



Celebrating Diversity and Inclusion in the Outdoors

Tomás Aylward¹ · Denise Mitten²

Accepted: 3 May 2022 / Published online: 19 May 2022
© The Author(s) under exclusive licence to Outdoor Education Australia 2022

Abstract

Delegates from 22 countries and four continents assembled in Ireland during September 2019, for the European Institute for Outdoor Adventure Education and Experiential Learning (EOE Network) conference which was themed on the celebration of diversity and inclusion in the outdoors. Conference delegates were invited to have their presentations considered for conversion to journal articles for inclusion in a specially themed issue of JOEE. In this special issue, the majority of articles relate to the inclusion of persons with a disability, social inclusion, and issues related to inclusive practice in schools-based outdoor programming. Here, we celebrate some of the many participants in outdoor and environmental education and the authors and educators who have chosen to learn about equity and are campaigning to have more equity in their organizations and their work in outdoor education. Likely no outdoor professional intends to be ableist, racist, genderist, or sexist. However, we can, unintentionally, adopt any one of these stances if we do not educate ourselves appropriately. Diversity is a fact. The world is comprised of diverse populations of people; and within those populations there is incredible diversity on many dimensions: race (though race is artificially constructed), gender, age, ethnicity, physical and cognitive strengths, body shape, family constellation, immigration status, and more. These articles offer professionals in the field much to consider as they transform OE to be equitable and inclusive, helping more people enjoy and learn outside.

Keywords Diversity · Inclusion · Outdoor and environmental education

✉ Tomás Aylward
tomas.aylward@mtu.ie
Denise Mitten
dmitten@prescott.edu

¹ Munster Technological University, Tralee, Co. Kerry, Ireland

² Professor Emerita, Prescott College, 220 Grove Avenue Prescott, 86301 Prescott, AZ, USA

Introduction

In many regards, 2019 was a different time and a different world. A world before COVID-19. In that world, in September of 2019, delegates from 22 countries and four continents assembled in Ireland for an outdoor education conference dedicated to the celebration of diversity and inclusion in the outdoors. The European Institute for Outdoor Adventure Education and Experiential Learning (EOE Network) conference was hosted on the wild Atlantic west coast of Ireland by the Institute of Technology Tralee (now Munster Technological University/MTU) and by the UNIT-WIN/UNESCO Chair at that university. The mandate of the UNESCO Chair at MTU involves “transforming the lives of people with disabilities, their families and communities through physical education, sport, recreation and fitness.”

The theme of inclusion and diversity grew from two factors. Firstly, at the 2017 conference at Marjon University in the UK, a plenary session saw an active review technique where delegates moved through a hall to assemble beside flipcharts indicating differing topics of importance in outdoor education (OE). Of more than 100 delegates, only four stood by the flipchart titled diversity and inclusion. To the EOE board, it indicated that this was an area that required attention. The second factor was that for many years MTU in Ireland had been innovating work in the area of adapted physical activity and adapted adventure education for persons with a disability. Delegates submitting abstracts for the conference were invited to have their conference presentations considered for conversion to journal articles for inclusion in a specially themed issue of JOEE. Presenters proposed their abstracts, and following consultation with the editors of JOEE, six abstracts were developed as papers for this special issue.

Many people’s collective vision of life on our green and blue planet has been altered by the intervening twenty-eight months between the conference and publication. Millions of lives have been lost and there have been times when a sense of collective challenge was experienced, as well as a sense of a global empathy for the many people who have suffered loss through this pandemic. This is not to say that everyone has experienced the pandemic equally. As did People of Color, people with disabilities died disproportionately, and they continue to worry about and become ill as restrictions are lifted, because lifting of restrictions is generally premised on considering the effects of COVID-19 on “healthy” individuals. Additionally, the vast scale of under-reported death and suffering from this virus in the developing world and the global south is quite different from the loss and illness in many of the wealthy countries of our planet. These inequities have raised public awareness of social justice issues, and this special issue is timely in asking our sector of education to focus attention again on how we collectively consider issues of disability, gender identity, race, and ethnicity in our work *in, about, and for the out-of-doors* (Ford, 1986).

The stark reality is that, on almost every continent, the recorded heritage of their mainstream outdoor and environmental education retains strong links to Eurocentric, White, male, heteropatriarchy perspectives that frequently exclude rather than include all peoples (Breunig, 2021; Davis, 2019). This prescription of what counts as outdoor and environmental education is often based upon normocentric assumptions about the human form and the physical and cognitive capacities of individuals (Aylward,

2020). While the diversity of humanity and the urgency to stimulate greater inclusion in the outdoors has been identified (Loeffler, 2021; Warren & Breunig, 2019), there have been few infrastructural or coordinated approaches to changing the mainstream outdoor sector in ways that support greater inclusion and genuinely acknowledge human diversity. While no worse perhaps than the global norm (Warren et al., 2019), outdoor professionals ought to raise the bar in our various fields.

From a political perspective, global politics have let humanity down. However, the United Nations (UN) and UNESCO have attempted to bring people together in acknowledging fundamental rights and global priorities in numerous areas. They include declarations and conventions on access to education; the rights of a child; cultural diversity; the rights of indigenous peoples; physical education, physical activity and sport; and the rights of persons with disabilities. As much of the work in outdoor and experiential education focuses on the education of children and young people, the UN's 1994 Salamanca declaration on the inclusion of children with special educational needs (Kiuppis, 2018) might be a useful blueprint for our sector in adopting a more systematic approach to inclusion. Special education needs, like gender, race, and social deprivation, are not singular issues. They transect our society and it is necessary to take into account the intersectionality of these aspects of humanity when addressing unequal engagement in outdoor and environmental education.

Kudos to the EOE board for prioritizing a theme of diversity and accessibility for the 2019 conference and kudos to all the people who presented papers and who continue this important work of shedding light on the ways to help make the outdoors and outdoor learning, specifically, more accessible to more people. The conference presenters used a variety of research approaches, including duoethnography and bricolage, which are fairly novel in OE fields, and work well to capture the viewpoints and lived experiences of a diversity of people. Loeffler and White engaged in duoethnographical dialogues to illustrate their disparate histories and different perspectives as they approached outdoor activities and adventures together. White lives with a mobility disability and had not integrated into many physical activities; if she engaged in the outdoors it was passive. Loeffler has the privilege of living in/with an ageing, physically literate body that, thus far, has allowed high mobility. Bren and Prince used a bricolage approach—one of piecing together—employing a variety of data sources. An innovative methodology, bricolage can integrate numerous perspectives on a subject or phenomenon (Kincheloe, 2001; Kincheloe & Berry, 2004).

As a special issue drawn from a single conference, the selected papers are a snapshot of perspectives on diversity and inclusion in the outdoor fields and do not represent all aspects of diversity and social justice in the outdoors. As a conference situated in Europe, there was unequal representation from anglophones and from northern and western European countries.

The majority of presentations related to the inclusion of persons with a disability, social inclusion, and issues related to inclusive practice in schools-based outdoor programming. The six papers presented in this special issue include three papers authored in Europe and three from North America. The author lineup for this issue of JOEE is remarkable in that five of the six first authors used names associated with women and may gender themselves women. Martin et al., (2018) told us that historically two of the leading outdoor journals, JEE and JOEE had approximately three

times as many authors who appear to gender themselves as men as those who appear to gender themselves as women. Martin et al. also found that only 5% of the articles in these journals had been about social justice topics. These articles were almost invariably authored by women. Diversity and inclusion is considered a social justice topic, making this issue a departure. We encourage a departure and hopefully mark a change going forward for researchers, contributors and editors.

Several articles used vignettes to convey ideas and to bring to life the issues and the people talked about. There is one paper related to schools-based outdoor programming and two that relate to community-based phenomena. Three papers relate to outdoor experiences provided at outdoor centres, camps, or institutions (including a hospital). Some papers describe what might be termed segregated participation in learning/physical activities. While the concept of segregated participation may seem anathema to the principles of inclusion, in some settings such as disability, segregated programming may mean having access to a programme, and to engagement with people who live with similar disabilities and have similar capabilities. Likewise, cases can be made for single gender or race experiences, or programmes specifically for trans people.

People have created many different groups to engage in outdoor education and activities with like people (e.g., Adventures Beyond Barriers Foundation—India; Indigenous Women Hike—USA; OutdoorAfro—USA; and People Outdoors—AU). People create groups that they want to be part of, but this occurrence is not necessarily in reaction to mainstream OE. For many folks it is that they want to do certain activities with “their people” (Mitten, 2018).

How did we get here?

Early mainstream OE was premised on helping people (primarily men) become more fit, less sickly, or understanding they could survive situations they may have previously thought they could not. Today this is often referred to as having grit. It was also influenced by the mountaineering and other exploring-by-colonizing cultures where people climbed high peaks (often with local Indigenous guides or Sherpas) or navigated long wild rivers, which led to organizations specializing in teaching mountaineering and other outdoor skills. With the environmental movements of the 1970s, environmental education became its own field, one that has taken on a colonial history in the USA, as mentioned by Foreman et al. in this issue.

These colonizing roots, coupled with the overwhelming predominance of White male professionals, especially in leadership, have made it difficult for mainstream OE and environmental education (EE) to be inclusive (Gray et al., 2017). Foreman et al. (this issue) notes that there is a revolving door phenomenon amongst staff as People of Color are hired for EE jobs but get discouraged with the unbearable discrimination. This oppression extracts a heavy psychological toll and is socially constructed. For example, White supremacy is baked into U.S. culture and permeates most organizations.

In terms of accessibility, being a woman of color and having an atypical body creates an intersectional situation of discrimination. Mirna Valerio, a fit, heavy African-American marathoner, ultramarathoner, and trail runner does not fit common outdoor

stereotypes, and she pays for this (Ashdown-Franks & Joseph, 2021). Valerio has received death threats telling her that she doesn't belong in the outdoors because she's fat, something many would find unbelievable (Neophytou, 2018; REI, 2017).

No outdoor or environmental practitioners would even come close to entertaining that action. However, what thoughts do you have when you see a person with an atypical body type in the outdoors, such as a heavy person in the outdoors? Are you surprised to see people of colour in the outdoors? What do you think about when you see a person who has a disability or a person using a wheelchair in the outdoors?

According to Valerio, "people always say to me, 'Anyone who runs as much as you do deserves to be skinny.' Of course, what they're really saying: 'If you do all this running, why are you still so fat?'" (Driscoll, 2015). Valerio says that she is pretty much in love with her body. This correlates with research about women and body image showing that women who participate in outdoor activities often change their focus to wanting their body to be functional rather than necessarily in line with social norms of beauty, which are often unattainable and unhealthy (Mitten & D'Amore, 2017). In alignment with this views, Fat Girls Hiking is a body-positive hiking group all about enjoying nature without body shaming (Greene, 2019).

The 2019 conference was - and the articles in this JOEE issue are - in support of education about inclusion and accessibility. In this issue we celebrate some of the many authors and educators who have chosen to learn about equity and are campaigning to have more equity in their organizations and their work in outdoor education.

Education for understanding

Likely no outdoor professional intends to be ableist, racist, genderist, or sexist. However we can be, unintentionally, if we are not educated: racially educated, educated about gender, ableism, ageism, and more. Education is a basic step needed for people to understand discrimination, diversity, and how to provide more equitable work environments and programming in order to move towards inclusion.

Early mainstream outdoor educators programmed for masculine stereotypes and held values complicit with being aggressive in the outdoors, especially towards nature. Now, though, educators mostly promote caring for the environment and working with nature. A question today may be What is it that has many outdoor educators holding on so hard to the notion of the rugged individual and the idea that the outdoors is a space for the fit and firm? Of course, this is especially true for leaders in mainstream outdoor education; being fit and firm is a well-recognized precondition for being an outdoor leader. Warren (2009) noted that many people believe an outdoor leader is a White, heterosexual, able-bodied, and male (often with facial hair and wearing a flannel shirt).

Disability rights activist and author Ladau (2021) explains that ableism is a public health crisis: 15% of the global human population is considered disabled. Ableism is rarely talked about; silence is the norm. Understanding ableism and its impacts on the huge and diverse disability community, as well as those of us who are currently able-bodied, could help outdoor professionals design more inclusive work and program environments. Ladau argues that ableist language holds us back from having more productive conversations about the ineffective systems in place and those needed. In

the domain of adapted physical activity and adapted adventure education, the inclusion spectrum model (Black & Stevenson in Grenier et al., 2017, p.54) describes a variety of interpretations of inclusion in physical activity from the perspective of a person with a disability.

According to Loeffler and White (this issue), a concept hard to grasp when one is fit and firm is that there is not a binary between able bodied and disabled people, “it’s a continuum.” For example, as people age (including fit and firm folks), they usually become less fit and firm than in earlier years. Over time as people age, people who were fit eventually become categorized as disabled. Ageism, also rampant in the outdoor professions, is a testament to that continuum. Using nonbinary language about ability can help change perspectives and pedagogy.

The disability articles in this issue emphasize reciprocal social relationships as a core element of inclusive education. In reciprocal social relationships all members of groups are valued and seen as having skills to share. This belief counters the dynamic of learning environments where able-bodied staff are positioned as helpers and disabled people as those who need help. Again, the authors ask outdoor professionals to be aware of language and pedagogy. Kelly et al. (this issue) recommend using multiple means of engagement to help avoid these dichotomous roles. Again, language drives practice and has huge impacts on outcomes.

Lieberman (this issue) focuses on how persons with a disability experience the activities of daily living (ADL) in the context of outdoor adventure programmes. Lieberman illustrates how the experiences and activities of outdoor adventure create opportunities to reinforce and to build capacity in ADLs, which are important in supporting the personal wellbeing and the level of independence of persons with a disability.

Education includes learning about people’s histories (finding the buried histories, too), recognizing the patterns and effects of colonialization (e.g., generational trauma, a multidimensional complex condition), considering the political actions that have taken place and may be continuing, and learning names by embracing preferred names of groups of people, memorizing acronyms for LGBTQAI+2 and others, and navigating pronouns. Reading, watching movies, listening to poetry, and viewing art by people of color, disabled people, and other marginalized groups is crucial education. Differences in preferences within communities and regions add further layers of complexity. Bren and Prince (this issue) use a definition of trans that some agender and genderfluid people disagree with. Bren and Prince acknowledge that language will continue to evolve, and language will continue to be interpreted differently from community to community.

Most people in outdoor education likely identify as cisgender women or cisgender men. Cis is the shortened or informal version of cisgender. Authors in this issue sometimes use the informal cis. The word woman and women can be used as both nouns and adjectives. Female connotes a biological category, such as assigned female at birth (AFAB), not a gender. Therefore, it is correct to describe oneself as a cisgendered woman not a cisgendered female.

Education helps develop inclusive and trauma-informed leadership skills and appropriate facilitation. Several authors mention that outdoor leaders often do not receive training in working with people with disabilities or gender nonconforming

people. Bren and Prince (this issue) report that outdoor leaders indicated they would like more training in working with gender diverse people, but that such training has not been available. Bren and Prince reinforce that not knowing certain specifics about habits of trans people, such as binding and the effects of binding for trans people, may result in outdoor leaders unintentionally putting trans people in danger while participating in activities.

Many authors critique the outdoors as gendered—meaning in masculine ways. This gendering happens through the programming and expectations that leaders, educators, and others from heteropatriarchal organizations may have as well as mainstream media portrayal. While people know that the outdoors is not inately gendered, sometimes language used to describe the outdoors and the history in outdoor teaching texts contributes to a notion that the outdoors is for everyone in all places gendered masculine or male (Warren et al., 2019). There are places where the outdoors is not considered gendered male.

Outdoor trips not run by mainstream organizations may not be gendered. For example, research shows that one of the reasons women choose to go on all women's trips is because the trips are not gendered. Additionally, for a group like Indigenous women hike the outdoors is likely not gendered male. The more people write and say the outdoor is gendered male—using essentialist language, the more some people may believe it is gendered naturally or gendered male everywhere. This essentialist language has been a problem. We contributed to addressing this problem in the webinar *#HereBeWomen* for the IOERC (Smith et al., 2022)—so much more deconstruction needs to happen as signaled by outdoor education literature.

Become allies and more

Many social justice advocates maintain that allyship is just a beginning (Breunig, 2021) and much more is needed. Allyship is a stage in someone's educative growth, where someone acknowledges injustices in society and believes they must be changed. Allies further educate themselves so they can tap into their own privilege to actively work to dismantle systems of oppression. As people disrupt and interrogate institutional bias—these people are sometimes called accomplices—they can disrupt, with or without having access to relationships with marginalized people. In doing this disruption accomplices center oppressed people, not oppressors. Part of decolonization actively removes colonizers from their dominating power. A person who moves to understanding the role of power in OE settings and uses their privilege for the compensatory benefit of marginalized people is sometimes called a co-conspirator. Co-conspirators listen to and take their guidance from those folks who have no choice but to live the struggle.

Language is central in the development of ethical practices. Where language describes or refers to people, the voice of those people counts when it comes to how one respectfully refers to that person or people. A person in Montreal may self-identify as “une personne handicapée” while their cousin 100 km to the south in Vermont would be horrified at the description. Another example of the use of language might be the phrase, “best practice.” It is a phrase that well-intended people use to identify the methods and techniques to employ in their practice. This term, best practice, can,

however, stall critical thinking and influence people to stop innovating. If we have the best, there is none better. Best practice may be an example of colonizing language, because there are likely to be equal or, over time, more efficacious practices. Best practice is often presented as the most efficient and prudent way of doing something; with that in mind, if there is a best practice, it may imply, correctly or not, that one size fits all and essentializes people (for more discussion see Mitten 2021). In this vein, Lieberman (this issue) and others reference universal design for learning and mention that practices continue to evolve.

It is hard to write this editorial about celebrating diversity and embracing inclusion without thinking of the humanitarian tragedies that have taken place in recent years and are currently unfolding. Darfour, Syria, Yemen, Ukraine (Ukraina). These place names become political nouns rather than the names of people's-places. While the causes of human suffering in these regions are almost always caused by the actions of the few, it highlights for us the importance of human compassion and the acceptance of others. Perhaps we need to regularly ask ourselves how our OE programmes can evoke such emotional responses. Auspiciously, experiential education and outdoor learning have been named by UNESCO as strategies in education which contribute to a safer future for humanity, with less conflict, and in a cleaner environment (UNESCO, 2002).

Diversity is a fact. The world is made up diverse populations of people; and within those populations there is incredible diversity on many dimensions: race (though race is artificially constructed), gender, age, ethnicity, physical and cognitive strengths, body shape, family constellation, immigration status, and more. The lack of diversity in mainstream outdoor education, as in any field, indicates that organizational leaders, staff, and outdoor educators may unintentionally or intentionally be choosing inequity over equity. Without equity, inclusion cannot happen. More than 25 years ago Henderson (1996) articulated, for the OE field, that the “add women and stir” phenomenon—meaning that instead of changing practices to reflect changing demographics people are expected to adapt and mix into the current programming—does not work. The authors in this issue ask OE practitioners to change and adapt practices and language to better fit participants instead of asking participants to do all the changing to fit into OE. The articles in this issue offer professionals in the OE fields much to consider as they change the OE fields to be more equitable and inclusive, helping more people enjoy and learn outside.

Declarations

Conflict of interest The authors have no competing interests to declare that are relevant to the content of this article.

References

- Ashdown-Franks, G., & Joseph, J. (2021). ‘Mind your business and leave my rolls alone’: A case study of fat black women runners’ decolonial resistance. *Societies*, 11(3), 95

- Aylward, T. (2020). Persons with a disability in outdoor learning. In M. Peters (Ed.), *Encyclopedia of Teacher Education*. Springer. https://doi.org/10.1007/978-981-13-1179-6_363-1
- Breunig, M. (2021). Topographies of hope: social justice, outdoor environmental education, and accomplice-ship. In G. Thomas, J. Dymont, & H. Prince (Eds.), *Outdoor Environmental Education in Higher Education* (pp. 283–294). Springer
- Davis, J. (2019). Black faces, black spaces: Rethinking African American underrepresentation in wildland spaces and outdoor recreation. *Environment and Planning E: Nature and Space*, 2(1), 89–109
- Driscoll, B. (2015, December 7). *This Woman Proves You Don't Have To Be Super Skinny To Be An Ultramarathon Runner*: The Huffington Post UK. https://www.huffingtonpost.co.uk/2015/09/30/mirna-valerio-runner-ultramarathon_n_8219938.html
- Ford, P. (1986). Outdoor Education: Definition and Philosophy. *Resources in Education*, 21(1)
- Gray, T., Mitten, D., Loeffler, T. A., Allen-Craig, S., & Carpenter, C. (2017). Defining moments: An examination of the gender divide in women's contribution to outdoor education. *Research in Outdoor Education*, 15, 47–71
- Greene, S. (2019, August). *Fat girls hiking is the body-positive group trying to change the outdoors industry* [Video]. Youtube. https://www.teenvogue.com/story/fat-girls-hiking?fbclid=IwAR1f25UuklgRS00Yczq2olqCVkeSgLLZcn3b1vBGYSF7j4z-_edt0ecTqA
- Grenier, M., Miller, N., & Black, K. (2017). Applying universal design for learning and the inclusion spectrum for students with severe disabilities in general physical education. *Journal of Physical Education, Recreation and Dance*, 88(6), 51–56
- Henderson, K. (1996). Feminist perspectives on outdoor leadership. In K. Warren (Ed.), *Women's voices in experiential education* (pp. 107–117). Kendall Hunt
- Kincheloe, J. L. (2001). Describing the bricolage: Conceptualizing a new rigor in qualitative research. *Qualitative Inquiry*, 7(6), 679–692
- Kincheloe, J. L., & Berry, K. S. (2004). *Rigour and complexity in educational research: Conceptualizing the bricolage*. Open University Press
- Kiuppis, F. (2018). Inclusion in sport: Disability and participation. *Sport in Society*, 21(1), 4–21
- Ladau, E. (2021). *Demystifying disability*. Ten Speed Press
- Loeffler, TA. (2021). Diversity and inclusion in OEE. In G. Thomas, J. Dymont, & H. Prince (Eds.), *Outdoor Environmental Education in Higher Education* (pp. 259–268). Springer
- Martin, S., Maney, S., & Mitten, D. (2018). Messages About Women Through Representation in Adventure Education Texts and Journals. In T. Gray, & D. Mitten (Eds.), *The Palgrave International Handbook of Women and Outdoor Learning* (pp. 293–306). London, UK: Palgrave MacMillan
- Mitten, D. (2018). Let's meet at the picnic table at midnight. In T. Gray, & D. Mitten (Eds.), *The Palgrave international handbook of women and outdoor learning* (pp. 19–34). Palgrave Macmillan
- Mitten, D. (2021). Critical perspectives on outdoor therapy practices. In N. J. Harper, & W. W. Dobud (Eds.), *Outdoor Therapies: An Introduction to Practices, Possibilities, and Critical Perspectives* (pp. 175–187). Routledge
- Mitten, D., & D'Amore, C. (2017). The relationship of women's body image and experience in nature. In D. Vakoch & S. Mickey (Eds.), *Women and Nature: Beyond Dualism in Gender, Body, and the Environment* (pp. 96–116). Routledge. <https://www.routledge.com/Women-and-Nature-Beyond-Dualism-in-Gender-Body-and-Environment/Vakoch-Mickey/p/book/9781138053427>
- Neophytou, N. (2018, October). *The Rundown: Mirna Valerio aka the Mirnavator* [Video]. Youtube. <https://youtu.be/lx3cjmNFVQ>
- REI. *The Mirnavator* [Video]. Youtube. <https://youtu.be/c5-CSQcYeXk>
- Smith, H. A., Burks, J., Duffy, A. S., Ludington, M. C., Breunig, M., & Mitten, D. (2022, February 23). *#HereBeWomen: The place and placelessness in the outdoors*. University of Edinburgh. <https://drive.google.com/file/d/1rWSzMcZBzmd2Tt5swY76wk6uC8WoiOOB/view>
- UNESCO (2002). *Teaching and learning for a sustainable future*. <https://unesdoc.unesco.org/ark:/48223/pf0000161849?3=null&queryId=4eedc50a-bd33-4e73-b762-159371a32bed>
- Warren, K. (2009). Outdoor leadership with gender in mind. In B. Stamba, & C. Bisson (Eds.), *Teaching adventure education theory: Best practices* (pp. 232–240). Human Kinetics
- Warren, K., & Breunig, M. (2019). Inclusion and social justice in outdoor education. In M. Peters (Ed.), *Encyclopedia of Teacher Education*. Springer. https://doi.org/10.1007/978-981-13-1179-6_366-1
- Warren, K., Mitten, D., D'Amore, C., & Lotz, E. (2019). The gendered hidden curriculum of adventure education. *Journal of Experiential education*, 42(2), 140–154. <https://doi.org/10.1177/1053825918813398>

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.