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Narratives of teaching in outdoor and environmental education: What can we learn from a case study of outdoor education pedagogy?

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Abstract:
There is an identified need to explore specific teaching and learning strategies used in outdoor education. This paper draws on data collected during an outdoor education camp in regional Australia, where the researchers observed the teaching practice of a veteran outdoor educator. We first situate the study in a summary of the outdoor education literature and policy that informed our research. We then present the observed teaching strategies, detailing narratives of role-based learning and a yarning circle. These demonstrate the educator's intentional enactment of a range of teaching and learning strategies that span across the behaviourist – constructivist – socio-constructivist spectrum to facilitate learning. Discussion then focuses on two distinguishing features of the educator's pedagogic practice: *nurturing expanded understandings of self through place-responsive teaching* and *pedagogic agility*. In exploring the practice of an experienced outdoor educator, this research provides insight into the intentional use of a suite of specific teaching and learning strategies, which extends and enhances the current field.

Keywords: teaching strategies; pedagogical knowledge; pedagogic agility; outdoor education; pedagogical practice; pedagogical strategies

Introduction

The study of outdoor education pedagogies is a developing field. Traditionally, scholarship in the area has focused on broad pedagogical approaches, principles or orientations such as learner-centred experiential pedagogy, practical fieldwork, adventure activities (Thomas, 2015), teacher as guide or facilitator, eco-reflection and evaluation (Blenkinsop et al., 2016). Innovative approaches in the field pay attention to place and time in the form of place responsive pedagogy (Mannion et al., 2013; Payne & Wattchow, 2008; Rowntree & Gambino, 2018; Wattchow & Brown, 2011) and slow pedagogy or ecopedagogy (Payne & Wattchow, 2008, 2009). While knowledge of broad pedagogical approaches is critical to support and enhance learning, it does not guarantee effective teaching and learning. How teachers enact this knowledge through specific teaching and learning strategies is arguably equally important. However, to date, limited attention has been paid to the specific teaching and learning strategies that outdoor educators use to facilitate learning (Dillon, 2012; Dyment et al., 2018). This is important if we consider that pedagogy is central to meaningful outdoor education (Lavie Alon & Tal, 2015; Tal, Lavie Alon, & Morag, 2014) and that what the teacher does matters (Hattie, 2012).

Several scholars have begun to offer insights. Writing about the fieldwork approach, Thomas (2015) argues for the importance of learner-centred experiences, transition from participant to leader/teacher and reflection, and explains how these are actioned through teaching and learning strategies such as near-peer teaching, debriefing circles and reflective journals. Ballantyne and Packer's (2009) research lists a different range of strategies, including group discussion, teacher presentation, interpreted walks, reflective response, worksheets, and games or play. Expanding on this, research by Lavie Alon and Tal (2015, 2017) and Tal, Lavie Alon and Morag (2014) builds on the above by offering sensory or sensor-motor experiences, explanations, storying, demonstrations, connecting to everyday life, structured teaching, Socratic questioning, drama, discussions and games as teaching

and learning strategies that outdoor educators apply. With an intent to build on this foundation and respond to a call by Dyment et al. (2018) for research that explores “the actual ‘on the ground’ (or on the water, rock environment, climbing wall, garden) pedagogies and associated teaching strategies used by teachers of outdoor education” (p. 4), this research seeks to expand understanding of outdoor education pedagogy. We do this by investigating the specific teaching and learning strategies that a veteran outdoor and environmental educator applies when outdoor spaces provide the context for learning. Our intent in highlighting the practice of one single experienced teacher is not to aggrandise the educator, but rather to expand understanding of teaching and learning strategies as a starting point for further understanding and development.

The research is situated in a Queensland Outdoor and Environmental Education Centre (hereon called the Centre). The impetus for the work was a four day Year 6 camp at the Centre, where the researchers (the authors) were invited as participant observers to capture the teaching and learning practices implemented by Thomas (pseudonym), a veteran outdoor educator with 40 years’ experience (20 of these at the Centre), who is also the Centre principal and nearing retirement. The Centre teachers perceived Thomas to demonstrate exemplary pedagogical practice and wished for his expertise to be captured prior to his retirement. Being aware that the quality of teaching is important given the considerable impact teachers have on student learning (Hattie, 2003; Wenglinsky, 2000), our interest was piqued as teacher educators with a professional interest in pedagogy and sustainability education and a consciousness of an identified gap in the field (Dyment et al., 2018).

Hence, this research is guided by the following questions situated within the Centre at which we were participant observers: What specific teaching and learning strategies does a veteran outdoor educator enact to facilitate learning? What are the distinguishing features of the educator’s practice and what can be learnt from these? The paper begins with an

introduction to contemporary teaching and learning practices and policies before honing in on pedagogy from an outdoor education perspective and, more specifically, to Outdoor and Environmental Education Centres (O&EECs). We provide the necessary contextual background for our study, followed by research methods, a presentation of findings, and discussion.

Pedagogy in context

Government policies and departmental directives shape how pedagogy is enacted in any classroom on any day. In Australia, teachers' work is highly regulated, with teachers required to defend their pedagogical decisions and practices against a set of seven professional standards. These outline what teachers are expected to know and be able to do (Australian Institute for Teaching and School Leadership [AITSL], 2017). Directly speaking to the expectations for teachers' pedagogical expertise are Standards 1, 2 and 3 – *know students and how they learn*, *know the content and how to teach it*, and *plan for and implement effective teaching and learning*. In Queensland, the Department of Education espouses that all schools adopt or develop a pedagogical framework aligned with their community needs and expectations (Queensland Government Department of Education, 2018b). While many schools mandate variations of direct teaching (e.g. direct instruction [Hattie, 2009], explicit instruction [Archer & Hughes, 2011] or Direct Instruction [National Institute for Direct Instruction, 2015]), other schools support a range of pedagogical models and/or approaches. The latter allows teachers more pedagogical autonomy and flexibility in selecting a pedagogy appropriate to their learners and contexts.

While O&EECs are not immune to policy directives and agendas, their historical positioning as peripheral to the education system in Queensland has created a marginality that allows for an experimental approach to pedagogy that is more difficult to apply in mainstream schools (Renshaw & Tooth, 2018). Pedagogical approaches, principles, orientations and associated teaching and learning strategies can be situated along a

theoretical continuum ranging from behaviourism to constructivism and socio-constructivism. Behaviourist (or 'didactic') approaches to teaching (exemplified by the suite of direct teaching frameworks discussed above, or teaching strategies such as lecture or teacher talk, demonstration) centre on transmission of information from teacher to student, where the teacher directs the learning and the students receive and respond (Kalantzis & Cope, 2008). Constructivist approaches (enacted through strategies such as brainstorming, problem solving or inquiry) position the teacher as the facilitator, rather than the transmitter, and the student as an active participant in the construction of knowledge (Clarke & Pittaway, 2014). Elaborating on (and often overlapping with) this, socio-constructivist approaches understand learning as a collaborative process of constructing and refining meaning in conjunction with others (Dimitriadis & Kamberelis, 2006; Kalantzis & Cope, 2008; Vygotsky, 1978). Teaching strategies with this emphasis might include debates, discussions, or a jigsaw. In the case presented here, the Centre's focus on personal development through intra- and inter-personal learning aligns with constructivist and socio-constructivist theories of learning.

There are many arguments about which pedagogical approach and aligned teaching and learning strategies have the most influence on student learning. Some scholars argue for the importance of behaviourist approaches such as explicit teaching (Archer & Hughes, 2011; Hattie & Yates, 2014) based on the premise that complex thought processes, such as critical thinking, are dependent on a prior mastery of basic skills. Proponents of constructivist approaches, on the other hand, argue that learning is not a linear process; basic skill mastery can take place alongside development of more complex learning processes (Applefield et al., 2001). In line with Westwood (2008) and a number of reviews of teaching and learning over time (e.g., Dunkin & Biddle, 1974; Hattie, 2009; Marzano, 2003; Peterson & Walberg, 1979; Wittrock, 1986) we share the view that "no single teaching strategy is effective all the time for all learners" (Killen, 2007, p. 22). Rather, it is our contention that teaching that

intentionally seeks to facilitate student learning will suitably adapt to content, context, and learners' needs. The Queensland Curriculum and Assessment Authority (QCAA) (2020) define intentional teaching as "an active process and a way of relating to children that embraces and builds on their strengths, interests, ideas and needs" (para. 1). It involves educators being deliberate, purposeful and thoughtful in their decisions and actions. While this refers to teaching in an early childhood context, it is germane in other contexts where the likelihood that any one strategy will support learner development lies in the teacher's responsiveness to context and purpose. Hence, this is particularly pertinent in O&EECs because by its very nature, teaching in the outdoors is more uncertain, unpredictable, and risky (Thomas, 2015). What the implications are for educators situated in O&EECs is the focus of the section below.

Outdoor and Environmental Education Centres

The Queensland Government Department of Education supports 25 O&EECs located throughout Queensland. Work carried out in all O&EECs is underpinned philosophically by the concept of Education for Sustainability (see, Ballantyne & Packer, 2008). Each centre must demonstrate alignment with the Australian Curriculum's learning areas, general capabilities and cross-curriculum priorities (Queensland Government Department of Education, 2018a), and have a clear pedagogical framework that reflects "high quality, evidence-based teaching practices focused on success for every student" (Queensland Government Department of Education and Training, n.d., para 1). However, O&EECs are afforded autonomy in their execution of the frameworks.

The case context

The Centre within which this research is located is situated in a rural area, along the shores of a lake surrounded by rainforest, pine plantations and mountains. The Centre's grounds

feature composting bins, worm farms and rainwater tanks alongside a range of outdoor learning classrooms for engaging students in cultural, social, and ecological sustainability. Student experiences are designed to meet the Australian Curriculum (Australian Curriculum, Assessment and Reporting Authority [ACARA], n.d.) strands of *sustainability,* as a cross-curriculum priority, and *personal and social capability*, as one of seven general capabilities. In enacting personal and social capability, which emphasises the development of self- and social- awareness and management, the Centre works with the five keys to success: confidence, getting along, organisation, persistence, and resilience (Bernard, n.d.). Learning experiences intentionally work towards these aims, and exemplify, refer to, and encourage reflection on these qualities throughout each activity. This is explored and exemplified further in the narratives of teaching and the subsequent discussion.

The Centre's six teachers make use of a variety of overarching pedagogic approaches to facilitate learning. Most prevalent are gradual release of responsibility (GRR) (Pearson & Gallagher, 1983) and slow pedagogy (Payne & Wattchow, 2008, 2009). In GRR the responsibility for cognitive work shifts in a gradual and purposeful manner from teacher to student/s through four sequential phases of teacher modelling, guided instruction, collaborative practice, and independent application (Fisher & Frey, 2014). Slow pedagogy provides an alternative pedagogical approach to the current widespread fast-paced, assessment-driven, disconnected, standardised models of teaching and learning. Instead, the approach encourages learners to make meaning through embodied, timeless, sensual-perceptual, relational, place-based experiences (Payne & Wattchow, 2009). Within this context, our work focuses on investigating the specific teaching and learning strategies used by Thomas.

Research Methods

This research adopted a case study approach to explore specific teaching and learning strategies deployed by Thomas over a four-day Year 6 camp at an O&EEC. The purpose of the research is to fill an identified gap related to the specific teaching and learning strategies that outdoor educators use to facilitate learning (Dillon, 2012; Dyment et al., 2018). Case studies are useful for exploring complex social phenomena within a real-life, contemporary bounded setting (Creswell, 2013; Yin, 2009). The allowance of multiple sources of evidence enables case studies to present a nuanced view of social realities with a sense of validity (Yin, 2003). Rich, detailed cases offer transferable insights for practice beyond the confines of the case itself (Flyvbjerg, 2011). Working with a case study approach allowed us to explore the case of one veteran outdoor educator, Thomas, focusing on his pedagogic repertoire, as entwined with and bounded by the Centre, to illustrate specific teaching practices (Creswell, 2013). Following formal, ethical approval from the University and the Department of Education, we assembled the case with data gathered through an interview with Thomas, a focus group with the Centre's staff members, and field notes collected as active participant observers (DeWalt & DeWalt, 2010) during a four-day camp.

In generating descriptions of situated practice, observational data are particularly valuable additions to case studies where social phenomena (such as teaching) and context are difficult to separate (Heck, 2011; Yin, 2003). During our field time on camp, we acted as additional visiting adult educators and joined students and their teachers in all activities, including canoeing, scoop netting, and a giant swing, while also documenting the learning activities, teaching strategies, dialogue, resources and contextual factors that we observed over our four days at the Centre. Participant observations made space for extended, informal conversations between participants and researchers, providing an opportunity for collaborative reflection on practice (Angrosino & Mayes de Pérez, 2000, cited in Angrosino

& Rosenberg, 2011) and a joint consideration of explicit and tacit elements of practice (DeWalt & DeWalt, 2010).

To answer the research questions, we followed ethnographic procedures for gathering and recording information. This included reviewing documents that outlined the Centre's pedagogic aims and creating detailed descriptions of observations during the day, as well as recording personal impressions and taking methodological notes (Sangasubana, 2011). We read through all notes, identified a collection of themes pertaining to pedagogy, reread field notes, and coded them based on emergent pedagogical themes. With two researchers making individual notes on activities, we were later able to compare and contrast each other's perceptions and recollections. While we acknowledge that the exclusion of student perspectives is a limitation of the case, the scope of the study – to focus on the enactment of teaching strategies, rather than the appraisal of them – and time constraints have precluded them in this instance. Instead, the exploration draws on the Centre's documented educational aims, observational field notes, and interview data to focus on the variety of teaching and learning strategies that we observed in practice. We describe these below, using exemplar narratives of select practices to illustrate the ways that the strategies were enacted on camp with a group of Year 6 students. We then proceed to unravel what we identified as distinguishing features of Thomas' practice, before considering aspects of Thomas' practice that offer insights able to be transferred into other contexts.

Teaching and learning strategies: Presentation, reflection and discussion of the data

We observed a significant range of enacted teaching and learning strategies over the four days of the Year 6 camp. Table 1 provides an overview of the observed strategies, alongside examples taken from collected data.

Table 1: Pedagogical strategies observed during the four day camp (based on Dyment et al., 2018)

Pedagogical strategies	Evident when the aim is to …	Example
Cueing	Reinforce memorisation	• Uses memorisation techniques (numbering, alliteration and rhyme) to help students remember safety techniques prior to and during abseiling.
Discussion	Extend student thinking	• Poses open questions
Explanations	Setting expectations	• Articulates and explains Centre rules • Outlines physical boundaries for an activity
Explicit instruction	Establish rules, expectations and routines; give instructions	• Explains how to use a dichotomous key with examples
Interactive questioning	Lead students to set goals	• Poses directed goal-setting questions that students need to respond to through student-student group interaction
Modelling	Establish rules & routines; teach a skill	• Demonstrates what expected behaviours look like (e.g. signalling for help while paddling in canoes) • Demonstrates scoop netting technique to gather macroinvertebrates to investigate
Reflection	Assess students or engage students in self-assessment	• Before (written goal setting) and after (group discussion) activities encourage students to reflect on learning
Role-based learning	Lead students to embody a role/persona	• Working like scientists during a field investigation.
Scenario-based learning	Build team cohesiveness and capacity for problem solving	• Poses a problem or challenge that students may encounter in the field and provides time for students to collaboratively find solutions to manage the problem
Storying	Build knowledge and understanding	• Narrates the story of a town and the effects of pollution over time with tonal/vocal variation and visual stimuli to build knowledge and understanding about local human impact.
Teachable moments	Respond to students' curiosity in the natural world,	• Explains lifecycles and fishing impact when a dead fish is discovered at the lake's edge

	demonstrate the applied nature of science	
Yarning circles	Lead reflective or debriefing activities; deepen understanding	• Poses divergent questions • Uses discussions

To illustrate in more detail the ways enactment of the teaching and learning strategies spanned the spectrum of approaches, we present two narrative exemplars of Thomas' practice. These episodes occurred at different times throughout the camp (day three and day two respectively) and, while unrelated to each other, work to demonstrate the repertoire of Thomas' pedagogic range. The first (Box 1) reflects a role-based learning situation, and the second (Box 2) exemplifies a yarning circle. Each example is preceded by an explanation of the pedagogical approach and followed by a discussion highlighting the intentionality and pedagogical repertoire of Thomas' teaching through *deep pedagogic and contextual knowledge* - evident within the role play narrative, and *support for transference of knowledge and skills* - captured in the yarning circle. The two narratives (Boxes 1 and 2), together with Table 1, provide context to inquire into and deepen understanding of outdoor pedagogical strategies. Hence, the last section of the paper digs deeper into the distinguishing pedagogical features of Thomas' practice.

Role-based learning

Role-based learning can be understood as learning that simulates a 'real' life situation, where students embody a role or persona. It is a pedagogical approach useful for acquiring specific knowledge, skills and attitudes (Killen, 2016; Sogunro, 2004). This is because when students adopt roles or personas different from their own they are encouraged to understand situations in which they may not otherwise be exposed. The potential impact of the role-based approach for student learning is heavily reliant on teacher competency in planning,

organising, facilitating, monitoring the learning situation and guiding follow-up discussions (Killen, 2016).

In the narrated role-based learning situation students worked as biologists might during a field investigation. The activity aimed to assess the health of the lake by using a scoop netting technique and dichotomous key to collect and identify local aquatic macro-invertebrate populations. This activity had plural pedagogic purposes to teach students scientific processes, enable students to make and justify judgements of quality, develop their understanding of socio-ecological sustainability and extend their agency in addressing issues resulting from the investigation. In this way, students experientially engaged with scientific content knowledge, but also experienced scientific reasoning and methodological processes.

Box 1: "You are scientists"

The session began with students being shown the locations where macro-invertebrates were most likely to be found (along the sand, under boats, in between the shoots of water plants). The technique for how to use a net and a small container to scoop macro-invertebrates out of the water was modelled, and students were shown examples of macro-invertebrates, with a demonstration of how to manage the species once scooped. After pointing out the physical boundaries within which the activity was to be undertaken, students scattered around the large space along the lake. Students then proceeded to catch aquatic macro-invertebrates, some independently, others with a partner. Teachers and participant observers observed, commented, as appropriate, and provided guidance, as required. After some 30 minutes, students were recalled to gather around a circle with their specimens. "Alright scientists, we've done the first part, now we need to do the next part and identify our creatures" said Thomas, as he proceeded to explain how to identify the macro-invertebrates: "To identify our species we're going to use a chart – it's called a dichotomous key … This is what scientists use to identify creatures." Thomas first selected a creature from one of the buckets and modelled the process of identification, step-by-step with the dichotomous key, also noting the water sensitivity rating for the species. After checking for understanding through questions and thumbs-up or thumbs-down, and re-stating the expectations and physical boundaries for the activity, students worked in pairs to identify at least three macro-invertebrates and assign sensitivity ratings. Adults provided support as required. As students finalised their task, they were called back. Each pair of students were then required to identify two of the species they had found and to select a sensitivity rating. Alongside

student presentations, Thomas lead a group discussion, using a combination of open-ended and closed questions to provoke student thinking about the quality of the lake's water using the sensitivity rating of the macroinvertebrates: Why would animals be sensitive to the water around here? Sensitive to what? What happens when people spend time around the water here? Do we muck the water up somehow? Have you noticed rubbish laying around? What about farming? How do you think farming might affect bugs in waterways? The session concluded with the group making a judgement that the water in the lake was "about half way healthy." Thomas finished by saying, "This is what scientists do, they check the animals and make a judgment about whether the water is really clean and healthy or polluted."

Intentional application of deep pedagogic and contextual knowledge

While the overarching strategy adopted in Box 1 is a role-play, Thomas entwined a range of teaching and learning strategies across the teaching spectrum with deliberate intent to engage students in scientific knowledge and the scientific process. For example, strategies that reflected a behaviourist approach included providing *explicit explanations* of essential knowledge (e.g., what a macro-invertebrate is), *modelling* how to do something (e.g., how to scoop net), and *demonstrations* (e.g., how to handle species). A constructivist approach is also evident in *checks for understanding* (e.g., thumbs up and thumbs down), student *presentations*, and *experiential learning* (Thomas, 2015). The combination of open and closed *questions*, including Socratic questioning, are intentionally applied to extend deeper thinking and provoke consideration about non-obvious connections (e.g., What about farming? How do you think farming might affect bugs in waterways?). The suite of teaching and learning strategies work across the pedagogic spectrum to facilitate learning in response to learning purposes, students, and the environment.

Intentional teaching involves educators being attentive, purposeful and thoughtful in their decisions and actions (QCAA, 2018). Here, the concept of intentionality aligns with Sutherland et al., (2016), Cosgriff (2010) and Blenkinsop et al's (2016) assertions for outdoor educators to carefully choose activities for student learning. Previous research suggests that

effective outdoor educators possess a deep knowledge base of pedagogy, content, context, learners, risk management, outdoor skills and techniques, and how to operationalise these in place (Blenkinsop et al., 2016; Sutherland et al., 2016; Remington & Legge, 2017; Williams & Wainwright, 2016). Such knowledge is reflected in Thomas' use of strategies across the behaviourist – constructivist – socio-constructivist spectrum and reinforces the necessity of broad pedagogic competence in working intentionally to support student learning in response to unfolding learning situations in a way that demonstrates high levels of professional capital (Hargreaves & Fullan, 2013) and adaptive expertise (Timperley et al., 2018).

Yarning circle

Yarning circles have been used by Indigenous peoples from Australia, Canada and North America for centuries to encourage safe, respectful and honest relationships (Mills et al., 2014). In Education, a yarning circle, also called a dialogue circle (QCAA, 2020), is a type of discussion that facilitates open and in-depth collaborative communication, group relationship building, and enriched learning experiences between teacher and students, who act as co-inquirers into an issue and co-create meaning (Acton et al., 2017; Kathard et al., 2015, QCAA, 2020). The approach involves a group sitting in a circle to conduct an egalitarian discussion whereby power relations are flexible with authority over the content and form of discourse shared, questions are open or divergent, and participants engage in collaborative co-construction of knowledge and understanding (Reznitskaya, 2012). Importantly, the yarning circle is culturally inclusive and has been identified as particularly important for facilitating reciprocal communication in Australian Aboriginal and Torres Strait Islander cultures (Acton et al., 2017; QCAA, 2020).

The second narrative illustrates how Thomas initiated a yarning circle as an opportunity for individual and collaborative reflection to enable students to articulate and consolidate

their intra- and interpersonal learning at the conclusion of day two of the camp. Through the yarning circle, Thomas encouraged students to reflect on their experiences before leading them to imagine future instances where new understandings of themselves and their on-camp achievements might be useful.

Box 2: "Can you give us an example of that?"

The group assembled in a large circle in a shaded, grassy area, near the beach where our canoes were visible. Thomas began by asking students to take time to "Think a little bit about why [your class teacher] and [your teacher aide] wanted you to do this [camp]." He allowed a deliberate, two-minute pause where no one spoke. The space afforded opportunity for individual thinking. He then instructed students to "Turn to the person beside you and have a chat" to enable students to discuss their ideas in pairs. Another two minutes and students were given a chance to expand their thinking through small group sharing as they "make a [group of] four and have a conversation. Do you have the same ideas or something different?" After giving students a minute to collaboratively discuss their thinking in small groups, Thomas lead a whole class discussion using a variety of questioning techniques such as closed, open, probing and Socratic. After Thomas asked "Anyone got any ideas?" students shared that they felt they were learning how to "Be braver at high school [next year]" and "to care for the environment." Thomas used questions to extend the conversation: "Can you give us an example of that?" "Can you explain what you mean by 'resilience'?" He then asked, "How might you use that in the classroom when you go back to school?" leading students to imagine a different but relevant scenario for future application. Thomas reiterated students' thoughts that part of the learning goal was about "Transferring stuff we've learned on school camp and doing it when we go back to school and home." Thomas asked: "Who surprised you today with the abseiling?" Students shared the successes they noticed, congratulating not only those who scaled the highest incline, but also – perhaps more so – those who confronted a fear of heights to successfully complete the smallest slope. One student shared that she surprised herself in getting to the third highest rope, and that she actually enjoyed it, despite her initial fear. She thanked her friends for their encouragement. Each achievement was recognised.

Intentional support for transference of knowledge and skills

The yarning circle narrated here illustrates Thomas' intent to enable transfer of personal and social skills to future contexts. He enacts this by facilitating a learner-centred reflection within a debriefing group discussion (as recommended by Thomas, 2015). A range of discussion

and questioning strategies contribute in practice, including think-pair-share with paired talk ("Turn to the person beside you and have a chat"), small group sharing ("Make a group of four and have a conversation") and whole class discussion ("Anyone got any ideas?"). The questioning strategies employed reflect multiple purposes, and we note a range of reflective, open, closed, probing, application, affective and Socratic questions. For example, the series of probing questions ("Can you give us an example…?" "Can you explain…?") encourage students to reflect, articulate, elaborate, and tease out the underlying meaning and deeper understanding in order to then think about how it might be relevant in the future.

As previously discussed, connecting outdoor education experiences and everyday life (such as regular school situations) is intentional and aims to enhance students' future lives (Lavie Alon & Tal, 2015, 2017; Tal, Lavie Alon & Morag, 2014). This intent is evident during the yarning circle in Thomas' use of an application and transference question: "How might you use that in the classroom when you go back to school?". Here the clear future focus purposefully scaffolds students to anticipate and imagine the transference of new knowledge and skills into imminent contexts, such as how the quality of 'resilience' (one of Bernard's (n.d.) *Keys to Success*) might be relevant when learning new mathematics content upon the return to school.

Further evidence of Thomas' support for learning transference was observed during another de-briefing session on day three of the camp. When asked about what they could take away from the camp's experiences, students responded:

> Care for the environment […] lunch rubbish. We had to make sure every bit of rubbish, including food scraps, was picked up and put in a container to protect the environment and the animals who may eat something not good for them.
>
> […] we have to be organised for high school and also persistence and resilience and we have to bounce back.
>
> […] openness to experience things we haven't done before.

While some research on the transfer of learning from one context to another suggests that impact is ambiguous (Barnett & Ceci, 2010; Brown, 2010), other studies have noted that

outdoor education experiences provide lasting benefits for students' academic, character, social and interpersonal capabilities, and health and wellbeing development (Fägerstam, 2014; Linney, 2007; Rickinson et al., 2004; Scott et al., 2013). The student responses presented here suggest that in this case, in response to Thomas' intentional strategies, students began to consider future applications of on-camp learning to life beyond the Centre.

Distinguishing features of pedagogical enactment

To this point, the present research has described a range of teaching and learning strategies across the spectrum of teaching approaches that Thomas, as a veteran outdoor educator, uses with intent to facilitate learning. In addition to our assertion that Thomas' pedagogical decisions reflect his intentionality, our analysis of the observational data (presented via the narratives in Box 1 and 2, pedagogical strategies listed in Table 1 and discussions) also suggests two distinguishing pedagogical features of Thomas' practice: commitment to *nurturing expanded understandings of self through place-responsive teaching* and p*edagogic agility*. The suite of pedagogic practice presented and discussed here further works to challenge views of teaching practice that prioritise any singular pedagogic approach over another.

Nurturing expanded understandings of self through place-responsive teaching

The two narratives presented in Box 1 and 2 offer insights into how Thomas applied specific place-responsive teaching and learning strategies to support students to experience and know themselves and their capabilities in the world in new ways. Place-responsive pedagogy involves educators purposefully designing activities that explicitly connect students and place (of learning) with the aim of improving human-environment relations (Mannion et al., 2013). Specifically, this included students reflecting upon their capabilities in-place during camp-based activities to reconsider who they are in the world through, for

example, ‘trying on’ the persona of a scientist in the field, or via collaborative reflection in a yarning circle under a tree. Scholarship suggests that reflection-promoting activities in the natural environment enhance learning outcomes, promote attitudinal change related to the environment (Ballantyne & Packer, 2009) and support the development of an expanded vision of self (Tooth & Renshaw, 2018).

Place responsive pedagogy requires that educators are flexible and creative, have the ability to recognise differences in ecological and social domains, and respond to place and its entities through facilitation of pupils’ first-hand experiences (Mannion et al., 2013). We observed that through activities in and with the environment (e.g., canoeing, orienteering, walking). Thomas, as a more-experienced other (Vygotsky, 1978), intentionally encouraged students to think relationally about themselves in the world and to “see themselves as valuable with the power to bring about change in their own lives” (Tooth & Renshaw, 2018, p. 184). Such experiences were facilitated when Thomas slowed down the pedagogical pace (Payne & Wattchow, 2009). As one of the Centre teachers recounted,

> it’s also within the context of the environment. I’ve seen [Thomas] – we waited with a whole group and we watched these kids for fifteen minutes, just work out how to get their canoe to sail against a little bit of wind, and to come over to us … I mean those kids learned a valuable lesson there and they were able to canoe differently [after that experience]
>
> (Teacher, Centre Focus Group Interview, 2018).

The intent is that these slow – embodied, relational and place-responsive – experiences (Payne & Wattchow, 2009) facilitate achievements that enable students to see their capabilities anew. As Thomas responded in the interview, “I was really tempted to go out and rescue [them] and bring [them] back in, but *I wasn’t going to take that achievement away* from [them]” (Thomas, Centre Focus Group Interview, 2018, emphasis added). Reflection on achievements is a key part of enabling an expanded vision of self. In the Yarning Circle, the affective question, “Who surprised you today with the abseiling?” similarly enabled students to recognise their own feelings, experiences, challenges, and successes

in relation to the environment, as well as what this might mean for themselves in the future (Lavie Alon & Tal, 2015, 2017; Tal, Lavie Alon & Morag, 2014).

Pedagogic agility

Illustrated in the narratives provided (Box 1 and 2), and explored through the subsequent discussions, Thomas' teaching practice demonstrates pedagogic agility. In order to facilitate learning, he demonstrates a fluid movement across and between behaviourist teaching and learning strategies, such as explanations, modelling and demonstrations, and constructivist and socio-constructivist strategies like reflection, experiential learning, paired work, and group discussions. Additionally captured in our observations was Thomas' agile deployment of strategies that further allowed responsiveness to the uncertain and unpredictable elements of outdoor education (Thomas, 2015). This is to say that the strategies Thomas applied allowed for and responded to place and social context: landscape, other species, weather conditions, and students' reactions to the experiences (Mannion et al., 2013). As Thomas explained,

> It's a bit different teaching in a classroom that doesn't have four walls to keep kids in. You've got to think of environmental stuff around you … You've got to realise that there's lots of distractions in our classrooms. So I'll be having a lovely talk to a group of kids and a beautiful big pelican comes in and floats down on the water behind me and you've just got to make allowances and understand that kids will be distracted by that sort of stuff, and I'm actually very happy when they're distracted by that sort of stuff (Thomas, Individual Interview, 2018).

Thomas' practice reflects a pedagogical agility that focuses on creating space for these 'distractions' and unexpected situations to become incidental teachable moments to enrich and complement planned learning experiences (Woods & Jeffrey, 1996).

While there is broad consensus in the outdoor education field for experience-based over teacher-directed, behaviourist type learning (Dyment et al., 2018), Thomas' practice suggests that the spectrum of teaching and learning approaches can co-exist and complement each other. An effective teacher will draw on an extensive range of strategies

to support student learning (Marzano, 2009; Hattie & Donogue, 2016; Westwood, 2008). Thomas' agility across the teaching-learning spectrum demonstrates how learning can be facilitated within, for example, an experiential or practical fieldwork approach, during adventure or eco-reflection and evaluation activities in place (Thomas, 2015; Blenkinsop et al., 2016).

Conclusion

The research presented here provides exemplars that expose a range of teaching and learning practices not currently articulated in the outdoor education literature. Collectively, the specific teaching and learning strategies listed in Table 1, the narratives in Box 1 and 2 and associated discussions of *intentionality*, and the pedagogical features discussed (*nurturing expanded understanding of self through place-responsive teaching* and *pedagogic agility*) serve to supplement existing research into outdoor education pedagogy. In doing so, they also work to illustrate and expand pedagogic knowledge of specific strategies for *knowing students and how they learn*, *knowing the content and how to teach it*, and *planning for and implementing effective teaching and learning* (Standards 1, 2 and 3 of the Australian Professional Standards for Teachers). In this case, the pedagogical practices enacted by Thomas, a veteran outdoor educator, add further transparency to the specific 'on the ground' pedagogies and associated teaching strategies that outdoor educators use (Dyment et al., 2018). The strategies detailed here reflect a deliberate focus on realising the Centre's aim to develop students' *personal and social capability,* a focus of the Australian Curriculum. As contextually entwined, educators in different locales, with different environmental affordances, different policy requirements, and different educational aims may enact similar learning and teaching strategies quite differently in response to their own settings. We hope this article acts as both contribution to and provocation for further sharing of specific strategies in the field of outdoor education. In addition, they show the way that an experienced and pedagogically agile outdoor educator brings together a suite of

behaviourist, constructivist and socio-constructivist teaching and learning strategies to intentionally facilitate learning. While the study is limited in its presentation of the practice of a single educator, this invites further research into outdoor teaching practice. In elaborating the current field, the research works to offer a counter point to the view that any one teaching approach is sufficient in unpredictable outdoor contexts. This exemplifies and aligns with scholarship that emphasises the importance of teachers adopting a broad range of strategies that respond to different aims and contexts (Marzano, 2009; Hattie & Donogue, 2016; Westwood, 2008). In this way, what the case offers is a rich and detailed illustration of outdoor teaching practice that can support further learning about the specific teaching and learning strategies competent outdoor educators employ to support student learning.

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