commencing the "research topic yarn" (p. 40). The yarning sessions were conducted face to face where geographically possible, or by telephone where participant were located remotely. The length of the sessions varied between 35 minutes to just under 2 hours. In some instances the yarning was conducted over a number of sessions. All sessions were conducted by one researcher, recorded and transcribed (verbatim), and sent back to the participants for verification. The researcher also engaged in "collaborative yarning" (Bessarab and Ng'andu, 2010, p. 40) with the project's Indigenous reference group. Collaborative yarning is the process of talking about research and is one of four types of yarning that Bessarab & Ng'andu observe takes place within a research setting.

Data Analysis

The verified transcripts were coded in NVivo (QSR International, 2015), based on key ideas, interesting points, notable examples or incidents, strong positive or negative incidents and/or reactions. Emergent themes were then discussed with the Reference Group in collaborative yarning sessions. The reference group comprised of an academic staff member, a member of the Office of Indigenous Academic Support and a student representative. An additional non-Indigenous academic with extensive experience in Indigenous research in New Zealand also participated in these sessions. This allowed for discussion and clarification of the themes, as well as prompting further lines of

inquiry. This collaborative yarning process was powerful and contributed to collective meaning making of the data.

Results: The yarns

The interrelated themes of identity and relatedness were extracted from the analysis. These themes are well established in Indigenous research (Dudgeon, Milroy, & Walker, 2014) and are linked to concepts such as resilience (Kickett, 2011). The following section lets us hear these emergent themes in the words of the Indigenous participants. Stories of identity and relatedness were integral to the participants' understandings of themselves as learners in online environments and it is notable that while these stories tell of very different experiences in terms of the strength of the connections made in these environments, concerns about relatedness and how it is mediated was a common theme.

Just as the process of yarning led to the development of relationships and connections between researcher and participants, so too did the participants' express a fundamental need to connect with other students and establish networks within the learning environment to support their learning. The participants described varying degrees to which they were able to build these connections and relationships online. For some the online learning environment was a foreign space that offered little possibility for connection: "So I guess for the first time I was looking, within a mainstream environment, I was, I felt like I was the outsider" (F37).

When the sense of connection within the online learning environment was weak, the participants' implemented compensatory strategies to leverage networks outside the online learning environment to support their learning intentions. For example, one participant who transitioned from studying internally at one university to externally at the site of this research made the heartfelt comment "You know, I need my husband because I miss my uni" (F29). Another participant also identified the lack of connections she made in the online environment and stated:

> F46: If I didn't have had my sister doing the same unit as me I pretty much thought I would have dropped out at that first semester level.
> AR: What sort of support did you get within the course and from fellow students?
> F46: Nothing. Only my sister.

The extent to which participants drew on existing networks, including family networks, to support their learning varied and was influenced by a range of factors, including the absence of connections being formed within their online learning environments. For some participants family connections were strong, as seen above, where the presence of a sister studying in the same online unit was a factor in stopping the participant dropping out of the course. Some participants, on the other hand, had weak family ties as a result of family breakdown, family separation through stolen generation, and the on going intergenerational impacts of racism that resulted in families disengaging from each other. Regardless of the strength of family ties, each of the participants had existing networks that enabled critical on going support for their participation in HE. Some of these bonds were unexpected, as in the case of the on going friendship and support from an ex-boyfriend's father who one participant advised "If I need school books and I don't have the money he'll loan me the money" (F26).

The participants drew on existing networks and close relationships for the support needed to enter HE and remain in it. Networks outside of online learning environments also contributed to participants' experiences in online learning. The positioning of learning as part of a broader network, not just isolated within online environments, is recognised in the following comment:

> To be a successful learner, and to be a successful learner as a woman, as a mother, as a partner, as a community member, you've got to be able to turn what you're learning into what you are doing (F37).

Given the participants' desire to extend their existing networks and to build connections with other students and lecturers within their units and course, it was notable that they were overwhelmingly dissatisfied at the extent to which they were able to do this. Some participants explained this as being a result of the lack of opportunity for culturally safe interactions in meaningful learning contexts within designed learning environments. Additionally, most but not all participants wanted to disclose their Indigenous identity as part of their online persona but felt constrained to do so. The vast majority

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wanted to connect with other Indigenous students in the first instance. However, the formation of relationships with other Indigenous students in the online environment was not an easy to achieve. In many instances there were few or no other Indigenous students in their online classes and if there were, they were not easily identifiable: "There were no other Aboriginal students online that I knew of" (F37). The frustration felt at this by many participants is expressed in the following comment:

> So I was like, well you know, what am I supposed to do? Stand up in my online lecture and say, "Hey, I'm a blackfella. Is there anyone else out there? You know? (F29)

This inability to locate other Indigenous students was regarded by many students as a lost opportunity for connection and relatedness within the online environment. The extract below indicates the common bonds and relationships that can be established when that opportunity to identify occurs.

> AR: Would it have made a difference to you in your studies if there had been [other Aboriginal students in the online unit] and if you had known that?
> F37: Absolutely! Well you know that you can connect with people. There is a connection. There's this unwritten rule of 'Yeah! You're from there! I'm from here! Yeah, yeah! What's going on over there? You know, there's instantly, you've got something to talk about. There's always food, relations. In some way you're always bloody connected. You always find that you know, you're one person removed from who you're talking to.

While identifying as Indigenous was important for many participants, there were others who felt that this was either not important or they were wary of disclosing their racial positioning in the online environment. It is important to recognise that the participants' held multi-faceted contemporary Indigenous identities and accordingly wanted to represent themselves in different ways. In the example below, one participant was wary of what others might think if she disclosed her racial identity explicitly online.

> F39: For Indigenous students. I just think it's really hard, like I think that if I put on there 'Hi, I'm [name] and I'm Aboriginal' I think everyone would be like 'why?'   AR: Ah. OK.
> F39: 'Why? Why do you need to tell me that?' Do you know what I mean? I know they physically can't see me, but they'd probably be wondering well 'why? What do you…? Why are you telling us that?'

The structure of an online learning environment in HE provides a virtual space where people from diverse backgrounds and groups can gather and make connections. In some instances previous experiences of racism was a factor that discouraged students from identifying as Indigenous in these environments: "And then there's also that risk of being pre-judged" (F39). However, this guardedness made it more difficult to find connections and build relationships. Overall, there was limited evidence of Indigenous students building relationships with other students or their lecturers in the LMS.

> I just couldn't make the connections to anybody. I couldn't make it to the lecturer. I couldn't make the connection to the other students. I couldn't even connect with the Indigenous unit (F30).

While the participants universally disliked 'group work', it did make it possible to build relationships between students. This contradiction speaks to some of the ever present issues in group work such as the logistical difficulties of finding mutually convenient times to meet online, the lack of guidance seen in many group work activities, and experiences of unequal contributions. However, when group work took place it provided opportunities for the participants to make connections with other students.

> We had to do group sessions and we had people from around the world or around Australia and you had to try and lock in a time. But when we did we worked really well together. But it was up to the students, you know, to really work that out (F28).
> [We had] random grouping. It was cool in a random grouping. And then you'd introduce yourself, and it was nice that you thought all these other people was just here in the Northern Territory, but not really. We had them all around Australia. And you get to meet people. And we had the CDU student come out to Maningrida so I got to meet a couple of them (F40).

These statements highlight the tension in the participants' desires to connect with others, the value of this when it occurs in meaningful learning contexts, yet their overwhelming reluctance to interact

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online in the LMS until connections had been made and the 'other' was known. Some of this dilemma may be a result of the perception that the LMS is a formal academic space without a place for social presence, as distinct from social media spaces where connections are inherent in their design.

> I think that yeah, definitely social media is more of an attraction I guess, because [the LMS] is strictly an academic study setting which I can completely understand, whereas Facebook you can be playing with a Facebook app while you're following what's being said. And on top of that you can have your own personal discussions (F26).

On the other hand, while there was great variation in the levels of interest in and use of social media tools by the participants in those units where social media was used and the participants opted into it they experienced an increased sense of connectedness. This is illustrated in the conversations below.

> F28: In one of the units I was studying … the lecturer would put newspaper articles or media stories on Facebook that linked with the unit. The lecturer would also give reminders about when assessments were due. When announcements were made in [the LMS] it would come up on your newsfeed or something or it would be sent as an email as well saying * has pasted on your Facebook. It really helped you connect 'cause it really went and grabbed the student's attention. It grabbed my attention. Reminder about study, you know, a reminder about study. So it was really helpful.
> AR: Did that also connect you with your lecturers or other students more?
> F28: It did. I felt more connected with the lecturers in those units, I did. And I was able to contact them straight away. Like I could just reply to posts and they would see it straight away. And everyone could see it. And I know discussion boards are like that, but it just felt more open to use and easier to use.
> AR: Easier probably because it's something you are familiar with in another part of your life I guess.
> F28: That's right. Yeah. It shouldn't be, but yeah.

This engagement and connection between social media tools and academic spaces does not happen without planning and design of learning environment. While some participants could not see, or had not experienced a link between social media and learning, others were more than ready for it.

> [My phone] it's connected at my hip! Yeah. Facebook, Twitter, Hotmail, Yahoo, a lot of different things. Skype, Skype friends… (F37)
> AR: Where does the formal learning and the social live? Do they intersect?
> F37: Absolutely! On every level. Yeah, because, unless learning is relevant to your life and you can apply it and it's part of your everyday life, you're not going to get as much out of learning as what you could if it was formalised. So high, and it's so disconnected. Everything's connected. I think for Aboriginal people everything has to be connected to your real life, everything's got to be… if you're learning you've got to be able to apply that learning in your own environment.
> I mean we all live and breathe social media and that's the way our life, that's the way we function now. So the universities aren't moving quickly enough. They're not even in with the realities… (F37)

The participants overwhelmingly experienced a sense of disconnection and isolation within the online learning environment, in contrast to the connections and linkages they anticipated. Moreover, this disconnection contrasted with the connections they experience through the use of social media. It is reasonable to suggest that 'relatedness' is a factor that influenced their experiences in the learning environment and hence, opportunities to build meaningful connections in these environments may enhance that experience. Additionally, recognising and linking into students' existing networks and the tools they already use for networking may facilitate linkages between their learning environments and their 'realities'. It is therefore conceivable and possible to create an environment for students where social presence can be fostered: one where a sense of relatedness can begin to be mediated by combining meaningful online interactions with a students' identity within an institutional system.

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Unpacking Relatedness

Social connection is a fundamental human need (Chen et al., 2015) although the way 'relatedness' is experienced and understood varies across cultures and worldviews (Dudgeon et al., 2014; Kickett, 2011). The data in this study reveal that the concepts and practices aligned with identity, representation, connection and relatedness that emerged through the yarning process are integral to the way Indigenous students experience online learning. Karen Martin (2003) for example describes Indigenous subjectivities and worldviews as essential for the survival of Aboriginal peoples. The Aboriginal worldview of relatedness has at its core the interconnection between all things land, the self, and people (Martin, 2008). It is through relatedness that the self is understood. The self, or identity, is experienced and recognized in relationship with others as well as in connection to country through kinship ties (Martin, 2009). Similarly, relationship, connection and belonging are linked to resilience in Indigenous peoples (Kickett, 2011). Exploring Aboriginal ways of knowing the world through relatedness and kinship provide a window for non-Indigenous educators to consider the similarities and differences between Indigenous and western concepts of relatedness.

In the western paradigm, relatedness is an integral component in the concepts of networked learning (Goodyear, Jones, Asensio, Hodgson, & Steeples, 2005), connectivism (Siemens, 2004), and in theories such as Social Capital Theory (Coleman, 1988), and Self Determination Theory (SDT). SDT, for example, describes intrinsic motivation as being comprised of three components: autonomy, competence and relatedness (Ryan & Deci, 2000). In this theory, relatedness is considered as an essential psychological characteristic of well-being. In SDT relatedness is a factor in determining motivation, a concept of relevance to engagement and persistence in learning.

Social capital theory (SCT) similarly situates relatedness as a central component through which 'resources' such as trust and reciprocity are generated through the strength of networks in and across groups (Schaefer-McDaniel, 2004). SCT describes three qualitatively different, yet overlapping types of relationships that lead to social capital formation (Torche & Valenzuela, 2011); these are 'bonding', 'binding' and 'linking' relationships. Within this framework, bonding is the formation of networks within homogenous groups. Bonding links are the strongest form of social capital and usually occurs within family and friendship groups and are marked by high levels of trust and reciprocity, as well as shared norms and values. Binding social capital describes the resources, or benefits, derived from networks developed across heterogeneous groups, while linking social capital refers to networks formed across groups of different status, and between individuals and organisations including governments and their agencies. SCT clearly defines the benefits that derive from relatedness at an individual level and in terms of social cohesion. Importantly, the benefits of establishing networks and relationships apply just as much in learning environments as they do more widely in society. The overlapping concepts of relatedness in Indigenous and western theories provide an opportunity for developing shared understandings of Indigenous and non-Indigenous ways of knowing.

Relatedness and e-learning

The concept of relatedness in online learning is not new. Indeed, in virtual environments the concept of networked learning focuses on the potential of information and communication technology to support connections and collaboration (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012). The very narrative of the Internet is one of connection and the promise, of linking people regardless of race, creed, colour, gender or social status.

In this paper knowledge formation in the online environment is considered in terms of opportunities to develop relatedness through networks, through bonding relationships between people from similar backgrounds and also through binding relationships between heterogeneous people and groups. The technologies that enable online learning make access to HE both possible and attractive to 'non-traditional' students. As a consequence, online learning has been an important driver in broadening the base of HE, as recommended in the Review of Australian Higher Education (Bradley et al., 2008). With this broadening base, including increasing numbers of Indigenous students entering HE (Thomas & Heath, 2014), building processes for developing networks is increasingly necessary in the design of virtual spaces where interaction, exploration and negotiated knowledge construction can thrive.

The distributed nature of online learning has created endless possibilities for connecting people to

each other in educational environments, yet this possibility is juxtaposed by stories of isolation and a lack of connectedness by many online learners (Bolliger & Inan, 2012). The history of technology-enhanced education has focused on the affordances of technology as a means of content distribution, with content being regarded synonymously with knowledge creation/learning. There has been a much lesser focus on teaching practices that are about connecting people with each other as opposed to connecting people with learning (Watters, 2015) and even less of a focus around the identity of the student in the online space and the capacity for this space to be an enabler for recreating that identity (Seitzinger, 2014)

Based on the centrality of relatedness, this paper proposes that a future oriented approach to online learning requires a relational stance, not one that replaces the need for knowledge creation, or distribution, but one that first contextualizes the learner within the online space to increase a sense of relatedness. This stance towards learning is one that takes place both (one could argue 'first') in relation to others and to the resources. Social interaction and the development of networks are essential in moving towards a state of relatedness. However, the virtual or social presence of an individual can take various forms when interacting with others, largely depending on their context. Social media research indicates that identity and the way we choose to represent ourselves; what we reveal and what remains concealed, changes depending on context and intent (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). Cultural norms and protocols also influence how engagement occurs in social interactions, but these protocols are confused in the online space where markers such as age, social standing, race and gender may be obscured (Voiskounsky, 1998).

Representation, therefore, is an important part of developing connections and relationships in online learning environments. Figure 1, illustrates that the online profile (identity) of a person working within a study context will differ from their personal, or private profile, which again may be different from their professional profile. This difference is largely mediated by the systems or services they represent themselves in and through. These representations influence the networks and connections that a student builds in online learning environments and on the extent to which they achieve a sense of belonging in those spaces. For example, it is now quite common for an institution's virtual learning environment (VLE) to have a range of tools that would allow students to create on online identity for themselves; one that they would use to represent themselves to other students and staff, but one they may not want publicly accessible. Typically this would happen in the 'Profile' section in the learning management system (LMS), or/and in an ePortfolio. It may also incorporate other more nuanced uses of popular social media tools, and the syndication of the outputs from these tools, but in a more guarded way.
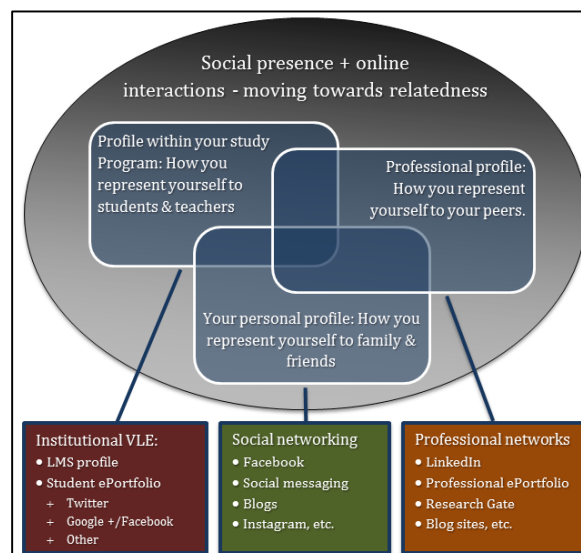

Figure 1. Social presence mediated for different online contexts

In practical term this means a student may choose to represent themselves in a certain way and identify themselves with certain attributes in a study context, where it may be less necessary, and sometime unadvisable, to represent themselves in the same way within their professional context.

This profile, in part, then defines how a student may relate to others within their educational context, which may well then extend to their cultural context and how they choose to represent themselves within that paradigm.

The opportunity for self-representation in online environments has resonance for Indigenous learners. There is much written on the colonizing effects of research and of the misinterpretation and misrepresentation on Indigenous peoples (Martin, 2008; Nakata, 2007). The consequent development of Aboriginal research frameworks and methodologies provide approaches for Indigenous researchers to operate in ways that challenge western research and seeks to redefine the way research is conducted to align with Indigenous world views. Similarly, in online environments there is the potential for Indigenous students to represent themselves as they choose to create online identities that suit their purposes, promote their own agendas and represent their own worldviews.

Learning design models and relatedness

Teaching and learning models are an attempt to simplify inherently complex environments that contain multiple variables. When this takes place online there is an increase in the number of variables. In such environments the promise of a networked and connected world too often doesn't eventuate. Theories of learning such as Sociocultural Theory (Vygotsky, 1978), Social Constructivism (Vygotsky, 1978), Social Learning Theory (Bandura, 1971) and Connectivism (Siemens, 2004) embrace the social and connected nature of learning. Yet the potential for relationships is never guaranteed by technological design or in their translation online. However, without designing for relatedness it is unlikely that the potential of technologies to create connected learning can be realised. But to what extent is relatedness designed for within established and emerging learning design models? The design of flexible online environments that support a diversity of learners within a western higher educational system, including Indigenous learners at the "cultural interface" (Nakata, 2007) needs more unpacking.

The experiences of the Indigenous students in this study indicate that relatedness should be considered at multiple levels within online learning: at the institutional level; at the course design level; and at the unit design level of online interactions. At the institutional level an environment designed for relatedness would allow Indigenous students to represent their multifaceted contemporary identities through an online identity, or profile. It would allow students to connect with other Indigenous students in a culturally safe space. This model would also take into account the continuing influence and flow between personal, social and learning networks, with the learning environment existing not as an isolated ecosystem but one that sits within a wider reality that is connected to all aspects of their world. At a unit level, designing for a related environment would include meaningful and relevant activities that promote student interactions and the sharing of diverse perspectives. The integration of synchronous and/or asynchronous communication tools would be crucial to enable those interactions.

Figure 2 represents components of relatedness from the research as evident in a sample of established design models. It indicates that for these design models, the focus is on unit level design and there is little evidence of design models that incorporate institutional level design principles that support the development of relatedness. Figure 2 also shows that while there is no one model that satisfies all of the components of relatedness, that existing learning design models all include some components of relatedness. That no one existing model includes all the components of relatedness is not surprising. Each of the models was developed for a specific purpose and context different to that of the research.

Learning Design Model	Institutional Level Learning Design			Unit Level Learning Design		Unit Level Interaction Design	
	Identity representation	Culturally safe online spaces	Links to external networks	Learner background/ attributes	Activities & tools	Student-lecturer interaction	Student- student interactions
Biggs' 3-P model (Presage-Process-Product) (Biggs, 1989)	No	No	No	Yes	Yes	Yes	No
Laurillard's Conversational Framework (Laurillard, 2002)	No	No	No	No	Yes	Yes	No
Salmon's 5 Stage Model of E-Learning (Salmon, 2003)	No	No	Yes	No	Yes	Yes	Yes
Goodyear's Problem Space of Educational Design (Ellis & Goodyear, 2010)	No	No	Yes	Yes	Yes	Yes	Yes
Learning Environment, Processes & Outcomes (LEPO) Framework (Phillips, McNaught, & Kennedy, 2012)	No	No	No	Yes	Yes	Yes	No

Figure 2: Evaluation of Components of Relatedness in Learning Design models

Relatedness at an institution level

None of the models represented in Figure 2 factor in identity representation at either institutional or unit levels. For example, none promote the establishment of online profiles that students can use to represent themselves across all their units. Nor do the models incorporate the establishment of institutional physical, or virtual spaces to provide students with the opportunity to extend learning networks with students outside their units. Or in this case, provide opportunities for Indigenous students to engage with other indigenous students enrolled at the institution.

In terms of models that demonstrate a relationship between the outside world and the institutional environment, Goodyear's Problem Space (Goodyear, 2005; Goodyear & Ellis, 2007) acknowledges the "social and physical/digital contexts for learning, as well as the activity itself, are co-produced by students, teachers and others" (p. 341). Also, the fifth Stage of Salmon's Five Stage Model model considers linkages between student learning activities with existing networks and their intersection with online environments. While the majority of the models refer to the learners background and attributes as influencing learning, Goodyear's Problem Space and Salmon's Five Stage Model explicitly link the social nature of learning with others who may be outside of the formal learning environment, positioning the formal learning environment as part of a wider, linked network.

Relatedness in unit level learning design

By recognising the background and attributes students bring to their learning environments we acknowledge also the networks they leverage to support their learning. At the unit level some of the models take into consideration the background and diversity of the learner. For example Biggs 3-P model (Biggs, 1989), regarded as a classic model of teaching and learning, recognises the characteristics students bring to the learning environment and the diverse factors that influence the development of their worldview. The term 'presage' in this model suggests that student characteristics, combined with the context of the environment provides some for-shadowing of the learning experience. The LEPO and Goodyear models also make the link between student background and their learning. Goodyear and Ellis acknowledge that while teachers are not able to "manufacture community" (Goodyear & Ellis, 2007, p. 341), they have a duty to "help set up the social fabric" (p. 341) to support these connections. Goodyear's model provides a strong framework for understanding online learning spaces as situated locations of networked learning that draw on students' backgrounds. The Laurillard and Salmon models, on the other hand, do not reference the student background.

All the models have a focus on activity as the process through which learning takes place, and as the means through which interactions occur. The design of the activities includes consideration of the tools through which the activity and interactions can take place.

Relatedness in unit level interaction design

Activities in a learning environment can be designed as interactions between student and content, student and lecturer, and between students. In terms of moving towards relatedness, interactions between students and between students and lecturers are of most significance. All of the models included student to lecturer interaction as integral components of their design. However, only Salmon's 5 Stage Model and Goodyear's problem space of educational design are explicit about the interaction between students. This is not to say that student-to-student interactions are precluded in the other models, however, the LEPO model includes the teacher and the student as the main actors, but does not show student-to-student interactions as inherent features. Indeed, Biggs' 3-P model also may well include peer-to-peer interactions within the context of learning activities, but this is not an explicit. Gilly Salmon's Five Stage Model of E-learning, on the other hand, focuses on group interaction and group activity and is based on knowledge construction through interaction in staged learning activities and is essentially about group formation and social capital building in the context of learning.

Of the models reviewed, Goodyear's problem space of educational design is the one that positions the concept of relatedness most highly and additionally situates it as a characteristic of well-designed

online learning environments and as a product of skilled facilitation. Elements of each model reviewed contribute in some way to an understanding of how online learning is constituted, but with respect to relatedness, Goodyear's model is unambiguous about the centrality of connectedness to learning.

Recommendations for trial and limitations

It is seen from the discussion above that the issues related to traditional design models for online learning are predominantly related to situating students in a unit of study and looking to engage them at that level, where, in a sense, they have to reestablish their identity each time they go into a new unit. This is problematic, particularly where there may not be any collaboration between those teaching these units, and where there is little or no focus on building an online community that is wider than at the unit level. However, what this paper proposes is to link students into an online network greater than just studying a single, or group of single units. That is, the student may create for himself or herself an identity that transcends the single unit in order to represent, or position themselves within their learning in a more holistic manner, as represented in Figure 3.

Creating the opportunity for identity representation at a university level will involve institutional commitment and disposition to providing a place for this to occur. This could be as simple as re-conceptualising or extending the Goodyear model to incorporate concepts by which relatedness is achieved, particularly for Indigenous students, or it could be extended to incorporate other systems within the VLE that align with the LMS, such as an ePortfolio, an internal social networking tool, or allowing for the syndication of information from certain social media sites, as seen in Figure 3. Regardless of how it is conceived the following recommendations for trial stem from this work:

At an Institutional level:
- Engagement with a suite of technologies to facilitate the development of comprehensive student and staff profiles (identity), along with a openness to receive external social networking feeds.
- Train staff in the notion of digital and social networking literacy and on how to facilitate student engagement, based on a centralised profile (identity).
- Establish and support specific online spaces for Indigenous students (and other defined groups), within the institutional community site, to facilitate the networking across the institution.
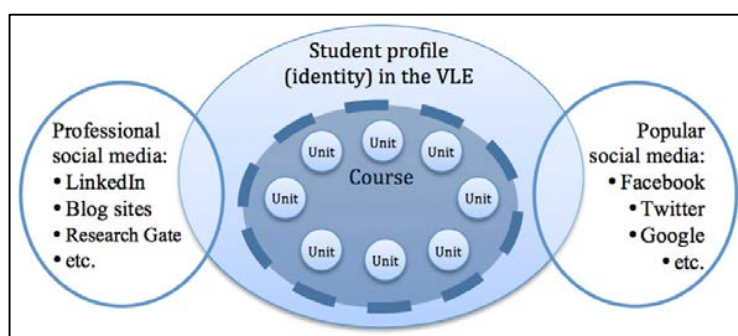

Figure 3. Institutional community focused model

At a Unit level:
- Ensure the design of unit environments can facilitate the use of, and align with, student profiles.
- Train and support students early in their engagement with the institution on how to represent themselves in a university based profile (identity). This requires a level of sophistication and may address ways to encode Indigeneity not visible to non-Indigenous students or staff, if this is desired.

The recommendations are based in the analysis and findings of a design based research project that was located at Charles Darwin University. The findings are in relation to the experience of Indigenous students studying online at CDU and are not presented as generalisable for other contexts. Indeed the recommendations have not yet been tested and are based on deconstruction and analysis of early findings from the research study discussed in the body of this paper. Despite this, based on the evidence provided we recommend that this model be trialed.

Conclusion

The experience of Aboriginal and Torres Strait Islander participants indicates that online learning spaces at the site of the study are not conducive to the sorts of relatedness upon which their lives depend. Additionally, representation of identity within the online environment is an essential prerequisite for establishing connections. However, opportunities to develop an online identity within units are ad hoc and the extent to which students are prepared to reveal their identities depends on a range of factors including the extent to which others in the environment are 'known'. The yearning for connection in online learning environments contrasts with the sense some students have of the online environment as a formal environment rather than a social one, and where the mechanisms for making connections (such as online discussion forums) are not often designed in ways that draw Indigenous students into the learning environment, or seen to be connected with other parts of their lives.

Furthermore, well known learning design models that guide the development of online learning spaces and learning interactions have very little focus on 'relationship' and 'connections', and where they do exist, it is mainly in the context of teacher-student processes and interactions around learning. However, if we take as our starting point the stories that our students tell of their lives and education, we can discern some emerging design principles that may help us establish better online learning ecologies, designed to support their learning journey. The recommendations for trial presented here highlight the social aspects of learning and the need for an institutional level approach to support holistic learning environments. These recommendations provide a means to integrate concepts and practices aligned with relatedness into HE institutions, to create friendlier and safer online spaces for Indigenous, and indeed for all students, in order to enhance the experience of online learning.

References

Anderson, T., & Shattuck, J. (2012). Design-Based Research: A Decade of Progress in Educational Research? Educational Researcher, 41(1), 10.

Australian Bureau of Statistics. (2015). 3101.0 Australian Demographic Statistics, Mar 2015. Canberra: Australian Bureau of Statistics.

Babbie, E. (2007). The Practice of Social Research (11 ed.). Belmont CA: Thomson Wadsworth.

Bandura, A. (1971). Social Learning Theory. New York: General Learning Press.

Bessarab, D., & Ng'andu, B. (2010). Yarning About Yarning as a Legitimate Method in Indigenous Research. *International Journal of Critical Indigenous Studies, 3*(1), 37-50.

Biggs, J. B. (1989). Approaches to the enhancement of tertiary teaching. *Higher Education Research and Development, 8*(1), 7-25.

Bolliger, D., & Inan, F. (2012). Development and Validation of the Online Student Connectedness Survey (OSCS). *The International Review of Research in Open and Distributed Learning, 13*(3), 41-65.

Bradley, D., Noonan, P., Nugent, H., & Scales, B. (2008). Review of Australian Higher Education Final Report. Canberra: Department of Education, Employment and Workplace Relations.

Charles Darwin University. (2015). Charles Darwin University Annual Report 2014. Darwin.

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. Motivation and Emotion, 39(2). https://doi.org/10.1007/s11031-014-9450-1

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. The American Journal of Sociology, 94 (Supplement: Organizations and Institutions: Sociological and Economic Approaches to the Analysis of Social Structure), S95-S120.

Dudgeon, P., Milroy, H., & Walker, R. (Eds.). (2014). Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice (Second ed.). Barton, ACT: Australian Government Department of the Prime Minister and Cabinet.

Ellis, R., & Goodyear, P. (2010). *Student experiences of e-learning in higher education: the ecology of sustainable innovation.* London: RoutledgeFalmer.

Goodyear, P. (2005). Educational design and networked learning : patterns, pattern languages and design practice. *Australasian Journal of Educational Technology, 21*(1), 82-101.

Goodyear, P., & Ellis, R. (2007). *Students' interpretations of learning tasks: Implications for educational design.* Paper presented at the ascilite conference 2007, ICT: Providing choices for learners and learning, Singapore.

Goodyear, P., Jones, C., Asensio, M., Hodgson, V., & Steeples, C. (2005). Networked learning in higher education: Students' expectations and experiences. *Higher Education: the international journal of higher education and educational planning, 50*(3), 473-508.

Hall, A. (2009). *Designing Online Learning Environments for Local Contexts, as exemplified in the Sultanate of Oman.* (Doctorate in Education), University of Wollongong, Wollongong.

Kickett, M. (2011). Examination of How a Culturally Appropriate Definition of Resilience Affects the Physical and Mental Health of Aboriginal People. (PhD), Curtin University.

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons, 54*(3), 241-251. doi: http://dx.doi.org/10.1016/j.bushor.2011.01.005

Laurillard, D. (2002). Rethinking university teaching: A conversational framework for the effective use of learning technologies (2nd ed.). London: Routledge.

Martin, K. (2003). Ways of Knowing, Ways of Being and Ways of Doing: a theoretical framework and methods for Indigenous re-search and Indigenist research. *Journal of Australian Studies, 76*(Voicing Dissent, New Talents 21C: Next Generation Australian Studies), 203-214.

Martin, K. (2008). *Please knock before you enter: Aboriginal regulation of outsiders and the implications for researchers*. Teneriffe, Qld: Post Pressed.

Martin, K. (2009). Thinkin' you know...getting it wrong...and us missin' out - Aboriginal worldview and knowledge, English literacy - great expectations or grating obsessions? *Dare to Lead: National Indingneous Education Conference* Melbourne

McConnell, D., Hodgson, V., & Dirckinck-Holmfeld, L. (2012). Networked Learning: A Brief History and New Trends. In L. Dirckinck-Holmfeld, V. Hodgson & D. McConnell (Eds.), *Exploring the Theory, Pedagogy and Practice of Networked Learning*. New York: Springer-Verlag

McLoughlin, C., & Oliver, R. (2000). Designing learning environments for cultural inclusivity: A case study of indigenous online learning at tertiary level. *Australian Journal of Educational Technology, 16*(1), 58-72. https://doi.org/10.14742/ajet.1822

Nakata, M. (2007). *Disciplining the Savages: Savaging the Disciplines*. Canberra: Aboriginal Studies Press.

Phillips, R., McNaught, C., & Kennedy, G. (2012). Evaluating e-learning: guiding research and practice. New York Routledge.

QSR International. (2015). NVIVO10 for Windows from http://www.qsrinternational.com/products_nvivo.aspx

Reedy, A., Boitshwarelo, B., Barnes, J., & Billany, T. (2015). Swimming with crocs: Professional development in a Northern context. Paper presented at the Australian Teacher Education Association (ATEA) conference, 'Strengthening partnerships in teacher education: Building community, connections and creativity', Darwin

Reeves, T. C., McKenney, S., & Herrington, J. (2010). Publishing and perishing: The critical importance of educational design research. Australasian Journal of Educational Technology, 27(1).

Rigney, L. I. (2006). Indigenist Research and Aboriginal Australia. In J. E. Kunnie & N. I. Goduka (Eds.), Indigenous Peoples Wisdom and Power. affirming our Knowledge Through Narratives. Hampshire: Ashgate.

Russell, L. R., Kinuthia, W., Lokey-Vega, A., Tsang-Kosma, W., & Madathany, R. (2013). Identifying complex cultural interactions in the instructional design process: a case study of a cross-border, cross-sector training for innovation program. *Educational Technology Research and Development, 61*(4), 707-732. doi: 10.1007/s11423-013-9291-8

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78.

Salmon, G. (2003). E-moderating: The key to teaching and learning online (2nd ed.). London, New York: RoutledgeFalmer.

Schaefer-McDaniel, Nicole J. (2004). Conceptualizing Social Capital among Young People: Toward a New Theory. *Children, Youth and Environments 14*(1): 140-150.

Seitzinger, J. (2014). *Curate Me! Exploring online identity through social curation in networked learning.* Paper presented at the 9th International Conference on Networked Learning 2014, University of Edinburgh.

Siemens, G. (2004). Connectivism: A Learning Theory for the Digital Age. International Journal of Instructional Technology and Distance Learning, 2(1), 3-10, 2(1), 4-10.

Thomas, L., & Heath, J. (2014). Institutional wide implementation of key advice for socially inclusive teaching in higher education. A Practice Report. *The International Journal of the First Year in Higher Education, 5*(1), 125-133. https://doi.org/10.5204/intjfyhe.v5i1.206

Torche, F., & Valenzuela, E. (2011). Trust and reciprocity: A theoretical distinction of the sources of social capital. *European Journal of Social Theory, 14*(2), 181-198.

Universities Australia. (2014). Indigenous Higher Education Retrieved 27 September 2015, 2015, from https://http://www.universitiesaustralia.edu.au/uni-participation-quality/Indigenous-Higher-Education

Voiskounsky, A. (1998). *Internet: Culture Diversity And Unification.* Paper presented at the Cultural Attitudes Towards Communication and Technology '98, University of Sydney, Australia.

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

Watters, A. (2015). *Learning Networks, Not Teaching Machines*. Paper presented at the EDEN 2015, Barcelona. http://hackeducation.com/2015/06/10/eden2015/

Woolcock, M., & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. The World Bank Research Observer, 15(2), 225-249. https://doi.org/10.1093/wbro/15.2.225