What are the capabilities of graduates who study outdoor education in Australian universities? The case for a threshold concepts framework

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Abstract

Research has indicated that some stakeholders in the Australian outdoor education profession are uncertain about the capabilities of students graduating from university outdoor education programmes. Unfortunately, there is currently no formal or informal agreement amongst university programmes regarding the knowledge, skills, and experience that an outdoor education graduate should be expected to acquire. The situation becomes more complicated when these graduates are required by some employers, land managers, or insurers to undertake additional vocational education and training (VET)-based training to obtain activity leadership qualifications. This paper outlines a process to identify and document the forms of knowledge, skills, and experience that graduates of university outdoor education programmes need to work in the profession. In the last decade, several fields and discipline areas have used a threshold concepts framework to optimise curriculum design and pedagogical development based on the work of Meyer and Land (2003). Threshold concepts articulate critical knowledge areas that graduates entering the profession must master, and these concepts have been characterised as being transformative, irreversible, troublesome, integrative, and bounded. Using a threshold concept framework to design curriculum allows professionals to identify essential concepts and alerts academics to areas where their students are likely to experience difficulties. Suggestions for developing threshold concepts outlined in the literature are summarised, and a collaborative, consultative process is recommended to establish threshold learning outcomes in university outdoor education programmes in Australia. Some suggestions for new nomenclature that can be used to describe outdoor leaders, including graduates of university outdoor education programmes, are provided.

Keywords: threshold concepts, outdoor education, higher education

Introduction

> Outdoor education provides unique opportunities to develop positive relationships with the environment, others and ourselves. These relationships are essential for the wellbeing and sustainability of individuals, society and our environment. (The Fremantle Declaration, Meredith, 2010, p. 6)

The Fremantle Declaration was developed at the Australian National Outdoor Education Conference in 2010. The content and focus of the declaration were discussed extensively by the conference delegates, and the statement represents a strategic attempt to clarify the potential contribution of outdoor education (OE) to (Australian) society. This paper is intended as a focal point for university OE programmes in Australia to explore the specific forms of knowledge and skills required by graduates to work in the OE profession and enact the declaration. Some stakeholders in the OE profession have expressed uncertainty about the capabilities of OE graduates (Munge, 2009). These concerns are in part linked to uncertainties about assessment strategies and standards used across the higher education sector to measure the skills, knowledge, and capabilities of OE graduates. The concerns may also be simply due to the failure of the university sector to effectively communicate what

graduates of university OE programmes know and can do. We seek to advance discussion on this matter and identify a framework and process that could be used to address this challenge in the future.

The aforementioned concerns are exacerbated by a lack of clarity about the very nature of OE. OE has been recognised as both a subject and a teaching method in Australian schools (Dyment & Potter, 2015; Martin, 2008). Until relatively recently, curriculum in Australian schools has been determined at the state level. Most Australian states (Victoria, Tasmania, Australian Capital Territory, South Australia, and Western Australia) have a formal senior-school subject titled Outdoor Education or Outdoor and Environmental Studies or a derivative of these two terms (Martin, 2008). Data available from surveys conducted in three states suggest that OE, although not a compulsory part of any past state or current national curriculum document, exists as a subject option or a component of the general curriculum or part of another subject — typically Health and Physical Education (HPE) (Lugg & Martin, 2001; Picknoll, n.d.; Polley & Pickett, 2003).

In Australia, students can earn a tertiary qualification through a university or vocational education and training (VET) provider. The qualifications from both types of organisation are part of the Australian Qualifications Framework

(AQF Council [ACFC], 2013), and the level of each qualification (from 1 to 10) defines the "relative complexity and depth of achievement and the autonomy required of graduates to demonstrate that achievement" (p. 11). The two systems (VET and university) utilise different approaches to preparing graduates to work in outdoor programmes, with different purposes and contexts (Mann, 2002/2003; Mann, 2003). Qualifications at the AQF Levels 1 to 6 (Certificate 1 — Advanced Diploma/Associate Degree) are primarily provided by VET providers, and these qualifications have an educational focus on acquiring the skills and knowledge required to work in specific contexts. Qualifications at the AQF Levels 7 to 10 (Bachelor to Doctorate) are primarily provided by universities, and these qualifications have an educational focus on broad and coherent theoretical knowledge, critical thinking abilities, and well-developed judgement in professional/highly skilled contexts. For the diverse range of work opportunities that exist in both outdoor recreation and OE in Australia, the current range of VET and university programmes appear to be meeting the workforce needs. However, there has been some disagreement and uncertainty about what graduates from these different training pathways are able to do, or not do. We are hoping through this paper to provide some enthusiasm and energy for a process that may resolve some of these issues — particularly for the graduates from university OE programmes.

To be employed as a teacher of any subject, including OE, in an Australian school, a university teaching qualification is required for registration with the relevant state body. There may also be additional guidelines regarding the registration of OE teachers. These state-based guidelines generally describe the minimum number of dedicated subjects/topics/courses which must be completed to teach at different year levels, with specific recommendations regarding pedagogy studies (for example, Department for Education and Child Development, 2016; Victorian Institute of Teaching, 2015). Importantly, these state-based guidelines do not provide any recommendations regarding what is to be taught and assessed in university programmes to ensure high-quality teaching in the field of OE.

There are currently 13 universities across Australia that provide tertiary studies in OE at degree level; however, no national approach exists to guide the preparation of graduates who will work in the OE profession. The lack of a national approach to the preparation and assessment of future OE teachers is in stark contrast to the attention given by federal and state governments to the preparation of outdoor recreation leaders. Throughout the mid to late 1990s, experienced OE and recreation leaders across all sectors (school, TAFE, community organisations, private businesses,

and universities) worked collaboratively to identify the knowledge and skills that outdoor activity instructors and leaders needed to be able to demonstrate. This collaborative effort, involving many OE teachers and academics, was used to generate the National Outdoor Recreation Training Package (NORTP). This package quickly became the tool that was used to articulate the skills and knowledge that leaders require to conduct outdoor activities. The NORTP has been revised several times since the 1990s, and the current SIS10 training package (Department of Education and Training, 2013) remains the benchmark for recognising the skill sets and qualifications in a number of schemes. It is used by the Outdoor Council of Australia (OCA, 2017a) in the National Outdoor Leadership Registration Scheme (NOLRS), developed to be a voluntary registration scheme for adventure activity leaders in community, recreation, and education sectors. The NORTP is also used in the Australian Adventure Activity Standards (AAS) currently being written, which will provide voluntary guidelines regarding the minimum standards for conducting outdoor activities for dependent groups (OCA, 2017b). The NORTP was not established to describe the skills, knowledge, and experience that a person needs to teach OE within schools.

OE (and indeed other areas such as HPE, science, and geography) often includes outdoor adventure activities. For a range of practical reasons including staffing, safety, cost, and programme considerations, many schools engage, either by contract or through private providers, outdoor leaders who are not teachers to conduct adventure activities with their students (Lugg & Martin, 2001; Polley & Pickett, 2003). OE may not be the only field to use staff who are not qualified teachers for curriculum instruction. For example, school physical education, drama, and music programmes may utilise staff who are not qualified teachers to provide instruction. Many school students receive outdoor activity instruction within OE from leaders who have qualifications based on, and assessed using, the NORTP, gained within the VET sector.

One of the strong motivations for writing this paper is the concern that some employers, land managers, or insurers may be asking university OE graduates to undertake additional VET-based training to obtain activity leadership qualifications. In some cases, this may create new and valuable learning opportunities and certification for university graduates. In other cases, university graduates are retaught skills they may already have learned and are required to complete additional assessment at significant personal expense. It seems unreasonable that those students whose activity skills and knowledge have been assessed within their university programme be required to attend and pay for additional VET-based training and certification that duplicates assessment

completed within their university degree. One solution is to include specific VET-based accreditation as part of the university programme, an approach used by a small number of universities (for example, University of South Australia and Charles Sturt University). Another is to map university courses and assessments against competency-based criteria as has been done by three universities who have completed an accreditation process with NOLRS (University of Tasmania, Victoria University, and University of Notre Dame). A third approach, we suggest, is to provide an alternative national scheme recognising achievement of academic and practical standards for teaching OE through university programmes.

This paper seeks to explore the possibility of an alternative national process or scheme that could be useful to graduates, employers, universities, private and public employers, land managers, insurers, and of course schools. Further discussion is clearly needed to explore the detail of what this might look like, but an initial scan suggests that any national scheme would need to complement existing ways of certifying outdoor activity leaders, as well as recognising the knowledge and skills required to plan, prepare, and implement OE curriculum in schools. In proposing this new process or scheme, we do not intend to undermine the value of entering the OE profession via different pathways, nor the contribution made to school OE programmes by staff who are not qualified teachers (particularly where schools are not in a position, often for financial reasons, to staff all of their OE programmes with qualified OE teachers). A practical workplace outcome of such a scheme may be VET-trained and university-qualified OE staff working together, as acknowledged by Service Skills Australia (2015) who suggest that "the solution might be to have VET-trained staff working in conjunction with the teaching or healthcare professionals who would usually accompany a school group on outdoor programs" (p. 38).

Our view is that any alternative process or scheme developed for university OE programmes would need to provide more than recognition of activity leadership skills, extending to recognition of theoretical knowledge and experience required to work in the OE profession. Additionally, any alternative scheme should provide clear articulation of progression pathways for VET-trained activity leaders entering university OE programmes so they can gain appropriate recognition of their prior training and experience. Hence, it is our view that it is important to clarify the overlaps in terms of skills, knowledge bases, roles, and responsibilities between VET-trained and university-educated activity leaders.

Nursing is another profession that has been successful in incorporating a progression from VET as well as a direct pathway to professional practice via

university. An enrolled nurse (EN) and a registered nurse (RN) have different standards for practice (Nursing and Midwifery Board of Australia, 2016) and scope of practice (Monash University, 2017). Whilst undertaking university degree studies to be eligible for registration as an RN, a student may complete diploma or certificate studies that qualify them as an EN. Alternatively, students may also have undertaken diploma or certificate-level training through the VET system (public and private) to specifically qualify as an EN. Should they then choose to progress to becoming an RN, there are university progression pathways available to gain the degree qualification.

Currently, school education in Australia falls under the auspices of state governments. Consequently, although university education is a federal government responsibility, the characteristics of teacher education programmes are determined by the state that those programmes seek to predominantly produce teachers for. This partly explains why university OE programmes and courses vary from state to state, contributing to a lack of common agreement and practice on the threshold learning outcomes and their assessment. However, with the formation of the Australian Tertiary Outdoor Education Network in 2013, there is now better communication between university educators across state borders. In addition, the difficulties that university OE graduates are reporting with regard to certification requirements has created an appetite for a national recognition scheme for university OE programmes.

In the last decade, several fields and discipline areas have used a threshold concepts framework to optimise curriculum design and pedagogical development at a national level, based on the original work of Meyer and Land (2003, 2005, 2006). Meyer and Land argued that certain concepts in the field of economics were central to the mastery of their discipline area. They referred to these as "threshold concepts" (Meyer & Land, 2005, p. 373),[1] an idea that has since been taken up in many other disciplines, resulting in identification and articulation of minimum standards of achievement or attainment of knowledge, skills, and/or competencies that could reasonably be expected of graduates in these disciplines (Australian Learning and Teaching Council [ALTC], 2011a; Heath, 2011). We believe that the threshold concepts framework could be a useful tool to resolve some of the uncertainties about what graduates of university OE programmes know and can do. In the following sections of the paper, we will review some of the literature on threshold concepts and its potential utility as a framework to clarify the knowledge and capabilities of graduates of university OE programmes.

Defining threshold concepts

Threshold concepts are *transformative*, because they open up "previously inaccessible ways of thinking, understanding or viewing . . . without which the learner cannot progress" (Meyer & Land, 2003, p. 1). When threshold concepts are mastered, there is a change in the way a student thinks and hence, there is an ontological as well as a conceptual shift (Cousin, 2006). However, this transformational process of mastery is unlikely to be a simple, linear passage but rather will involve the occupation of a liminal space where learners can oscillate between old and emergent understandings (Meyer & Land, 2006). The journey is much more likely to be recursive with "messy journeys back, forth, and across conceptual terrain" (Cousin, 2006, p. 5).

Once mastered, a student's understanding of a threshold concept is often *irreversible* (Cousin, 2006). In this respect, once a student has mastered a threshold concept, it is hard to unlearn it and go back to old ways of thinking. Such mastery challenges teachers and academics ontologically, who may find it difficult to see the world as their students do, mainly because this requires "retracing the journey back to their own days of 'innocence,' when understanding of threshold concepts escaped them in the early stages of their own learning" (p. 4).

Mastering threshold concepts can also be challenging for students because they often involve the acquisition of knowledge that is *"troublesome"* [emphasis added] (Meyer & Land, 2005, p. 374), meaning counterintuitive or alien, requiring the learner to let go of some customary way of seeing things (Perkins, 2006). Cousin (2006) explains that "mastery of a threshold concept can be inhibited by the prevalence of a 'common sense' or intuitive understanding of it" (p. 4), the overcoming of which can be emotionally uncomfortable for some students.

Threshold concepts have also been described as *"integrative"* [emphasis added] (Meyer & Land, 2005, p. 373), because they tend to bring together different aspects of a subject that previously did not appear linked, allowing the "hidden interrelatedness of a phenomenon" (Cousin, 2006, p. 4) to be exposed. Threshold concepts are also likely to be *"bounded"* [emphasis added] (Meyer & Land, 2005, p. 374) in that they provide a conceptual space with "terminal frontiers, bordering with thresholds into new conceptual areas" (2006, p. 6). In this respect, the specialist terminology used in a field or discipline may have quite different meanings in another field. Hence, threshold concepts define the limits of a field; but Cousin (2006) warns against an essentialist reading of threshold concepts, and she recommends "sustaining a sense of their provisional explanatory capacity" (p. 4). Meyer and Land (2005) also suggest that the mastery of threshold concepts brings a new level of *discursivity* which is evidenced by an enhanced and extended use of language. To this end, any shift in perspective afforded by the attainment of threshold concepts is likely to bring a new level of communication with professionals in their field. In summary, drawing together these ideas, Meyer (2016) explained that

> threshold concepts are provocative; they rattle the mental cage of the learner in possessing the capacity to present a challenging new aspect of subject landscape veiled in discourse (a language of access and explanation) that is unfamiliar, alien, threatening, or in discord with hitherto experienced aspects of the world or interpretation of it. (p. 464)

The threshold concepts framework has drawn criticism from some authors (for example, Morgan, 2015; Rowbottom, 2007). Most of the critique has revolved around concerns about the empirical basis for threshold concept frameworks, the fuzziness of language describing threshold concepts, the hegemonic pressures of threshold concepts, and the issues around expecting total agreement within a profession. Townsend, Lu, Hofer, and Brunetti (2015) provide a strong rebuttal for many of these criticisms in their field of librarianship and suggest that despite many limitations, a threshold concept framework can still make a useful contribution to curriculum development and assessment design.

Examples of threshold concepts in higher education disciplines

Several academic disciplines have engaged with the process of identifying threshold concepts. However, rather than provide a shopping list of threshold concepts, this section will provide several in-depth, specific examples of threshold concepts identified in other disciplines to explore their potential utility in university OE programmes.

Shanahan (2016) identified threshold concepts in economics, an example of which is "opportunity cost" (p. 513), defined as the price of the next best thing you could have done had you not made your first choice. When the concept is fully understood, it can transform the way in which individuals evaluate choices. Shanahan explained that economics "regards the existence of scarcity as a basic phenomenon, [and] places the necessity to evaluate and make choices between competing objectives of scarce resources at the core of its discipline" (p. 513). In the discipline of economics, students must learn that choices, whether they are made by individuals or by groups, have a cost associated with them and that "choosing is refusing," meaning that one choice can only be accepted by refusing another.

In engineering programmes, "critical flow" (Myer, 2016, p. 471) has been identified as a threshold concept, defined as "a specific state of flowing water in 'open channels' (such as rivers, streams, sluices, or drainage systems)" which "explains how water behaves differently within constrictions in a manner that cannot be interpreted by simply looking at flowing water." Critical flow draws on principles of hydraulic control, is critical to an engineer's abilities to solve problems caused by variable flows in water courses, and is important in many practical applications. To successfully design a drainage system in a city, an engineer must understand how the movement of water at different flow rates will be influenced by the shape, depth, width, and changes in the gradient of the channel. An understanding of critical flow helps engineers predict outcomes when flow is restricted, and the predictions based on theoretical models help to ensure the safety and performance of a drainage system. Mastery of this concept is considered critical to being able to "think like an engineer" (Meyer et al., 2016, p. 200).

An example of a threshold concept from the field of sustainability education highlights *different ways of knowing.* Threshold concepts for a sustainability course were identified using an action research methodology, with data collected and analysed over a three-year period (Barrett et al., 2016). For most of the students in this course, the idea that there are different ways of knowing was not new, but they did express some surprise at the range of epistemologies apparent amongst their peers. Acknowledging that there are multiple ways of knowing allowed the students to embrace "intuitive, transrational and/or embodied ways of knowing" (p. 7). The ability to acknowledge and understand the multiplicity of worldviews that underpin other people's perceptions, and not be restricted to only seeing the world through one's own worldview, was considered critical by the authors of the study to understanding sustainability issues. Interestingly, almost all the students described this concept as irreversible, because once they understood it, it was impossible to ignore the influence of different ways of knowing. This threshold concept may have direct relevance to OE, a connection supported by Martin (1996) who explained the existence of different perspectives of nature and their potential influence on everyday living practices and preferences.

How threshold concepts can inform curriculum design and pedagogy

Clear guidance exists to support academics employing a threshold concepts framework to inform the curriculum design process for a subject area in higher education (Land, Cousin, Meyer, & Davies, 2005). In this section, we will highlight some of the benefits that accrue to using threshold concepts in this way. First, threshold concepts allow academics to

identify the "jewels in the curriculum" (p. 57), because they identify key areas that need mastery and can alert teachers to the "areas of the curriculum where students are likely to encounter troublesome knowledge and experience conceptual difficulty" (p. 57).

Second, the use of threshold concepts allows teachers to "gaze backwards across thresholds" so that they can establish where "students' misunderstandings and uncertainties are in order to sympathetically engage with them" (Cousin, 2006, p. 5). Threshold concepts allow teachers to have more empathy for the students who are struggling to cross the liminal space, because those key areas have been identified in advance and teachers know where to expect some students to have difficulties. When threshold concepts are identified, it can help teachers to be more tolerant so they can "hold" their students and help them to realise that many of their peers are likely to be working through the same difficulties. Cousins (2006) warns that if academics lack this empathy and tolerance for their students' messy journeys, their students may resort to the less desirable strategies of mimicry or plagiarism to get them through.

Finally, Cousins (2006) identified the importance for recursiveness and excursiveness with students when using a threshold concepts framework, because it acknowledges the need for several attempts for some conceptual material to be grasped. Land et al. (2005) normalise the idea that learning journeys will often involve deviations, unexpected outcomes, digressions, and revisits to difficult conceptual territory. According to Male (2012), "it can be expected that students will take a long time, possibly years, to develop threshold concepts and capabilities" (p. 11) and that sustained and coherent approaches spread over the whole duration of a programme may be needed, rather than isolated forays by selected teachers over short periods.

In a threshold concepts project with an engineering programme at an Australian university, Male (2012) showed that threshold concepts help students and teachers focus their attention in an era where there is a tendency to overcrowd a curriculum. The project allowed the participating academics to collectively identify transformative and troublesome concepts and to design assessments that provided evidence of students' mastery of these concepts.

The process of developing threshold concepts

A threshold concepts project funded by the ALTC (2011b) provided some advice to disciplines or subject areas considering the development of a threshold concepts framework. In this advice, it was suggested that key planning processes should be followed:

• Have a project sponsor who can be the lead agency for the project. It is not advisable for a single university or higher education provider to drive the process.

• Engage key stakeholders in the discipline including representatives of the academy, the profession, and employers. However, avoid allowing workforce issues and workplace needs to dictate the outcomes, because they may not represent future issues and needs.

• Identify suitably qualified people who could form a discipline reference group.

• Identify the nature and scope of the discipline and plan to develop threshold learning outcomes with timelines and deliverables.

• Establish a consultation plan, including processes for achieving broadly based support and/or endorsement.

• Identify an indicative budget outlining the contribution from the discipline stakeholders in terms of time given and travel supported where necessary.

• Be aware of, and pro-actively manage, the gap in expectations between the academy and practitioners.

• Explicitly address the misconception that threshold concepts equate with "dumbing down." The threshold concepts selected must assess the appropriate mastery of knowledge, skills, attitudes, and abilities expected of a beginning practitioner in the field.

• Set thresholds as high as possible and where possible align them with international standards.

• Consider entry levels and articulation patterns for different enrolment pathways.

• Try not to be constrained by current practice or curricula, but consider the needs of the future.

A sponsor for such a project relevant to the OE profession could be Outdoor Education Australia (2015), supported by the Australian Tertiary Outdoor Education Network. However, despite the comprehensive advice above, Shinners-Kennedy (2016) warn that the process of asking experts or would-be experts to identify their experience of mastering threshold concepts can be problematic. Some of the major issues identified include the impacts of hindsight bias, of creeping determinism, the illusion of memory, the nuances of language, and the influence of emotion. The combination of these factors can influence the interpretations and the conclusions of such experts, particularly if they are not aware of their possible effects.

Threshold concepts for university OE programmes

A review of the relevant literature indicates that no significant attempt has yet been made to identify threshold concepts involved in the preparation of OE teachers. Martin (2008) has highlighted six content areas — outdoor leadership, place-based knowledge, environmental science, human/nature relationships, journey, and outdoor pursuits — evident in senior secondary OE curriculum in various Australian states, which might contribute to discussion of possible threshold concepts for university OE programmes. The aforementioned study of sustainability education by Barrett et al. (2016) identified six threshold concepts, some of which may also have relevance to university OE programmes. However, most important is to put in place a process, as suggested by the ALTC (2011b), to develop threshold concepts: a process that requires consultation and collaboration amongst university academics.

One of the biggest challenges to establishing threshold concepts for university OE programmes will be defining the scope of practice and roles for the graduates of these programmes. We propose that some new distinctions in terminology be introduced to the vernacular pertaining to work in the outdoors, distinctions that better describe and reflect differences between types of outdoor work. The distinctions we suggest more clearly distinguish between: (1) outdoor activity leader, (2) OE practitioner, and (3) OE teacher.

The conduct of outdoor activities for school students in Australia is governed by a wide range of regulations, regardless of whether these are sports trips, biology field trips, outdoor recreation experiences, or trips conducted as part of an OE programme. Each state-based education department in Australia produces policies and guiding documents to manage risks and enhance safety on field trips and excursions. In addition to these guidelines, each state government has also produced a version of the AAS that is meant to inform the way outdoor recreation activities are conducted. Currently, these state AAS versions are being redeveloped as national standards, benchmarking them against VET-based competencies. In the preamble released so far, there appears to be little acknowledgement of university OE graduates (OCA, 2017b). Increasingly, state education department safety guidelines are taking direction from these AAS, and consequently the VET-based competencies, as government departments seek to reduce their exposure to risk and litigation. We believe this creates a difficulty for universities because a competency-based system does not adequately capture the full range of skills, knowledge, and experience that is appropriate to OE.

The AQF clearly indicates that foundational outdoor leadership awards (Certificate III and Certificate IV) are placed at AQF Levels 3 and 4, whilst a Diploma qualification in outdoor leadership is listed at AQF Level 5 (AQFC, 2013). We maintain that the term "outdoor activity leader" would be a good descriptor for the holders of these qualifications at AQF Levels 3, 4, and 5.[2] All bachelor degree programmes are benchmarked at AQF Level 7 (AQFC, 2013), suggesting that graduates of university OE programmes will have different kinds of knowledge and experience but could justifiably also work at this outdoor activity leader level. As indicated by the AQFC (2013), "Graduates at this level [7] will have broad and coherent knowledge and skills for professional work and/or further learning," whereas graduates of diplomas (Level 5) "will have specialised knowledge and skills for skilled/paraprofessional work and/or further learning" (AQFC, 2013, p. 13).

We acknowledge that many high-quality university and school OE programmes in Australia are currently delivered by staff who have completed a relevant university OE degree but not a formally recognised teaching degree. This is a middle ground between outdoor activity leader and OE teacher and may best be conveyed by the term "outdoor education practitioner." OE practitioners may choose to work for private OE organisations, often for lower wages and conditions than OE teachers. Many undertake this work for a period prior to taking on other organisational roles or postgraduate study in teaching, or other qualifications. Such OE practitioners, who conduct OE experiences under the auspices of a qualified OE teacher, can be distinguished from outdoor activity leaders by their academic and applied knowledge of OE.

As the OE profession matures, these professional distinctions may become more important to recognise. Martin and McCullagh (2011) suggest that the "signposts" to an emerging profession include a motive of service to society, a specialised body of knowledge, processes of learning and teaching, and a recognised process for admission and recognition by the public. These last two signposts are relevant to the discussion in this paper. We maintain that the identification of threshold learning outcomes and the recognition of appropriate strategies for their assessment in university OE programmes are needed to advance the OE profession. It is problematic that the only national qualification scheme for outdoor leaders (and perhaps teachers in some organisations) is benchmarked against VET units of competence based on the National Training Package: SIS10 — Sport, Fitness and Recreation (Department of Education and Training, 2015). Whilst this scheme may recognise the competencies expected of outdoor activity leaders,

we contend that it falls well short of identifying the essential knowledge and capabilities required of OE practitioners and OE teachers.

The way forward?

This paper is propositional in nature and suggests a way forward that might address issues faced by graduates of university OE programmes in Australia, employers seeking to engage such graduates, and organisational units that seek greater clarity regarding these graduates' capabilities. We have argued for a collaborative and consultative approach across the OE sector to find a solution. The next step is to engage key stakeholders — such as the ATOEN, OEA, OCA, and state-based OE and recreation bodies — to seek their views. There is no doubt that this will be a challenging process, but outdoor educators are usually up for an adventure!

Notes

1. Some researchers use the term "threshold learning outcomes" to describe the assessable outputs of instruction that teaches threshold concepts. To this end, we have taken the position in this paper that a focus on threshold concepts is essentially the same thing as an approach focused on threshold learning outcomes.

2. To the best of our knowledge, there are no courses in OE or outdoor recreation within Australia offered at Level 6 of the AQF (Advanced Diploma/Associate Degree).

References

Australian Learning and Teaching Council. (2011a). *Learning and teaching academic standards project. Science. Learning and teaching academic standards statement.* Canberra, Australia: Department of Education, Employment and Workplace Relations.

Australian Learning and Teaching Council. (2011b). *Resources to assist discipline communities to define threshold learning outcomes (TLOs).* Canberra, Australia: Department of Education, Employment and Workplace Relations.

Australian *Qualifications Framework Council. (2013). Australian qualifications framework, (2nd ed.)* Retrieved from http://www.aqf.edu.au/wp-content/uploads/2013/05/AQF-2nd-Edition-January-2013.pdf

Barrett, M. J., Harmin, M., Maracle, B., Patterson, M., Thomson, C., Flowers, M., & Bors, K. (2016). Shifting relations with the more-than-human: Six threshold concepts for transformative sustainability learning, *Environmental Education Research.* doi:10.1080/13504622.2015.1121378

Cousin, G. (2006). An introduction to threshold concepts. *Planet, 17,* 4–5.

Department for Education and Child Development. (2016). *Working as a teacher. Department for Education and Child Development.* Retrieved from https://www.decd.sa.gov.au/working-decd/working-teacher

Department of Education and Training. (2015). *Training package details SIS10 - Sport, Fitness and Recreation Training Package.* Retrieved from https://training.gov.au/Training/Details/SIS10#

Dyment, J., & Potter, T. (2015). Is outdoor education a discipline? Provocations and possibilities. *Journal of Adventure Education and Outdoor Learning, 15*(3), 193–208.

Heath, G. (2011). *ABCDE Project: Bachelor degrees in education threshold learning outcomes.* Deakin, ACT, Australia: Australian Council of Deans of Education Inc.

Land, R., Cousin, G., Meyer, J. H. F., & Davies, P. (2005). Threshold concepts and troublesome knowledge (3): Implications for course design and evaluation. In C. Rust (Ed.), *Improving student learning diversity and inclusivity* (pp. 53–64). Oxford, England: Oxford Centre for Staff and Learning Development.

Lugg, A., & Martin, P. (2001). The nature and scope of outdoor education in Victorian schools. *Australian Journal of Outdoor Education, 5*(2), 43–48.

Male, S. (2012). *Engineering thresholds: An approach to curriculum renewal.* Sydney, Australia: Office for Learning and Teaching.

Mann, K. (2002/2003). Rethinking professional pathways for the Australian outdoor industry/profession. *Australian Journal of Outdoor Education, 7*(1), 4–7.

Mann, K. (2003). A snapshot of outdoor leadership in preparation opportunities in Australia. In S. Polley (Ed.). *Relevance: Making it happen, Proceedings of the 13th National Outdoor Education Conference.* Outdoor Educators' Association of South Australia, 121–127.

Martin, P. (1996). New perspectives of self, nature and others. A*ustralian Journal of Outdoor Education, 1*(3), 3–9.

Martin, P. (2008). Outdoor education in Australian schooling: Clarifying the body of knowledge. *Australian Journal of Outdoor Education, 12*(1), 13–24.

Martin, P., & McCullagh, J. (2011). Physical education and outdoor education: Complementary but discrete disciplines. *Asia-Pacific Journal of Health, Sport and Physical Education, 2*(1), 67–78.

Meredith, M. (2010). 2010 National Outdoor Education Conference. *Journal of the Outdoor Educators' Association of South Australia, 27*(5), 6-8. Retrieved from http://www.oeasa.on.net/pdf/journal/on27-5.pdf

Meyer, J. H. F. (2016). Threshold concepts and pedagogic representation. *Education + Training, 58*(5), 463–475.

Meyer, J. H. F., Knight, D. B., Baldock, T. E., Callaghan, D. P., McCredden, J., & O'Moore, L. (2016). What to do with a threshold concept. A case study. In J. H. F. Meyer, R. Land, & M. T. Flanagan (Eds.), *Threshold concepts in practice* (pp. 195–209). Rotterdam, Netherlands: Sense.

Meyer, J. H. F., & Land, R. (2003). Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practicing within the disciplines. In C. Rust (Ed.), *Improving student learning: Theory and practice ten years on* (pp. 412–424). Oxford, England: OCSLD. Retrieved from https://www.dkit.ie/ga/system/files/Threshold_Concepts__and_Troublesome_Knowledge_by_Professor_Ray_Land_0.pdf

Meyer, J. H. F., & Land, R. (2005). Threshold concepts and troublesome knowledge (2): Epistemological considerations and a conceptual framework for teaching and learning. *Higher Education, 49*(3), 373–388.

Meyer, J. H. F., & Land, R. (2006). Threshold concepts and troublesome knowledge: An introduction. In J. H. F. Meyer & R. Land (Eds.), *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge* (pp. 3–18). London, England: Routledge.

Monash University. (2017). *The enrolled nurse (EN) scope of practice.* Retrieved from http://www.med.monash.edu/nursing/competency-standards/scope.html

Morgan, P. K. (2015). Pausing at the threshold. (Paper 1258). *Faculty Publications.* http://digitalcommons.hope.edu/faculty_publications/1258

Munge, B. (2009). From the outside looking in. A study of Australian employers' perceptions of graduates from outdoor education degree programs. *Australian Journal of Outdoor Education, 13*(1), 30–38.

Nursing & Midwifery Board of Australia. (2016). *Professional codes and guidelines.* Retrieved from http://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements.aspx

Outdoor Council of Australia. (2017a). *National outdoor leader registration scheme.* Retrieved from http://www.outdoorcouncil.asn.au/nolrs/

Outdoor Council of Australia. (2017b). *Adventure activity standards.* Retrieved from http://www.outdoorcouncil.asn.au/australian-adventure-standards/

Outdoor Education Australia (OEA). (2015). *About us.* Retrieved from http://outdooreducationaustralia.org.au/about/

Perkins, D. (2006). Constructivism and troublesome knowledge. In J. H. F. Meyer & R. Land (Eds.), *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge* (pp. 33–47). London, England: Routledge.

Picknoll, D. (n.d.). *The nature and scope of outdoor education in West Australian secondary schools.* (Unpublished doctoral dissertation). Notre Dame University, Australia.

Polley, S., & Pickett, B. (2003). The nature and scope of outdoor education in South Australia: A summary of key findings. *Australian Journal of Outdoor Education, 7*(2), 11–18.

Rowbottom, D. R. (2007). Demystifying threshold concepts. *Journal of Philosophy of Education, 41*(2), 263–270.

Service Skills Australia. (2015). *Environmental scan: Sport, fitness and recreation.* Retrieved from https://www.serviceskills.com.au/sites/default/files/files/Environmental%20Scans/2015-SSA-Escan-SFR.pdf

Shanahan, M. (2016). Threshold concepts in economics. *Education + Training, 58*(5), 510–520.

Shinners-Kennedy, D. (2016). How not to identify threshold concepts. In J. H. F. Meyer, R. Land, & M. T. Flanagan (Eds.), *Threshold concepts in practice* (pp. 253–268). Rotterdam, Netherlands: Sense Publishers.

Townsend, L., Lu, S., Hofer, A. R., & Brunetti, K. (2015, January 15). *What's the matter with threshold concepts?* [ACRLog blog post]. Retrieved from http://acrlog.org/2015/01/30/whats-the-matter-with-threshold-concepts/

Victorian Institute of Teaching. (2015). *Specialist area guidelines for nationally accredited programs only.* Retrieved from http://www.vit.vic.edu.au/media/documents/imported-files/publications-and-forms/forms/Specialist_Area_Guidelines_2015.pdf

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