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Highlights

- Urban environmental education fosters learning about place, participation, and partnerships in cities, and it contributes to urban sustainability.
- Similar to how cities are innovation hubs, urban environmental education generates novel educational approaches that contribute to the field of environmental education more broadly.
- This book integrates research and practice with the goal of helping aspiring and practicing environmental educators achieve educational, youth and community development, and environmental quality goals in cities.

Background

Environmental educators working in cities are faced with the challenges of environmental degradation, poverty, and social inequity. Yet they also have tremendous opportunities to leverage rich human and natural resources. Cities are places where people holding diverse perspectives, knowledge, and values bump shoulders on a daily basis; in fact, these exchanges are what make cities “innovation hubs.” Cities are also places where people can visit nature in iconic urban parks and can work with neighbors to create new public green spaces like community gardens and pocket parks. How can urban environmental educators address the challenges and leverage the opportunities in cities to meet their

own program goals, while also generating novel approaches to environmental education more broadly? Given that the majority of the Earth's inhabitants now live in cities, urban environmental education is critical to urban sustainability and may even generate the innovations that lead the field of environmental education into the future.

The history of environmental education in cities mirrors the history of environmental education. Around the turn of the twentieth century in the United States, the nature study movement emerged in response to concern that as children migrated with their families from farms to cities, they would lose opportunities for practical and experiential learning about natural history. In the 1970s, environmental educators saw how children living in cities experienced pollution and poverty, and they designed participatory action approaches to engage youths in addressing these issues. More recently, urban environmental educators have borrowed ideas from environmental art, ecological restoration, urban planning, adult education, youth and community development, and social-ecological systems resilience to design novel educational approaches.

We define urban environmental education as any practice that creates learning opportunities to foster individual and community well-being and environmental quality in cities. Urban environmental education practices have varying goals for the individual learner, including knowledge gain, self-efficacy, and opportunities to form social ties and engage in stewardship and policy action. Urban environmental education also creates opportunities for community members to come together around local environmental restoration, planning, policy, and other environmental actions. In these ways, urban environmental education contributes to urban sustainability and resilience.

Whereas sustainability has historically emphasized integrating natural resources conservation and social and economic development, resilience “shifts policies from those that aspire to control change in systems assumed to be stable, to managing the capacity of social-ecological systems to cope with, adapt to, and shape change” (Folke et al., 2002, p. 13). Coping with, adapting to, and shaping change is critically important in a world facing disruptions due to a warming climate. As cities experience flooding, heat waves, and other climate-related disasters, we see the concept of resilience gaining currency. Some sustainability scholars also have recognized the importance of change, stating, “Sustainability is not some fixed, perfect state but rather an evolving one that responds to changes in ecological processes as well as changes in human culture and institutions” (Newman and Jennings, 2008, p. 9). Thus sustainability and social-ecological systems resilience are related concepts and both are goals of urban environmental education. While recognizing the growing importance of resilience, authors in this volume more commonly use the term sustainability. In this book, urban

sustainability refers to cities that provide opportunities for humans, communities, and ecosystems to thrive and develop, while continually responding to global and local social and environmental change by smaller adaptations and in some cases larger transformations.

An example of how urban environmental education might contribute to individual and sustainability outcomes comes from community gardening education programs, which are mentioned in multiple chapters. Through community gardening, participants build self-efficacy and connections with other gardeners, while transforming a vacant lot into a site that fosters neighborhood ties and provides food and wildlife habitat. In many cases, positive feedback loops lead from individual outcomes such as self-efficacy, to sustainability outcomes such as enhanced green space, which in turn creates opportunities for psychological well-being and other individual and community benefits. As more and more urban dwellers become involved in greening initiatives, they challenge the notion that people living in cities are solely concerned about social issues and that caring for one's fellow beings is incompatible with caring for our environment. In fact, community well-being is dependent on urban green spaces and other aspects of environmental quality. In short, urban environmental education can be for individuals, communities, and the environment.

This Volume

This book aims to deepen our understanding of the role of urban environmental education in fostering urban sustainability. It takes the view that environmental educators need not look to distant pristine nature to reach their goals, but rather can take advantage of urban nature right outside their doorstep. Building on research and practice, the chapters suggest novel approaches to educating about the urban environment and to participatory urban planning, stewardship, and governance.

To cover a range of urban environmental education topics, we assembled an international community of eighty-two scholars from environmental education and related fields. In the thirty chapters of this volume, these scholars share their fascination about cities as living laboratories for environmental and educational innovations. Each chapter briefly reviews relevant research and practice and proposes ideas to enhance urban environmental education. Chapters are organized in five sections: Urban Context, Theoretical Underpinnings, Educational Settings, Participants, and Educational Approaches.

Chapters in Urban Context review urbanization and characteristics of sustainable cities and describe urban environmental education in the context of

green transition communities, rapidly growing cities, and cities in the developing world. The Theoretical Underpinnings chapters explore critical environmental education, environmental justice, sense of place, climate change education, community assets, trust, and environmental governance. Chapters under Educational Settings address urban environmental education embedded in nonformal institutions, urban communities, primary and secondary schools, and university campuses. Urban environmental education involves any urban resident, thus the chapters in the Participants section discuss educational activities with young children, youths, and adults and tackle questions related to intergenerational education, inclusive education, and educator professional development. Finally, chapters in Educational Approaches explore methods and tools used in urban environmental education: cities as classrooms, environmental arts, adventure education, urban agriculture, ecological restoration, green infrastructure, urban digital storytelling, and participatory urban planning; the final chapter reviews five urban environmental education trends.

Readers can explore chapters in any order and adapt the content for different cultural contexts. The book is useful for environmental educators working in cities in any organization and for future urban environmental educators studying at universities. It is also useful for current and aspiring environmental professionals who want to understand how they can best work with their education colleagues. Thus the book may interest planners and other decision makers who influence urban development and want to incorporate educational ideas into their programs.

Cross-Cutting Themes

The chapters in this book reveal the diversity and richness of environmental education programs in cities. At the same time, common, cross-cutting themes emerge. These themes are encapsulated by a description of nonformal urban environmental education as “relating environmental content to the everyday lives of urban learners, ensuring learner autonomy, and integrating the institutions of environmental education providers within the broader array of social institutions in the urban environment” (chapter 12). Relating content to the lives of learners entails a focus on urban *place*; ensuring learner autonomy reflects *participatory* approaches to environmental education; and integrating institutions suggests governance and other *partnerships*. In short, this statement reflects the cross-cutting themes we have distilled from the chapters: place, participation, and partnerships.

Place

Through the wealth of practices presented, this book demonstrates how environmental education is no longer only about taking children outside the city to experience pristine nature, but includes an impressive array of approaches *in* cities, ranging from nature play to green infrastructure creation, to art and political action. In addition, starting in chapter 1, authors redefine cities, which, rather than being blights on an otherwise pristine landscape, are places where nature can be found and ecosystem services are provided. Further, and important given increasingly urban demographics, cities are places where learners can readily observe how ecosystem and social processes are tightly intertwined. Chapter 12 reflects the significance of specific urban places in environmental education: “In urban settings, connecting content to locally relevant situations and drawing on community concerns may be particularly important to counteract traditional conceptualizations of canned nature programs.”

In addition to calling for situating environmental learning in cities, chapters address how participants in planning and other environmental education programs actively reconstruct urban places. For example, chapter 6 (Environmental Justice) states, “Urban environmental education that integrates environmental justice can help participants construct, critique, and transform our cities in more just and sustainable ways.” Summing up the place theme, chapter 7 (Sense of Place) describes how environmental education can help urban residents rediscover, reimagine, and recreate their urban neighborhoods and cities as legitimate social-ecological systems worthy of study, stewardship, and planning, and in so doing help residents develop an ecological place meaning in cities.

Participation

Nearly all authors describe participatory approaches to urban environmental education. Although this theme is prominent in nonformal education settings, it is also present in the chapters focused on schools and educational policy. For example, the Four Asian Tigers (chapter 3) includes descriptions of participatory whole-school approaches and inquiry-based learning.

Four types of participatory practices in environmental education—participation as encounters with nature, as action, as social learning, and as deliberative dialogue (Læssøe and Krasny, 2013)—can be found in this book. Early Childhood (chapter 16) describes children spending time in urban nature yet also taking action to address problems they perceive during their time outdoors. Focusing on participation as social learning, Critical Environmental Education (chapter 5) notes that “Addressing wicked sustainability issues like climate change calls for

forms of education and governance that create new spaces for collaborative and social learning.” Continuing the focus on wicked problems from the point of view of deliberative dialogue, chapter 10 claims that “while environmental education programs that are prescriptive or stress immediate technical fixes (e.g., recycling) may influence environmentally responsible behaviors, they are unlikely to help participants generate the innovative solutions needed to address [wicked] urban sustainability issues . . . participatory approaches to environmental education . . . are critical.”

Participation, however, is not without its challenges. For example, *Cities as Opportunities* (chapter 4) talks about the challenges to participation in India, including illiteracy, socioeconomic disparity, and cultural biases. Further, in some situations such as when a city is immediately threatened by flooding, government regulations, social marketing, and other more government-directed approaches are called for. Moreover, participatory approaches are subject to critiques related to tokenism or to claims that youths are the principal decision makers when in fact adult guidance is needed and prominent behind the scenes (chapter 17). Recognizing legitimate concerns about participation and at the same time reinforcing notions of place, chapter 29 claims that “participatory efforts—from regional planning for sustainable transit systems, to community greenway planning, to the creation of safe places for children to play—perform vital roles in engaging people in the shared process of place making.”

Partnerships

Authors speak of multiple types of partnerships or boundary crossings, some of which have not been widely discussed in the environmental education literature. These include partnerships across disciplines, across ethnic and cultural divides, and across organizations or governance actors, all three of which are needed to address wicked sustainability problems. Andrade and colleagues (chapter 4) sum up how critical partnerships are: “Over the past two decades, Brazil has come to the realization that the current state of the environment is too dire for environmental education to be carried out as individual initiatives.” Chapter 12 refers to partnerships when it states that “environmental education includes public health, environmental justice, social equity, diversity, justice, and other concerns—many of which are intensified in the urban context.”

Focusing on disciplinary partnerships, chapter 27 describes how the Urban Ecology Center in Milwaukee, Wisconsin, “showcases a green building, solar power station, public art, urban wasteland being transformed into a park, riparian habitats, classrooms, and a climbing wall. . . . Educational efforts such as these are rich in their ability to string together disciplines like civil engineering,

landscape architecture, and building design to trace both ecological and human processes, all grounded in the learners' lived environment." Chapter 10 describes more broadly the importance of integrating across social and ecological disciplines to foster environmental literacy and address wicked problems in urban settings.

Turning to partnerships across social divides, chapter 26 argues that education situated in local restoration efforts involves "consciously forming partnerships; integrating local values, traditions, and socioeconomic alongside ecological considerations; and being sensitive to diverse cultures and issues of power. . . . Doing otherwise can lead to misinterpretations, failure, and even environmental injustices." Although as environmental educators we often talk about diversity, our goals are not always clear (e.g., diversity efforts that try to help marginalized peoples or seek to engage multiple perspectives in order to generate sustainability innovations). Chapter 13 argues for "equitable knowledge sharing," which "reveals a subtle change in perspective from expanding existing outreach programs to simply being more inclusive of nontraditional audiences" to "[r]ecognizing and honoring each actor's assets." In doing this work, perhaps the most important question we can ask ourselves is: Are we open to learning as much from our partners as we are to sharing our expertise with them?

Finally, whereas chapters 10 and 11 focus specifically on governance, many chapters indirectly touch on this concept by describing partnerships with government, university, business, and civil society actors. Such partnerships may start as more narrow efforts to bridge formal and nonformal educational institutions and then expand to actors not directly engaged in environmental education. One example comes from Singapore (chapter 3), which "has adopted a cross-sectoral "3-P" (People, Public, and Private) partnership strategy to promote urban environmental education. Its efforts to embed issues of recycling, energy, and water conservation into the formal curriculum are enhanced by building a network of environmental advisors from governmental and nongovernmental organizations and industries." Environmental educators can also "help form a bridge between the municipal leadership and residents" (chapter 2).

Place, Participation, and Partnerships: Applications for Practice

How can educators contribute to urban sustainability? The authors and editors of this volume do not offer a set of prescriptions. Rather, we encourage educators and aspiring educators to read the chapters, learn from the research and from fellow students and practitioners, and realize that education is in part a process

of learning from mistakes and building on what worked well. Education is also a process of adapting our practices based on what we learn and observe, and in some cases more radically transforming what we do as new situations arise. In this spirit, we offer a set of principles that reflect our three cross-cutting themes: place, participation, and partnerships.

Start by designing your programs around local urban *place*. This means recognizing that cities are places to celebrate, including their natural and cultural elements. It means helping participants acquire ecological place meanings that encompass not only buildings but also wildlife, green infrastructure, and opportunities for outdoor recreation and environmental stewardship in cities. And importantly, it means reclaiming, restoring, and creating new urban places that contribute to urban sustainability. Through web-based technologies, participants in programs designed around local place can learn about and exchange ideas with similar efforts elsewhere, as well as learn about global sustainability issues. In this way, programs that begin with urban place can engage in regional and global social and environmental movements and policy efforts.

Design your programs to incorporate *participation* to the extent possible. This includes participation as encounters with nature, as action, as social learning, and as deliberative processes. But don't go overboard. In some instances, for example, when children and communities are faced with an immediate threat or when the program has an "instrumental" outcome (e.g., to train adults to prune trees, chapter 18), more directive approaches are called for. And knowing how to balance participants' ability to act on their own vs. their need for guidance is an important consideration (chapter 17).

Finally, strategically build *partnerships* both within your programs and between your organization and other governance actors. Bridging disciplinary, ethnic, cultural, and organizational divides is critical to addressing wicked environmental problems. Partnerships also can be designed more narrowly to realize a program's objectives; for example, what disciplines, individuals, and organizations will help incorporate storytelling into a program that aims to foster ecological place meaning? What is my organization's niche, and what other organizations do I partner with, to contribute to green space planning in my city?

Conclusion

Just as cities are hubs for technological and social innovations, the chapters in this book demonstrate how urban environmental education is generating educational innovations. In particular, urban environmental education offers opportunities for participants to reconstruct place and recreate the meaning of place

in cities and thus play an active role in transforming the places where most of the world's population lives. Cities also offer opportunities for environmental education to experiment with and integrate multiple forms of participation in settings ranging from community gardens to daylighted rivers, from coastal shorelines to green buildings, and from art installations to city parks. Finally, dense networks of stewardship organizations in cities enable environmental educators to form strategic partnerships and become part of environmental governance networks. Focusing on the way we think and act related to place, participation, and partnerships may provide ideas, inspiration, and resources for the field of environmental education more broadly. It may also help us to generate the innovations needed to address climate change and future sustainability issues.

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