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Digital technology and networked spaces in outdoor education: reflections upon presenting at an international webinar

Imre van Kraalingen ^a, Dave Hills ^b, Jack Reed ^c, Simon Beames ^a
and Brendon Munge ^d

^aDepartment of Teacher Education and Outdoor Studies, Norwegian School of Sport Sciences, Oslo, Norway; ^bUniversity of the Sunshine Coast and Griffith University, Australia; ^cMoray House School of Education and Sport, The University of Edinburgh, Edinburgh, Scotland; ^dSchool of Education, University of the Sunshine Coast, Maroochydore DC, Australia

ABSTRACT



This paper draws on a webinar on digital technology and networked spaces in outdoor education, where three researchers presented their work through responses to two discussion statements: First, 'the use of digital technology in outdoor education is fundamentally contrary to all its values.' Second, 'if we accept that digital technology is embedded in outdoor education, what do we know about its potential? And what are key areas to explore more deeply?' Despite there being no advance planning to produce a research output from the webinar, the organisers' basic analysis of the webinar's frontchannel and backchannel revealed areas of the conversation that may merit targeted empirical attention. Three principal themes emerged from participants' responses during the webinar: the need to move beyond binary thinking; the importance of considering digital technology in regard to specific learning objectives and contexts; and to inform oneself about the affordances of digital technology, while thinking critically about its applications.

KEYWORDS

Mobile technology; social media; networked spaces; webinars; outdoor education

Introduction

In present-day societies, digital technologies and networked spaces are arguably embedded in nearly every facet of people's everyday lives. Instigated by rapid technological advancement and digitalization, there is a rising uptake of digital technologies across various educational practices (Pachler, Bachmair, & Cook, 2009, p. 3). This development has accelerated during the COVID-19 pandemic (Akcil & Bastas, 2020; Hassell, Peterson, & Pantanowitz, 2021) and has led to suggestions in broader educational discourse that 'strictly face-to-face course delivery is becoming outdated' (Chen et al., 2022, p. 513). To gain a deeper insight into the impact of these broader processes of digitalization and the role of modern technologies in outdoor education, three PhD researchers (Imre van Kraalingen, Dave Hills, Jack Reed), alongside Simon Beames and Brendon Munge, organised an international Zoom webinar on digital technology and outdoor education. The webinar took place in September 2021 as a part of the Outdoor Studies Forum Knowledge Exchange programme at the Norwegian School of Sport Sciences and brought together an international team of presenters and commentators, and attracted a global audience. The webinar comprised two distinct sections where Imre, Dave, and Jack were each given five minutes to present their perspectives on two separate discussion statements. These were:

CONTACT Imre van Kraalingen  imrevk@nih.no  Department of Teacher Education and Outdoor Studies, Norwegian School of Sport Sciences, Oslo 0806, Norway

- (1) 'The use of digital technology in outdoor education is fundamentally contrary to all its values'.
- (2) 'If we accept that digital technology is embedded in outdoor education: What do we knowHT about its potential? And what are key areas to explore more deeply?'

These statements build on the work of Cuthbertson, Socha, and Potter (2004) and Beames (2017), who have respectively argued that technology and innovation are increasingly becoming key topics for researchers and practitioners to consider in the field of outdoor education. Following each set of presentations, there was a community discussion both through text chat and audio communication. These conversations sparked lively and insightful debates on a topic in outdoor education that is widespread and rapidly evolving exploring the question: What role do digital technologies and networked spaces have within outdoor education endeavours? While the role of mobile and digital technologies specifically has featured prominently within the literature (e.g. Bolliger, McCoy, Kilty, & Shepherd, 2021; Hills & Thomas, 2020; van Kraalingen, 2021), it is an area of research that remains under-theorised and which lacks a robust evidence base.

Not long after the webinar, the organising team (Dave, Jack, Imre along with Brendon and Simon) went about conducting an internal review of the audio discussion and written chat from the event. After a quick first pass through the participants' comments, we realised these views represented a rich source of data from an international audience on Outdoor Learning (OL) and digital technology. We had stumbled into a rich and diverse set of perspectives on digital technology and networked spaces in outdoor education that we believe provide unique insights. The problem was that we never intended for the webinar to be a site for data collection. While we approached the webinar excited to share our thoughts and hear the opinions of others, using the webinar's data put us into novel and uncertain ground, which prompted lively debate among the webinar hosts. As we explain below, this paper does not evaluate data at the individual level. Instead, it explores the overarching themes that came out of both the presentations and the audience's responses to them. Alongside this, we draw on our reflections from the webinar and proffer three cornerstones for consideration in both practice and literature relating to digital technology and networked spaces in outdoor education.

Terminology

In this paper, we use *outdoor educators* to describe any individual who is facilitating learning experiences outdoors. This includes teachers and outdoor education leaders and facilitators. We use the term *learners* to describe students, pupils, and participants of outdoor education experiences. *Webinar participants* refer to the audience members who joined the event and the *presenters* as those who hosted and led it. The focus of this paper is *digital technology*, and we define this as any device that can record, store or present information. We recognise that the walking boot and the tent are technology, but as they are not digital, they are not central to the discussion. Finally, we define networked spaces as 'always on' online spaces (such as social media, video streaming services and gaming) that, with the necessary hardware, may be accessed by users at any time and from any place.

This paper begins with Imre, Dave, and Jack describing what they presented in the webinar. With a broad range and scope, these perspectives are grounded in the literature and, in many ways, offer unique insights into the role of digital technologies and networked spaces in outdoor education contexts. After outlining the paper's methodology, the emerging themes from the webinar as driven by the participants' responses to the presentations is explained. Finally, these themes are interpreted with germane literature and suggestions for the rapidly growing research intersection of outdoor education and the role of digital technologies are offered.

Summary of the presentations

During the webinar, Imre, Dave, and Jack each had five minutes to present their thoughts on each of the two topics informed by their individual research projects. For the purposes of the paper, we now provide brief summaries from each presentation to guide the reader through the webinar content. The presentations provided a theoretical foundation for the webinar, and in many ways, this section provides a review of the literature for this paper and places the paper within its scholarly and practice-focussed context.

Statement One: The use of digital technology in outdoor education is fundamentally contrary to all its key values

Jack Reed: In response to our provocative statement for presentation one, I split my response into three distinct sections. First, I evaluated some of the defining values at the core of the British outdoor education context. Drawing on my own research (Reed & Smith, 2021) and the works of others (e.g. Allison, 2019; Barrett & Greenaway, 1995; Higgins, 2002; Soga & Gaston, 2016), I identified two important threads for the discussion. These were that outdoor education is seen as a vehicle for participant development and growth, and that outdoor education can provide an opportunity to disconnect from a chaotic and fluid society while reconnecting with nature, with others, and with ourselves. From this, I proceeded to my next point, where, drawing on Dimock (2019) and McCrindle (2021) respectively, I briefly considered Generation Z and Generation Alpha. This was important context, as, when considering the works of Boyd (2008, 2014, 2015) and Maclsaac, Kelly, and Gray (2018) on the place of social media in the lives of young people, we see just how embedded such spaces are within contemporary youth culture.

I therefore positioned community, friendship, and identity development on social media as something that is worth considering in outdoor education. Indeed, we often see these as explicit programme outcomes (Asfeldt, Purc-Stephenson, Rawleigh, & Thackeray, 2021; Beames & Atencio, 2008). From this position, I suggested that networked spaces naturally become an inescapable part of both the experience and consolidation of learning outdoors. This led me to my conclusion, suggesting that networked spaces may offer young people a living archive, or memory bank, for their outdoor education experiences. I have discussed this beyond the outdoor education context in a blog post (Reed, 2021a), and the potential for networked spaces in the development and representation of memory has also been discussed by Özkul and Humphreys (2015) and Jacobsen and Beer (2021). With the above in mind, I offered an alternative position statement to the one which started the webinar, that is, 'networked spaces and connectivity play a critical role in and beyond outdoor education.'

Imre van Kraalingen: The point of departure for my presentation was to briefly outline the core values of outdoor education in Norway. Based on the findings of my systematised review of the use of mobile technology in outdoor education programs, I focused on outlining the ways in which mobile technologies can both support and hinder the pedagogical objectives of outdoor education (van Kraalingen, 2021). The findings of the review consider the affordances and pitfalls associated with the use of mobile technology in the outdoor classroom.

With regards to the Norwegian context, I highlighted the focus on learners' direct experience of, and connection to, the natural environment (Beery, 2013; Breivik, 2021; Faarlund, 2007). Previous studies have indicated that some outdoor educators, practitioners and researchers are concerned with the potential interference of digital and mobile technologies with learners' unmediated experience of nature (Lai, Chen, & Yang, 2014; Schaal & Lude, 2015). In response to this, I argued that it is too simplistic to understand the role and impact of mobile technologies as 'good' or 'bad,' and that digital and mobile technologies can alter the quality and possibility range of people's experiences. As I have argued in my paper, I stated that it will be important to look beyond this dichotomy and aim to better understand the new layers of complexity that digital and mobile technologies add to the field of outdoor education (van Kraalingen, 2021). I concluded by stating that I believe it will be important to gain a deeper understanding of the

impacts of mobile technologies as learning tools, how we can use their potential, and mitigate the pitfalls. Finally, I argued for the need to critically evaluate the above, in order to make well-informed and considered decisions about when, where and how to use—or not use—such means.

Dave Hills: I answered the first discussion statement in three parts and drew directly on my research of over 150 survey participants from 20 countries, and in-depth interviews of 30 participants from eight countries (Hills & Thomas, 2021). In part one, I suggested that the ‘key values’ in outdoor education can be further examined through five key pedagogical considerations and a systematic framework (see Figure 2). When examined by outdoor educators, these considerations can contribute to an intentional and evidence-based approach to making decisions about the management of digital technology in outdoor education (Hills, 2019). My research showed that while the learning outcomes were initially offered by many participants as the dominant consideration, analysis of the interview data showed that it was the use of outdoor education (by the organisation) and the values of the outdoor educator that often mediated the ‘key values’ of outdoor education (Hills & Thomas, 2019).

In the context of Australia, the use of outdoor education varies from a stand-alone subject, field trip or camp to a teaching methodology (OEA, 2021). Regarding the facilitator’s values, my research has found that a facilitator’s position on technology in outdoor education can be summed up by asking ‘to what extent is outdoor education a break from the norm of education?’. My research suggests that for many organisations, their values of what outdoor education is and the outdoor educators’ perceived application of outdoor education all vary enormously among the staff (Hills & Thomas, 2021). My findings indicate that outdoor education organisations may benefit from establishing and agreeing on a pedagogical framework that articulates their position on the above applications and how much outdoor education is different or not. Once the ‘key values’ of outdoor education are established for that organisation, it will be obvious to them if the use of digital technology for a given education session is supportable or not.

Statement two: ‘If we accept that digital technology is embedded in outdoor education: What do we know about its potential? And what are key areas to explore more deeply?’

Jack Reed: My second presentation began by introducing the term ‘postdigital.’ Having written about this previously (Reed, 2021b), and also after the webinar (Reed, 2022a), the postdigital begins by seeking to understand the ways in which technology is now embedded within our sociocultural, political, and economic structures. Indeed, it implies that the binary between a digital and a non-digital life no longer exists. Of course, the idea of a collapsing digital/non-digital binary cuts straight through the heart of many conversations on the role and use of technology in outdoor education (e.g. the double-edged sword from Cuthbertson et al., 2004). From here, I proceeded to consider some other key areas to explore further. First, I outlined the importance of young people’s voices in discussions on technology in outdoor education. As Herring (2008) described, when researchers employ words such as ‘unprecedented’ or ‘transformational’ in relation to technology, there is an inadvertent exoticisation of communicative networks, which ultimately serve to ‘other’ the experiences of young people who have known nothing else.

Next, I turned my attention to the sliding scale of access to technology for young people. Brought into sharp relief by a UNICEF (2020) report on young people’s access to internet at home, they found that for young people in low-income countries, just 6% had access to the internet as opposed to 87% in high-income countries. Further, intersectional issues such as gender, sexuality, and ethnicity (to name just three) were discussed. Finally, I concluded by positioning my presentations within the COVID-19 context. Situated within the work of Cauberghe, Van Wesenbeeck, De Jans, Hudders, and Ponnet (2021), my stance is that social media has played an important role in the maintenance of friendships and communities during periods of intense physical isolation. As discussed elsewhere (Reed & Dunn, 2022), the ways in which social media may have contributed to a sense of belonging and community for young people cannot be ignored and offers new and complex postdigital terrain that outdoor education must navigate.

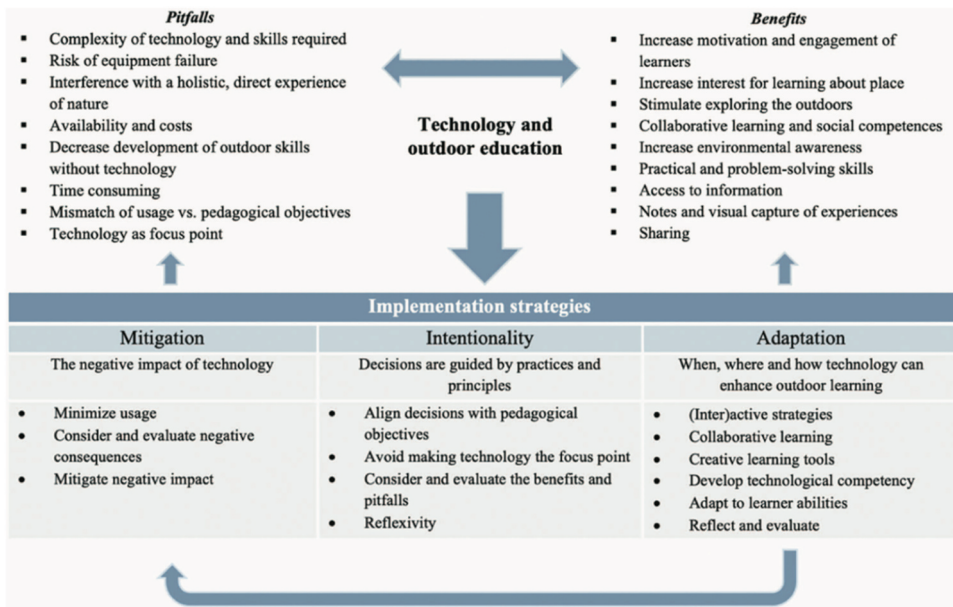


Figure 1. Considerations for implementing mobile technology from .van Kraalingen (2021)

Imre van Kraalingen: In response to the second statement, I first presented the benefits and pitfalls associated with the use of mobile technology in outdoor education. Next, I presented a framework that outlines the strategies and considerations for implementing mobile technologies, as derived from the findings of my paper (van Kraalingen, 2021). As shown in Figure 1 below, these strategies concern: mitigation, intentionality and adaptation. My principal argument was that the decision-making process surrounding the use of mobile technologies as learning tools should consider how these tools can either serve or hinder the pedagogical objectives.

In terms of key areas to explore, I highlighted gaining a deeper understanding of the technological mediation of human-human and human-nature interactions, and exploring innovative and purposeful ways of using digital and mobile learning tools in practice.

Dave Hills: In my second presentation, I identified two key areas that articulate the potential of technology in outdoor education and how they can be explored more deeply. First, I presented affordance theory as the delicate balance between technological determinism and social constructivism (Gibson, 1979). I explained how it can be applied to outdoor education and highlighted how every time digital technology is included or excluded, something is always lost and something is always gained (Hills & Thomas 2019). This is displayed below in Figure 2:

As can be seen in Figure 2, the opportunities on the right-hand side highlight the potential of technology in outdoor education to be a positive influence and re-define the learning opportunities, while the left-hand side illustrates what is threatened by this inclusion. I suggested that these five threats need to be explored more deeply, in particular point B5, which is ‘a feeling of presence’ (Hills & Thomas, 2019). The second point I presented in discussion two carried this theme of presence into the emerging technology of Apple Glass and the Metaverse. Here, remote presence is to be created in real-world situations by emerging augmented reality technologies. These will present a completely new set of threats and opportunities to the outdoor education profession and will require the sound employment of robust decision-making tools and the application of affordance theory to optimise the management of digital technology in the outdoors.

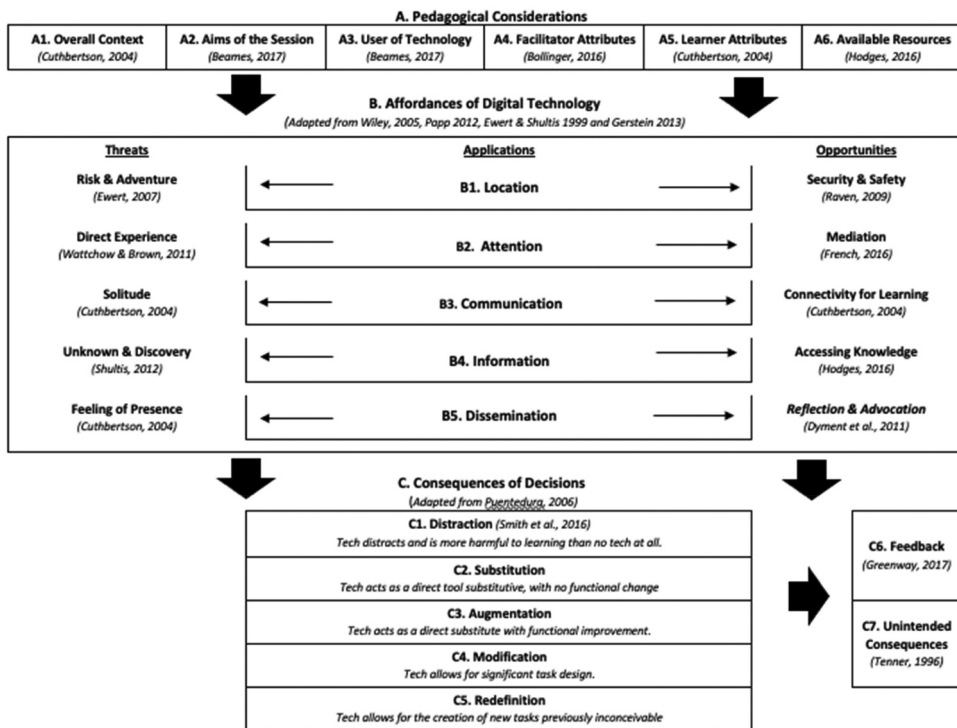


Figure 2. The digital technology in outdoor education framework 2.0 (DIOEF2.0) from Hills & Thomas (2019)

Methodology

In this methodology section, we outline Zoom as a space for data collection, discuss ethical issues around using the webinar participants' voices and writing in this inquiry, and explain how the data were analysed.

Zoom as a space for data collection

Sullivan (2012) states that 'the potential for video conferencing as a research tool is almost unlimited' (p. 60). While Sullivan's (2012) piece was written in relation to Skype, the use of Zoom as a space for qualitative research has lately seen a growth in interest (e.g. Gray, Wong-Wylie, Rempel, & Cook, 2020; Roberts, Pavlakis, & Richards, 2021). Archibald and colleagues (2019) outline how Zoom enables a geographically dispersed population to meet through a connected form of hardware in ways that have otherwise not been possible. This was the case for the webinar, as, due to COVID-19, bringing together an international panel and audience would not have been possible in-person. While Lobe, Morgan, and Hoffman (2020) document the core functionalities of Zoom, and the importance of the platform during the pandemic, Howlett (2021) posits that videoconferencing software encourages us to think differently about our research 'field.' When considering Zoom as the field for our research, we saw that it provided an opportunity to bring a diverse mix of voices together in one place. By extending our 'field site' both spatially (e.g. global) and temporally (e.g. multiple time zones), we were afforded far greater engagement than what we might have had in a bounded offline environment (Hine, 2015).

Process, participants, and ethics

Undertaking research in an online environment, characterised by a webinar, generates numerous ethical considerations (Convery & Cox, 2012). In the case of this webinar, the concept of establishing a research output post-webinar was not initially on the authors' agenda. Hence, the ethical implications of the authors' choices associated with the webinar—for example, not establishing boundaries for identifying participants, not proposing that data will be kept for research purposes, not articulating the option for participant anonymity, and not setting any parameters for participation—are all compounding ethical dilemmas. Ackland (2013) highlights the rapidly changing nature of research in the online environment and argues that researchers need to be agile in rethinking, reframing consistently, and reviewing their work's ethical implications, primarily with respect to aspects of informed consent, anonymity, and privacy rights. Crucially, the underlying ethical imperatives remain the same in all kinds of research. Thus, as authors, we felt justified in our decision to undertake research based on the webinar and the associated chat and proceeded to address the ethical issues inherent in our nascent inquiry.

The idea of a research output that drew from the webinar came as an afterthought—a consideration based on the remarkable richness of the *frontchannel and backchannel* discussions within the webinar (Atkinson, 2009), which we were convinced would be of service to the international outdoor education community. The frontchannel represents those discussions, comments and input from participants shared in the video recording and voiced openly during the webinar. Participants were asked for their consent for the webinar to be recorded and disseminated, therefore providing consent for their input to the webinar to be published in the public domain. It is not possible for a participant who speaks during the event to remain anonymous, unless they were to deliberately not turn on their video camera, along with using a pseudonym. No participant chose to obscure their identity in this way. The backchannel represents those comments shared in the chat dialogue, which are usually related to and elicited by the central webinar discussions. Unlike the video recording, the chat was not published in the public domain. The backchannel in webinars can serve as an alternate method for participants to share their thoughts, fact check with other participants and engage in discussions parallel to the webinar presentation (Atkinson, 2009; Kassner & Cassada, 2017). Participants electing to participate in the backchannel rather than the front-channel may have opted to maintain anonymity by not sharing their names or posting under an alternate title; hence attribution of comments becomes difficult.

These aspects of anonymity were at the forefront of our minds as we grappled with attempting to construct a research inquiry from the webinar. Through a series of meetings, the authors debated aspects of consent, the perception of covert observation, professional identity, attribution of knowledge, and honouring those who may have opted out of participating in a research study, had they known that the webinar's content might become data.

The decision to use the discussions and chat as data raised issues of covert observation, as a research output derived from the webinar may have limited or altered an individual's input (Roulet, Gill, Stenger, & Gill, 2017). Sugiura, Wiles, and Pope (2017) raise the issue of public versus private perceptions of what is shared on the web, and argue that the standard methods of ethical consideration in the web environment need to consider what is informed consent. How do researchers ascertain what someone is sharing as a private individual or as a representative of an organisation or business? This is particularly relevant to the webinar in question, which featured voluntary participation and the engagement of individuals from across the globe—some of whom attended during work hours, while others were present in their own time.

As the webinar was hosted from Norway, we examined the ethical guidelines from the Norwegian Centre for Research Data (NSD). The guidelines state that, for projects that do not process personal data, the researchers must ensure that no names or personally identifiable background information is recorded in the material (NSD, 2022). Furthermore, it was decided to draw on the expertise of four trusted, critical friends (Stolle & Frambaugh-Kritzer, 2022), individuals who were involved in the

webinar, who had made significant contributions to the discussion and chat. The option to retrospectively request consent (Hair & Clark, 2007) from all participants was suggested and put forward to the critical friends. It was deemed too difficult to manage, as a number of the participants were not fully identifiable and thus not contactable. A second option was to invite all contributing participants to be members of the research collective and be authors of the paper. This idea had merit but was deemed too cumbersome and impractical to pursue.

After considerable internal debates informed by NSD's ethical guidelines and the input of critical friends, it was agreed that the paper would not identify specific content that could be attributed to individual participants. As long as both channels were used as more general sources of data, open coding would allow for the principal themes from the participants' responses to the presenters' content to surface. Since these principal themes would need to come from multiple participants making a similar point, the issue of attributing a particular idea to a specific individual was no longer an issue.

Data analysis

The data analysis can unashamedly be labelled as 'thematic analysis lite,' as our intention was not to interrogate the data set especially deeply, in order to reveal nuanced views that might have been somehow obscured. Rather, we aimed to highlight broad themes that existed in webinar participants' written chat and in their verbal discussions. By maintaining a deliberate level of moderate superficiality, we were able to capture topics at the forefront of participants' minds, while maintaining their anonymity and privacy.

Although our approach to this analysis is largely inductive, in that themes were derived from the data themselves (Patton, 1990), the content of the data generated by the webinar participants is, to a significant extent, in response to the presentations during the webinar, which are summarised earlier in this paper. At its roots, the analysis took the audience chat and the audience's verbal comments and searched for 'repeated patterns of meaning' (Braun & Clarke, 2006, p. 86).

The analysis involved two researchers working closely together as they followed Braun and Clarke's (2006) first five phases of thematic analysis: familiarising yourself with your data; generating initial codes; searching for themes; reviewing themes; and defining and naming themes (p. 87). Each researcher undertook the first three phases independently and only examined the webinar chat. The pair then convened to compare their themes (phase four). Although the labels differed, five principal themes were agreed upon and named (phase five). This process was then modified for the analysis of the audio transcript, as the established themes were used to take a more deductive approach to the rest of the coding. When the two analysers came back together after independently analysing the audio transcripts, the themes were reviewed again. This intentional coming together for the purposes of comparison and discussion on themes ensured interrater reliability (Belotto, 2018). This time it was decided to combine two themes and consign one to a second tier of importance, thus leaving the team with three dominant themes that emerged from the participants' responses to the webinar presentations: moving away from nature-technology binary thinking, considering the use of digital technology in regard to specific learning objectives and contexts, and informing oneself about digital technology and thinking critically about its applications.

Boyatzis' (1998) work on developing codes was especially helpful throughout the process. In particular, his way of creating tables that comprise theme names, descriptions, examples from the data and coding labels afforded the analysts a very useful structure. Using two coders greatly increased the trustworthiness of the analysis, as well as this provided a built-in method of investigator triangulation (Merriam, 1988; Stake, 1995). This kind of inter-rater reliability between two or more coders (Jeyaraman et al., 2020), was central to bolstering the trustworthiness, credibility, and dependability (Denzin & Lincoln, 2000) of our findings.

Findings and discussion

Through the process of thematic analysis, as described above, we identified three main themes in the webinar's verbal and written discussions: overcoming nature-technology binary thinking, considering the use of digital technology with regard to specific learning objectives and contexts, and informing oneself about digital technology and thinking critically about its applications.

The first theme indicates the need to move away from binary thinking in terms of 'yes tech/no tech.' An important part of the discussion revolved around how we may overcome the nature-technology divide. If we indeed consider the field of outdoor education within a postdigital context, as posited by Reed (2021b, 2022a) and van Kraalingen (2022), it is becoming increasingly difficult to draw a line between where technology stops, and nature begins. As discussed by Fawns (2022), 'recognising that technology and pedagogy are, inevitably, entangled, opens up possibilities for more meaningful analyses of educational activity' (p. 4). It was also recognised that networked spaces can collapse the previously bounded nature of outdoor education activities. This means that learners inevitably start and end their outdoor education experiences within the sociotechnical structures that permeate society (Reed, van Kraalingen, & Hills, 2022). Reflecting on Marwick's (2018) work in this context, who draws on a sociotechnical lens whereby humanity's social structures are blended with the affordances of technology, we are presented with the foundational theoretical tools through which to make sense of how social constructions of reality are developed in 21st century outdoor education. In essence, no matter how hard we try, outdoor education experiences may be considered as bookended by the technological architectures that shape society.

Multiple participants pointed to the importance of acknowledging that the field of outdoor education is undeniably influenced by this constantly connected and always available communications environment. This, as described by Quinn and Papacharissi (2014), acknowledges that online social spaces are never 'off.' With respect to this point, most of the participants who commented seemed to agree that the 'yes tech/no tech' terminology, positioning individual perspectives at both extremes of the spectrum, is rather unhelpful. They deemed it important to learn more about precisely how digital technologies may complement and enhance outdoor education, all the while remaining attentive to the 'never off' nature of learners' online social spaces.

Conversely, others underlined that the value of outdoor education, in terms of offering an alternate learning setting and a break from technology, may gain significance, exactly because of the increasing embeddedness of technology in people's everyday lives. Here, we may draw parallels with Wattchow's (2001) work on the pedagogy of production, and the general links made by others to the instrumentalisation of outdoor education (Loynes, 1998). For Payne and Wattchow (2008), the instrumentalising of outdoor education creates 'a vicious cycle ... (where) outdoor education is a reflection of the faster cultural and technological phenomena' (p. 26), leading to them call for outdoor education to retraditionalise. There are also links that can be made to Lynch and Moore's (2004) adventure paradox, where outdoor leisure is increasingly being used in contemporary society as a means to escape a world that historical, wealth seeking adventurers helped to create. Emerging as a theme in the webinar, the above text repurposes the 'yes tech/no tech' binary, despite more general calls to move beyond this over-simplification. It can be argued, then, that some traditions in outdoor education may be worth preserving. For example, various participants underlined the importance to uphold certain activities that purposely decide not to employ digital technology. Thus, within this vein of thought progression, it can be interpreted that there is a time and place for the use and non-use of technology, which links to the next theme.

The second theme suggests that decisions to use digital technology to support specific learning aims should be considered within context. Principally, this concerns matching the right type of educational technology tool with a particular learning objective. This theme reflected how the webinar discussion kept returning to the question of 'it depends,' when debating if and when it was appropriate to employ digital technology. Hence, it was concluded that one of the key

challenges for the field is to move beyond the 'it depends' sentiment and more deliberately develop specific guidelines and strategies for the use of digital technologies as educational tools.

The third and final theme underlines how the use (and non-use) of digital technology requires critical consideration. This is arguably connected to the second theme, in terms of critically evaluating whether the use of digital technology may support or hinder the learning objectives. A prerequisite for making well thought through decisions is that educators are informed about the affordances of such technologies and their applications; decisions need to be based on knowledge and experience. The frameworks offered by Hills (2019) and van Kraalingen (2021) provide an affordance-based view of digital and mobile technologies, as well as a preliminary set of guidelines for decision-making. However, as digital technologies continue to advance and while we remain attentive to the context collapsing nature of networked spaces, it remains a challenge to stay current with these developments and their potential in education. Thus, the use of digital technology in a pedagogical manner will very likely require educators to receive additional guidance and training, as indicated by van Kraalingen (2021).

Another noteworthy issue raised in the discussion revolved around asking if we should, and how we could, include learners in outdoor education programs in the decision-making process? Reed addressed this matter in his presentation and underlined the importance of hearing the voices of young people and understanding their connectedness through networked spaces, both within and beyond the classroom, when assessing the place and use of mobile technology. As Montgomery (2015) discusses, networked spaces have dissolved previously static social boundaries in children's lives. Through phones, social media, and gaming, Montgomery (2015) explains that networked spaces generate fluid cultural patterns for young people that are unlike those of former generations. In this vein, Reed (2022b) suggests how research endeavours that engage with the situated experiences of participants in outdoor education must remain critically attentive to the lived experiences of participants. As already discussed in relation to Herring's (2008) work, there is a growing argument that the outdoor education field, both in practice and research, needs to reflexively engage with any bias or preconceived judgment on the place and use of digital technologies, and should incorporate the views of participants within this process.

In addition to the three main themes discussed above, the issue of accessibility also emerged from the webinar, though it was not as dominant an item. On the one hand, there is a risk that educators and practitioners are making assumptions that everybody has access to mobile technology. In Ofcom (2021) Online Nation report, the issue of accessibility is starkly presented. While 94% of UK households have an internet connection, when learning at home because of the COVID-19 pandemic, 'one in five children did not have access to an appropriate device for their schoolwork all the time' (p. 4). Multiple participants in the webinar shared the concern that a more structural integration of digital and mobile technologies in outdoor education activities may create a different set of standards, which can lead to issues of inequality with regards to participation and the accessibility of outdoor education. On the other hand, it was acknowledged that digital technologies can create new opportunities for participation and learning, for example for people who are physically not able to explore the outdoors.

Conclusions

This paper aims to highlight key debates within this rapidly developing field of study situated at the nexus of digital technology and outdoor education, while highlighting the rich themes captured from the webinar participants' discussion on this topic. Through writing this paper, we seek to raise awareness and develop a pro-active approach to the management of digital devices in outdoor education. We hope to enable opportunities for digital technology to be optimised (Hills & Thomas, 2019) and the threats of digital distraction to be managed and mitigated (van Kraalingen, 2021) in outdoor education.

From the webinar presentations, analysis of the discussion and debate, and literature that has been reviewed, we suggest that digital technology and networked spaces are 'always on' and omnipresent. What is emerging from this paper is that even if an outdoor educator believed that the use of digital technology was fundamentally contrary to its values, that digital technology and networked spaces are still 'always on' and always connected. This view suggests that outdoor educators need to move from questioning whether or not technology and networked spaces should be part of their teaching and learning, towards accepting they are an inseparable part of contemporary social life and optimising learner engagement.

From the webinar presentations, analysis of the discussion, and literature that has been reviewed, we conclude that digital technology and networked spaces have the potential to enhance learning. However, their *management* needs to be intentional, systematic and evidence-based. What is emerging from this paper is that outdoor educators may need to reconsider how and in what ways digital technologies affect learning outcomes and experiences in outdoor spaces and places.

Implications for practice and research

The findings from this inquiry lead to three implications for practice and research. Regarding professional practice, we recommend that outdoor educators accept the presence of technology and networked spaces before, during and after outdoor educational experiences, and turn their focus to managing technology well, rather than merely considering whether it should be used or not. Furthermore, we recommend that outdoor educators intentionally move away from the default response to questions around the adoption of digital technology of 'it depends,' by applying a systematic, evidence-based, approach to managing digital technology and networked spaces, where the affordances of the technology are critically discussed. Finally, we encourage outdoor educators to be increasingly aware of inequalities in the provision of digital technologies within learner demographics. Regarding future research, a limitation of this paper is the absence of learners' voices in this discussion. Future studies can aim to capture the views of learners in particular, in relation to the themes that have emerged from the analysis of the webinar discussion. It is these kinds of inquiries that will enable these conceptual tools to more effectively facilitate intentional, systematic, and evidence-based decision making around digital technology and networked spaces in the practice of outdoor education.

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ORCID

Imre van Kraalingen  <http://orcid.org/0000-0002-3731-7269>

Dave Hills  <http://orcid.org/0000-0002-6336-7737>

Jack Reed  <http://orcid.org/0000-0001-6701-6531>

Simon Beames  <http://orcid.org/0000-0003-1513-9745>

Brendon Munge  <http://orcid.org/0000-0002-0987-3321>

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