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Exploring learning goals and assessment approaches for Indigenous health education: a qualitative study in Australia and New Zealand

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Abstract In higher education, assessment is key to student learning. Assessments which promote critical thinking necessary for sustained learning beyond university are highly valued. However, the design of assessment tasks to achieve these types of thinking skills and dispositions to act in professional practice has received little attention. This research examines how academics design assessment to achieve these learning goals in Indigenous health education. Indigenous health education is an important area of learning for health practitioners to help address worldwide patterns of health inequities that exist for Indigenous people. We used a constructivist qualitative methodology to (i) explore learning goals and assessment strategies used in Indigenous health tertiary education and (ii) examine how they relate to

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higher education assessment ideals. Forty-one academics (from nine health disciplines) involved in teaching Indigenous health content participated in a semi-structured interview. Thematic analysis revealed learning goals to transform students' perspectives and capacities to think critically and creatively about their role in Indigenous health. In contrast, assessment tasks encouraged more narrowly bounded thinking to analyse information about historical and socio-cultural factors contributing to Indigenous health. To transform students to be critical health practitioners capable of working and collaborating with Indigenous people to advance their health and well-being, the findings suggest that assessment may need to be nested across many aspects of the curriculum using a programmatic approach, and with a focus on learning to think and act for future practice. These findings accord with more recent calls for transformation of learning and assessment in health education.

Keywords Indigenous health education · Assessment · Scholarship of assessment · Health sciences · Learning goals

Introduction

Over the past decade, there has been increasing attention paid to the role of assessment for learning in higher education. In 2006, Boud and Falchikov proposed an assessment reform agenda, emphasising the role of assessment to both trigger and develop sustained learning for future professional practice (Boud and Falchikov 2006). Similarly, Carless (2007, 2015a, b) described 'learning-oriented' assessment as a method to encourage students to independently engage in the thinking required for their future disciplinary work. Two key assumptions of this literature are that the most effective way of changing how and what students learn is to change the way they are assessed (Norton et al. 2013), and, in order for students to internalise attitudes of lifelong learning, they need to develop habits and dispositions of critical thinking (Barnett 2015; Golding 2011). Table 1 lists some of the key characteristics of assessment tasks designed to promote this type of thinking.

If students are to engage with standards, criteria and problem analysis (Table 1, principle 1), assessment tasks will need to foster in students specific and concrete skills to think critically about a topic or situation and to evaluate and analyse information beyond obtaining the 'right' answer (Golding 2011). If students are to develop agency to think independently (Table 1, principle 6), and be motivated to sustain critical and reflexive thinking in their future

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Table 1 Principles of assessment design to promote critical thinking and life-long learning in higher education

Assessment tasks which are designed for sustained learning should (Boud and Falchikov 2006, p. 408–410)	1. Engage students with standards, criteria and problem analysis 2. Emphasise the importance of context 3. Involve students working in association with others 4. Promote transparency of knowledge 5. Foster reflexivity 6. Build learner agency for active learning 7. Provide scope for student initiative 8. Promote feedback seeking behaviours
Assessment tasks which promote learning should (Carless 2015a, p 65)	9. Encourage deep approaches to learning 10. Mirror real world application of subject matter 11. Involve students as participants in a disciplinary community 12. Develop student metacognition by having them engage with criteria, standards and exemplars 13. Involve elements of student choice and personal investment 14. Stimulate and encourage sustained involvement and effort over time 15. Facilitate forms of dialogic interaction or feedback between teacher and learner

workplace (Table 1, principle 12), assessment tasks will need to encourage students to develop dispositions of curiosity, humility and insight about their professional role within their specific disciplinary context (Barnett 2015, p. 73).

However, drilling down to the specific work of designing an assessment activity to achieve these concrete skills of thinking and dispositions to act within a particular disciplinary professional context has received less attention. There are some studies where the 'how to' of assessment design processes has been unpacked. For example, Sadler (2010) highlights the importance of giving students opportunities and criteria by which they can judge their performance and thinking. He suggests that students need access to the sometimes tacit evaluative skills which teachers use when judging the quality and relevance of submitted work. Through the method of peer evaluation, he posits that students need to practise weighing up features of quality work in writing and in disciplinary practices, developing grounds for appraisal and then writing up their deliberation and reasons. Carless (2015a, b) provides specific examples of assessment designs used by award winning academics from different professional backgrounds. Recurring features of the assessment design work from this group of academics includes a focus on how to promote ways of thinking and practising for future real life work, distributing student effort over the whole semester and giving students choice within tasks (Carless 2015b). Other studies have focused on factors influencing academics' capacity to undertake this necessary design work. Bearman et al. (2016) found that the task of designing assessment was influenced by academics' personal beliefs about teaching and goals of learning. They also found the affordances and barriers provided by higher education institutions, including the explicit and implicit value given to a subject area within a disciplinary program and the influence of regulatory requirements from accreditation and competency standards, impacted on the capacity of academics to design and implement assessment tasks (Bearman et al. 2016; Bearman et al. 2014).

In this research, our goal was to identify how academics use assessment to drive learning and promote thinking in the specific context of Indigenous health education within health

professional programs. Indigenous health education is an important area of health professional training. In Australia and New Zealand, significant health and well-being inequalities exist between Indigenous and non-Indigenous people (Anderson et al. 2006), and this pattern is apparent globally for other Indigenous populations (Anderson et al. 2016). Training health professionals to develop disciplinary-based skills relevant to providing health care to Indigenous people is recognised as key to reducing this health discrepancy (Bainbridge et al. 2015). Commonly cited educational goals of Indigenous health education are to ensure students learn skills of critical thinking about health and its determinants and develop an awareness and understanding of the impact of political, historical and social forces on the health status of Indigenous people and demonstrate reflexivity about the impact of their own values and professional treatment paradigms on others (Australian Association of Social Workers 2012; Australian Dental Council/Dental Council (NZ) 2016; Australian Medical Council 2012; Australian Nursing and Midwifery Accreditation Council 2015; Australian Physiotherapy Council 2015; Physiotherapy Board of New Zealand 2009).

These learning goals represent high-level critical thinking skills derived from a variety of knowledge frameworks beyond specific health domains (Dao et al. 2016). Assessment tasks to achieve this type of learning need to promote in students capabilities to think creatively and critically by evaluating, analysing and synthesising a range of perspectives and sources of knowledge (Department of Health 2016; Sadler 2010). However, Indigenous health education and other sociologically oriented content such as health anthropology and health humanities have historically struggled to find a home within the curriculum of many health disciplines (Eckenfels 2000; Ewen 2014; Hafferty 1998). The pedagogies promoted in Indigenous health education such as intersectionality (Crenshaw 1991; Ewen et al. 2016; Harms 2010; Jones and Wijeyesinghe 2011), critical race theory (Hook 2012) and socio-medical theories about health (Dao et al. 2016) can be different and even antithetical to dominant biomedical or specific disciplinary frames of reference (Ewen 2014). Such content can be perceived by students and teaching faculty as an add-on to the biomedical content or body systems approach to learning about health care that dominates many health professional programs (Ewen 2014; Ranzijn et al. 2008, p. 138). This focus may induce learning resistance in students based on perceptions that the context is irrelevant for their future work (McDermott and Sjoberg 2012; Ramjan et al. 2015; Tobin et al. 2015). The requirement to examine the legacy of colonialism and white privilege can also make students feel uncomfortable (Riley et al. 2013; Williamson and Dalal 2007).

This learning context creates extra challenges beyond the normal factors (Bearman et al. 2016) impacting on academics who are responsible for designing and implementing assessment. Identifying how teachers navigate the teaching and assessment design work in the context of Indigenous health education in health profession programs of learning provides potentially rich and valuable information about the intersection between higher education principles of assessment design and the realities of academics' experiences.

Methodology and methods

We used a qualitative methodology drawing from a social constructivist framework (Andrews 2012). This theoretical perspective privileges the interpretation and understanding of individuals as a source of knowledge (Creswell 2013). This research paradigm provided the basis for exploring how academics understand and interpret their role in designing and developing

assessment tasks to achieve their learning goals in Indigenous health education. We conducted semi-structured interviews with academics involved in teaching Indigenous health content at a master's level in universities in Australia and New Zealand. The interview questions (Table 2) were developed to encourage participants to discuss their learning goals for Indigenous health and to describe how they designed and implemented assessment tasks to achieve their learning goals. Ethics approval (HREC protocol 1443255) for the study was obtained from The University of Melbourne, School of Health Sciences Human Research Ethics Advisory Group.

Participants were purposively selected (Palys 2008) on the basis of their experience and involvement in teaching and/or coordinating Indigenous health content in health professional programs in higher education institutions. They were identified through contacts of the project team, desktop searches of the websites of Australian universities, refereed publications and Indigenous health education conference programs (i.e. Ryan et al. 2015).

Analysis

The full interview transcripts were analysed using a thematic and constant comparative method (Braun and Clarke 2006; Charmaz 2014). Authors CD and LD read each transcript highlighting descriptions about learning goals and then grouping them into codes and patterns guided by the overall categories of knowledge, skills and attitudes. They also grouped assessment tasks into categories according to the type of cognitive work required from students to complete the task. The typology was developed inductively based on participants' descriptions of the type of cognitive work they were hoping students would engage in when completing the assessment tasks (see Table 2). All other authors similarly read and coded two transcripts each. The transcript notations were then synthesised by CD and LD to develop themes.

Results

A total of 41 academics involved in teaching and coordinating Indigenous health content in health sciences disciplines participated from 9 universities (8 Australian and 1 New Zealand). Participants' disciplinary backgrounds included public health (n = 11 from four institutions), medicine (n = 10 from 5 institutions), nursing (n = 8 from 6 institutions), social work (n = 4 from 2 institutions), dentistry (n = 3 from 2 institutions), physiotherapy (n = 2 from 1 institution), speech pathology (n = 1 from 1 institution), neuroscience (n = 1 from 1 institution)

Table 2 Interview questions

Questions about the learning goals of Indigenous health education
• Can you tell me about the learning goals of Indigenous health education in your subject/program in the following areas:
○ Knowledge?
○ Skills?
○ Attitudes?
○ Other?
Questions about Indigenous health assessment tasks
• Can you describe how Indigenous health content is assessed in your subject/program (if at all)?
• [For each assessment] can you talk about the purpose of the assessment?
• How is this assessment marked?
• Can you talk about how the assessment relates to the focus and content of your subject/program?

and psychiatry (n = 1 from 1 institution). The results are presented in two main sections: first, a discussion of the themes derived from participants' descriptions of their learning goals, and second, a description and categorisation of the types of assessment tasks set by participants.

Participants were invited to discuss their broad learning goals with reference to types of understanding, skills, values and attitudes they were aiming to cultivate in students. Commonly expressed learning goals were to shift students' attitudes so that they were more disposed to think and act critically in relation to health care with Indigenous peoples. A recurring goal was a desire for students to develop a deep and reflexive understanding of factors influencing Indigenous peoples' health. The learning goals within the data clustered around students acquiring an understanding of the many intersecting factors which contribute to the health status of Indigenous people. Key learning goals were to foster critical thinking skills to encourage students to see connections between the historical, socio-political and economic experience of people and its impact on their health and well-being. In addition, academics wanted students to understand how their own values and professional roles may either negatively or positively impact on healthcare interactions and outcomes for Indigenous people.

Very few participants expressed teaching and learning goals to impart facts and information about the status of Indigenous health or the types of health interventions likely to be relevant for specific disciplines. Instead, the learning goals, as expressed in representative quotes below, suggest a desire to transform students' understanding. Each quote is attributed to the participant according to their disciplinary background and interview number.

Learning goals in Indigenous health education: knowledge

History and culture were described as foundational areas of knowledge for working in health settings with individuals from Indigenous backgrounds:

> I want them to understand historical factors including how health [of Indigenous people] is affected by history, and culture, and how the dominant culture affects this population. (D3)
>
> [Students need to know] the basics about the conditions that people live in, the social determinants of health, the ongoing impact of colonisation, not just as a past event but as a contemporary impact as well… so trying to get them to understand the origins of disparity of health, including the health practitioner's contribution to disparities. (M2)

Having this broad understanding of the socio-political-cultural context relevant to health care for Indigenous people was seen as a crucial platform from which to build more discipline-specific skills.

Learning goals in Indigenous health education: skills

Participants discussed wanting to develop students' skills in two key domains: cognitive (critical thinking and reflexivity) and relational (communication and relationship building). Reflexivity was described as students learning to recognise and critically reflect on how their culture and values might impact on their role as a health practitioner:

> One of the key things we try to do is really to get students to I guess start putting themselves in the picture and to think about themselves as a sort of active agent in indigenous health, whether that be for good or evil. (PH2)

Some academics described how they wanted to enable students to see themselves as having responsibility and agency to engage with Indigenous people through culturally safe and respectful ways of communicating:

> [Students] have to understand that western ways of working, placing the practitioner at the centre of the universe aren't necessary the best or the most appropriate. (M2)

Developing skills to build relationships, with individuals and with communities, was also identified as a key learning goal:

> Given the complexity and the diversity of Indigenous cultures … it's about being able to work at a one to one level with Indigenous patients as well as with Indigenous communities and making sure that you're informed by the community rather than rushing in. So it's about sort of being sensible to the nuances and complexity of working within a community. (P2)

Participants also spoke about developing particular types of values, dispositions and attitudes they were hoping to engender and facilitate through their assessment and more broadly their teaching.

Learning goals in Indigenous health education: values and attitudes

Academics discussed how they hoped to motivate students to become interested in engaging with the health issues faced by Indigenous people:

> … I actually want them to care about Indigenous health, and I don't care what door I take to get them there. I want them to hear items on the news, like related to prison incarceration rates, and to actually hear it, and also understand how it will inform their consultations. (M6)

Many participants spoke of wanting to instil an awareness of the strengths of Indigenous people:

> We have to be really careful that it isn't all deficit focused... Otherwise you are just teaching students to perceive Aboriginal and Torres Strait Islander people as hopeless and in need of consistent care rather than, people have survived and been resilient and adaptive. (N2)

Learning goals in Indigenous health education: teaching challenges

Although not asked directly, many participants raised challenges associated with teaching Indigenous health. A commonly raised concern was an awareness of student resistance to the content and a consequent concern for academics to avoid teaching what they described as 'white guilt 101'. In the quote below, the participant describes an experience of encountering explicit resistance to Indigenous health content:

> Students absolutely rebelled. They hated it with a passion and that was just completely unexpected to me… it was around the historical cultural stuff. They felt they were being blamed for stuff that happened in the past. It was a very emotional response which really closed them off. I think definitely we've got to be very careful because my fear in that

> situation was that okay they haven't learned anything but I might have actually done some damage in terms of how they feel about this particular area. (D2)

Another challenge related to the experience and perceived expertise of academics required to teach Indigenous health, specifically related to their indigeneity:

> For non-Indigenous academics, there can be a lack of knowledge for ourselves in this space…a lack of confidence to step up to this area. We need to really develop appropriate resources for teachers. (N3)

Some academics expressed an awareness of the burden of asking Indigenous people to continually share their personal experience and knowledge with students:

> I explained to the students that what we're asking [the guest lecturer] to do is a very hard thing. We're asking her to tell us her story, the story of her family, of her work life. You sit there and you learn from it and that's a one way journey. She's doing that out of incredible generosity. It's very difficult to be put into that position… I'm always interested in finding ways in which people can learn without over-exhausting the nobility and generosity of Aboriginal people and their efforts to teach people. (SW1)

These types of challenges emerged in discussion about the teaching experience and goals of learning and were not directly linked to the design of assessment tasks. However, they do suggest that the teaching and learning context was challenging and this may have influenced the capacity and focus of assessment task design.

Assessment types in Indigenous health education

The second part of the interviews focused on the types of assessments being used to assess Indigenous health knowledge. We grouped the assessment tasks according to participants' descriptions of the type of thinking they were aiming to achieve (Table 3).

Type 1 assessment tasks involved students receiving information from the teacher and being required to recall that content via the format of multiple choice questions (MCQs) or short answer responses as part of broad, knowledge-based examinations. The type of thinking required for these tasks involved receiving and then recalling information. The aims of such assessment tasks were described as checking that students had completed set readings sufficient to develop some understanding:

> We have weekly multiple choice questions online. It's a really simple assessment that is worth a small amount of their grade, to check their surface level understanding and make sure that they have gone and done the pre-readings we have told them to do for this week. (M4)

Type 2 assessment tasks asked students to analyse information, again, given by the teacher. For example, students were given information about how historical, cultural and socio-political factors have impacted on the health of Indigenous people in either a lecture format or via readings. They were then prompted to identify and distinguish between their own values and interpretation of this information and other perspectives and ways of framing the information. Some assessment tasks within this category also asked students to demonstrate their understanding of the practical (healthcare) implications of this information. One example, described by participants from public health and medicine disciplines, was a deconstruction exercise.

Table 3 Assessment types identified in the data

Assessment type	Assessment task	Health discipline
Type 1: Receiving and recalling information.	Short answer questions	Medicine Nursing Public health
	Multiple choice questions	Medicine Psychiatry
Type 2: Analysing information given	Case studies	Nursing
	Deconstruction exercises	Medicine Nursing Public health
Types 2–3: Analysing information identified and/or given	Reflective assessments	Medicine Nursing Public health Social work Speech pathology
	Policy critique and/or review	Nursing Public health Social work
Type 3: Identifying and analysing information	Other written assessments	Nursing Public health Social work Dentistry
	Oral presentations	Nursing Public health Psychiatry
Type 4: Applying knowledge to experience	Workplace proposal assessment	Nursing Public health
	Practice-based assessment (OSCE)	Medicine Dentistry
Type 5: Using experience to develop knowledge	Scaffolded longitudinal assessment	Physiotherapy

This involved students being asked to deconstruct a statement or question posed in the media containing a view that implicitly, or explicitly, discriminated against Indigenous people. The idea was for students to identify and analyse assumptions within the statement which may be discriminatory towards Indigenous people. A participant described the type of cognitive work in the task as follows:

> One of the examples we give to students is to take the question: 'why are Aboriginal people prone to drug and alcohol addiction?' so what we ask students to do is to take the key word (prone) from those questions and analyse the assumptions. (M5)

Another type 2 assessment example, from a nursing participant, was the use of an Indigenous patient case study requiring students to critically analyse information about a patient's health history, including their cultural values about health care, and then develop and present a culturally safe recommendation for that person.

Type 3 assessment tasks asked students to independently locate and then analyse information from sources such as film, literature and health policies related to management of health conditions encountered by Indigenous people and then to critique the values and treatment paradigms embedded within these healthcare approaches. One example of this expected approach was outlined by the following participant describing a policy analysis task:

> They do a group assessment where the group locates policies … So they start with the government frameworks for closing the gap, they look at NSW Health and what NSW Health has put out in terms of policy frameworks, and then they look at their local level and see what is happening, and do an analysis of that. (N1)

Other assessment tasks of this type included conducting annotated bibliographies, literature reviews, research proposals and essays. The key difference between type 2 and 3 tasks was that in type 3 tasks, students were required to choose relevant material to critique, and this requirement imposed more independence and responsibility on them.

Type 4 assessment tasks asked students to move from analysing information to identifying how it could be integrated into real life health workplace contexts. One example involved an 'objective structured clinical examination' (OSCE), a practice-based task used in medicine and dentistry, requiring students to demonstrate communication skills relevant to healthcare situations involving a health issue for an Indigenous person. They described their expectation of students in the task as follows:

> It was getting the student to take on the role as advocate. So it wasn't just assessing their ability to communicate to patients, but it was looking at real life when you're on the ward and you're faced with somebody who's looking to you as the educator in terms of Aboriginal health. How would you respond and what would you say? That's what they had to demonstrate. (M3)

Other tasks of this type required students to develop a policy, or education program relevant to influence the health of an Indigenous community, in their actual or prospective workplace. In this assessment category, applying information to a workplace situation changed the thinking requirement to be more practically oriented.

In the final type of assessment identified in the interview data, by a participant from one discipline only (physiotherapy), students were given an opportunity to spend time in an Indigenous community controlled organisation and to conduct a health needs analysis and develop a health promotion project. This assessment example required students not only to understand the theory of working in Indigenous health contexts but also to judge the impact of their intervention on the people involved.

In summary, most of the assessment tasks identified in the data encouraged students to analyse, synthesise and/critique knowledge, including historical, cultural and socio-political factors which contribute to health status and outcomes of Indigenous people. A few tasks also asked students to critically analyse information and adopt a reflexive stance to foster their awareness of the potential impact of their own perspective. However, most of the assessment tasks were set and controlled by the educator. The tasks appeared to be discrete assignments which encouraged some analytic thinking, but in the majority of examples, the information was supplied by the teacher and these were few opportunities for students to creatively and independently critique their practice or monitor its impact on others in workplace settings.

Discussion

The primary goal of this research was to explore learning goals and assessment strategies used by academics involved in teaching health professional knowledge and skills relevant to working with Indigenous people. Participants in this research described learning goals

designed to disrupt 'settled' or 'unexamined' thinking in students. They spoke of wanting to deepen students' understanding of their own values about health and well-being and to assist them to understand the influence of historical and socio-political factors on Indigenous peoples' health and well-being.

Many of the learning goals identified in this data resonate with prescribed learning outcomes from accreditation documents developed to guide teaching and learning for Indigenous health education, and more broadly in tertiary education. For example, the Aboriginal and Torres Strait Islander Health Curriculum Framework (Department of Health 2016) lists learning outcomes that include capacities to reflect on cultural perspectives and worldviews and reflexive skills to critically explore how the culture of health professions impacts on health care with Indigenous people. The Australian Qualifications Framework (Australian Qualifications Framework Council 2013) states that students at masters level education should develop cognitive, technical and creative skills to investigate, analyse and synthesise complex information, problems, concepts and theories and to apply established theories to different bodies of knowledge or practice. Participants' learning goals reflected these ideas about the need for future health practitioners to develop capabilities for negotiating between western disciplinary and Indigenous knowledge standpoints and perspectives (Nakata 2004).

However, the data illuminated some obvious misalignments between the rich and complex learning goals described and the assessment tasks set to evaluate and drive such learning. For example, participants representing medical programs in our data rarely required students to demonstrate relationship building and communication skills in assessment tasks, despite these skills being raised as significant learning goals by these educators. Similarly, a key learning goal expressed by many of the nursing educator participants was to develop students' capacities to engage in culturally safe practice, but the corresponding assessments required a written response only rather than examining practical skills in this area. In effect, the complexity of academics' desired learning goals was invisible to students. For students to be able to recognise and monitor the quality and impact of their thinking and actions, they need the required thinking and evaluative criteria to be made both visible and accessible to them (Delany and Golding 2014; Golding 2011), and they need opportunities to practice and criteria to judge their performance (Sadler 2010).

There were some examples of well-matched learning goals and assessment tasks. Many of the public health educator participants wanted to motivate students to engage independently and critically with Indigenous health issues. For example, the deconstruction assessment tasks asked students to identify possible preconceptions about Indigenous peoples and to explore the impact of western hegemony implicitly contained in media statements. These tasks demonstrated a type of 'unsettling' approach to scaffold student thinking so that they might better distinguish between their own and Indigenous perspectives and positions (Williamson and Dalal 2007). However, the majority of tasks had defined parameters set by the educator, leaving little room for students to independently develop and critique their understanding and developing skills in this area.

These results raise not only important questions for Indigenous health academics specifically but also relevant more broadly for faculty in higher education: How can assessment be used to promote capabilities of critical thinking and dispositions to identify and then develop collaborative approaches to enhance health and well-being for Indigenous peoples? What types of assessment tasks can educators use to make the thinking and skills required for future Indigenous health practice, overt and concrete? And, how can these assessment tasks be

integrated into the dominant professional discourse and evaluative frameworks of health programs?

The results also provide some possible directions for addressing these questions. The five types of assessment tasks identified within the data emerged from participants' descriptions of the type of thinking they were hoping to facilitate. This inductively derived typology aligns closely with the lower levels of Miller's (1990) four-level pyramid of clinical competence: (1) 'knows', (2) 'knows how', (3) 'shows how' and (4) 'does'. The focus of the assessment tasks in our data were on foundational knowledge and critique of the social determinants of health. Students were asked to demonstrate that they *knew* of this information and they were asked to demonstrate that they *knew how* to incorporate this knowledge in written critiques. In contrast, the learning goals expressed by academics in this research were predominantly at the top of Miller's original pyramid and they also incorporated Cruess et al.'s (2016) amended 5th level of the pyramid which moves beyond does to 'is'. This final category recognises that for students to move beyond lay understandings of their disciplinary work, they must transform their 'student' identity to a 'professional' identity which incorporates dispositions to act and think critically, creatively and responsively to Indigenous health issues and people.

Identifying a discrepancy between learning goals and assessment tasks is an important step towards developing strategies to close this pedagogical gap. The research identifies that for educators to ensure their assessment tasks drive the type of practically relevant and sustained learning for effective engagement in Indigenous health issues, they will, in the words of Hutchings and Shulman (1999), need to 'go meta' (p. 13). They will need to frame and systematically investigate alignment between Indigenous health learning goals and assessment tasks, and they will need to develop criteria which students can access, to judge the quality and practical relevance of their responses (Boud et al. 2015; Rust et al. 2003; Zubrzycki et al. 2014, p. 96).

The learning goals identified by academics in our data go to the heart of the learning goals of higher education to transform student understanding and prepare them with the capabilities and dispositions to act as mature and critical moral agents who can navigate complex social challenges (Barnett 1997, 2015; Holmboe and Batalden 2015). Working towards achieving these goals means moving closer to the goals of the assessment reform agenda (Boud and Falchikov 2006; Carless 2015a, b), and the strategies are therefore relevant beyond the Indigenous health education arena.

To move assessment tasks to higher levels of learning, they will need to be designed to engage students more in 'doing' rather than 'knowing'. For example, students will need opportunities to practice adapting their health discipline knowledge to respond to challenges posed by uncertain or unfamiliar but real Indigenous health contexts, rather than obtaining their responses from textbooks and the commentaries of others. Students will need access to a wide range of socio-medical frames of knowledge (Dao et al. 2016) to enable them to make connections across different and sometimes disparate fields of knowledge and life experiences of Indigenous people, rather than viewing knowledge and understanding as fixed and bounded by their own specified competencies (Delany and Watkin 2009; Metzl and Hansen 2014). Rather than viewing expertise in clinical practice as amassing discrete disciplinary based skills and facts (Martimianakis et al. 2009), students and academics will need to identify and own their knowledge perspectives and assumptions about learning and professional work and then be prepared to co-produce practice knowledge to inform clinical skills and decision making

(Holmboe and Batalden 2015). This also means focusing on processes required to transform such knowledge into establishing and building relationships rather than how to transact a healthcare service by one person for another (Normann 2001).

To achieve these critical thinking capabilities, assessment tasks may need to be nested (Boud and Molloy 2013) across many aspects of the curriculum using a programmatic approach (van der Vleuten and Schuwirth 2005). To transform students to be critical health practitioners capable of working and collaborating effectively with Indigenous people to advance their health and well-being, students will need to be habitually exposed to a learning culture which values creative and critical thinking where the focus is on learning 'to do something' rather than have knowledge about something (Fraser and Greenhalgh 2001). To do this, Indigenous health content needs to be part of the formal and visible health curriculum (Ewen et al. 2012).

Our research also confirms that closing the pedagogical gap between learning goals and assessment tasks is not straightforward. Participants identified student resistance and a need for more faculty support and professional development to undertake Indigenous health teaching. This aligns with previously identified challenges of teaching Indigenous health (Jackson et al. 2014; Gair 2016; McDermott and Sjoberg 2012; Ranzijn et al. 2008; Ryder and Edmondson 2015; Thackrah and Thompson 2013; Virdun et al. 2013). In addition, even if individual teachers reflected deeply about transformative learning and sequenced their teaching and assessment tasks to scaffold student learning and they aligned their assessment tasks to closely align with and scaffold the learning goals, they may not have the time, the authority or the space within the curriculum to influence the dominant hegemony of a scientific based and biomedical learning focus (AIDA/MDANZ 2012; Bearman et al. 2016; Brigg 2016; Delany et al. 2016; Department of Health 2016).

There are also clear limitations to our study. Our sample size of 41 academics is not a representative sample, and the participants' disciplinary backgrounds were not inclusive of all health disciplines that teach Indigenous health education, nor were the disciplines evenly distributed. A further limitation was our reliance on participants' descriptions of learning goals and assessment tasks, without inclusion of the broader academic context and the range of factors which will impact on the capacity of an academic to autonomously contribute to and shape the curriculum.

Conclusion

This study explored teaching and assessment practices in Indigenous health education. Our key findings provide information about learning goals and teaching and assessment practices in Indigenous health education in Australia and New Zealand. These learning goals are complex and multidimensional. Learning goals included a desire to transform students' perspectives about how they can engage in the type of critical and creative thinking needed to provide health care which is relevant and built on the needs and the strengths of Indigenous people. In contrast, assessment tasks encouraged students to respond with more narrowly bounded thinking to analyse and synthesise information about specific historical and socio-cultural factors contributing to the health of Indigenous people. To align with more recent educational principles about assessment for learning and to reflect the complexity and diversity of both

students and Indigenous people, there is further scope to build in more independent and experiential learning elements to assessment tasks in Indigenous health education. It is hoped that this data will encourage further debate and research to continue the work of developing a scholarship of learning, teaching and assessment for Indigenous health education.

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