The Importance of Place-based and Bioregional Education in the School System

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Introduction

Place-based education is largely connected to environmental ethics, conservation, ecological integrity, and cultural sustainability, as these all encompass places (Semken & Brandt, 2010). The main goal of this particular education is for people to connect to both the natural and the built world around them, bringing awareness to environmental issues that impact their valued environment and subsequent action to improve and sustain it (Smith, 2017).

Place-based education, with an emphasis on bioregions, is an introduction to a global perspective, beginning with developing the students' abilities to connect with their natural surroundings and resulting in the application of these lessons to address large-scale environmental issues (Louv, 2005, p. 68). Many scholars have found that place-based education encourages pro-environmental behavior, and corresponding emotions, attitudes, and behavioral intentions that help students create lasting environmental habits (Kudryavtsev, Stedman & Krasny, 2012).

Place-based and Bioregional Education

Place-based education is still largely uncommon and insufficient in the school system (Semken & Brandt, 2010). This deficiency has led to several issues regarding the well-being of students. For example, students throughout the U.S. are experiencing a phenomenon referred to as nature-deficit disorder. Nature-deficit disorder describes the growing disconnection of humans from nature, leading to behavioral and health issues as well as a lack of investment in the environment. The standardized education system contributes to nature-deficit disorder as education about the environment is inadequate in many schools (Louv, 2010). Researchers continue to accumulate evidence that highlights the significant value of nature to a child's development regarding their health and capacity for learning (Louv, 2010). In protecting environmentalism and the environment, it is important to first defend the existence of "the child in nature," which can begin through place-based education (Louv, 2005, p. 159).

Place-based education has the potential to combat concerns associated with a lack of exposure to the natural world, such as nature-deficit disorder, and is associated with improved student achievement, engagement, environmental awareness and wellbeing outcomes (Junot, Paquet & Fenouillet, 2017). Therefore, it is important that students are intentionally provided with materials, activities and resources that can help them to establish a sense of place as an entry into environmental education.

A sense of place refers to the relationship of humans to place, and can be better grasped through a bioregionalism approach (Semken & Brandt, 2010). The concept of bioregionalism is defined as an inclusive and openly perceived approach to incorporating human activities with the natural world, integrating ecological,

political, social, and philosophical issues (Ryan, 2012).

Bioregionalism encourages the reconnection of students with the natural world through application of a sense of place, and aids in conveying place-based curriculum (Semken & Brandt, 2010). Preserving the environment requires investing in the development of environmental thinkers of future generations in education systems so that they may appreciate and protect the natural world. In order for students to actively participate in reclaiming a sense of place, they will need to embrace and appreciate the bioregion they inhabit (Semken & Brandt, 2010). Bioregions aim to deter away from political boundaries and social constructs and are instead defined by physical and environmental features, such as watersheds and terrain, to follow diverse ecosystem types, creating natural boundaries rather than human created landmarks, such as city limits (Bron, 2000).

The ever-growing need to present students with more opportunities to interact with the environment and build relationships with their "place" is undeniable. About 57 percent of states in the U.S. have incorporated some form of environmental literacy into classrooms, which includes curriculum such as place-based education and others (NAAEE, 2014). For example, 1,140 of the schools in Washington state have integrated place-based curriculum into their institutions in at least one classroom (Status Report 2004, 2004). Therefore, about half of all public schools in Washington still do not incorporate this type of education.

These numbers illustrate that place-based education, and environmental education overall, is still insufficient in the educational system. Rachel Carson pushed the importance of educating people about the incredible presence of nature in the world in order to highlight that while humans are only a small piece of the natural system, they can cause irreversible harm or positive change (Treagusta et al., 2016). A school setting provides an optimal environment for introducing concepts that are associated with the natural world and providing students with a space to build relationships with the environment. It is imperative that more schools throughout the U.S., as well as on a larger scale, move to further integrate environmental education opportunities for students, such as through place-based curriculum and activities.

The examples of the advantages of incorporating place-based education into schools is extensive. Improvements for students who are exposed to this type of education include pro-environmental behavior and corresponding emotions, attitudes, and behavioral intentions that aid in the development of lasting environmental habits (Kudryavtsev et al., 2012). Additionally, diverse interactions with the environment lowers students' stress levels, enabling them to better interact with other school-related material (Kuo et al., 2018). For example, a study was conducted that included a group of students engaging with one lesson a week that took place in a forest setting, which revealed healthier diurnal rhythms in the stress hormone cortisol in students, whereas the other group of

students in the study that was not exposed to nature and outdoor learning had higher levels of cortisol (Kuo et al., 2018). Various studies continue to point to the fact that when students interact with the environment, their overall well-being improves as well as their compassion for the environment, rendering it critical that more schools enhance students' exposure to interaction and education about the natural world.

Importance of "Place" in Curriculum

It is essential for students to develop an awareness about the place they inhabit at a young age. As Orr stated years ago, "to a great extent we are a deplaced people," resulting in the need for people to regain a sense of place in order to appreciate the environment (Johnston, 2009). The idea of reuniting students with their surrounding environment is that a strong affinity for nature within them will be able to flourish.

Student performance increases in every area when environmental education aspects, such as place-based curriculum, are incorporated into the education system, and students that are exposed to education about the environment are often more successful than their peers in traditional classrooms (Louv, 2010). Education that places emphasis on the environment results in students engaging with multiple perspectives and forming alternative ways of thinking, which allow them to better understand how all elements of life are interconnected, and apply this knowledge in their own lives and communities (Treagusta, Amaranta, Chandrasegarana & Wona, 2016). Skills and outlooks that are enhanced through place-based learning include improved critical thinking, increased scores on standardized tests, a better connection and understanding of class material, and development of appreciation of the world around them (Martin, 2018; Kudryavtsev et al., 2012). This occurs as interactions with nature stimulate students' intrinsic motivation (Kuo et al., 2018).

A study was conducted on 27 students ages nine to eleven in a Florida school that did not implement any form of environmental education (Treagusta et al., 2016). Students were given a survey related to the environment, where most did not exhibit any pro-environmental behaviors. Many students were more concerned with their own comfort rather than how these actions impact the environment, with the exception of animals, as most students indicated they would change their actions to limit harm to animal life (Treagusta et al., 2016).

This study demonstrates that there is a major lack of environmental education in many schools, leading students to be unaware or unconcerned with environmental issues. Integration of place-based curriculum and accompanying activities will further unite students with the environment to help them become better stewards of the earth.

Place-based Curriculum in Schools

It can be difficult to incorporate place-based education into classrooms, but there are sufficient methods to accomplish this challenging task. It is possible to create curriculum centered on place-based education that incorporates materials and

concepts that teachers are already required to teach, such as natural history and geography. In addition, the concentration on the students' bioregion allows for specific subjects, such as geology, that are mandatory, to remain present, but introduced in a different way that also emphasizes students building relationships with the natural world where they live. Though standardized education practices will remain, to which teachers must adhere, there are methods that can successfully integrate place-based education into lessons to further students' environmental knowledge.

A study of 400 middle school students in Washington state was conducted that divided the students into two groups (Wheeler et al., 2007). One of the groups participated in programs that included education about environmental matters, whereas the other group was not exposed to any form of environmental education. The students that were exposed to curriculum that integrated place-based education consistently and significantly outperformed students not engaged with environmental affairs in various subjects, such as in math and science (Wheeler et al., 2007).

Similarly, while studying 181 10th grade students, it was found that those taught with the inclusion of environmental curriculum were more likely to meet or exceed state and school district average test scores, indicating that the incorporation of material about environmental matters into curriculum has a positive influence on academic achievement (Wheeler et al., 2007). Furthermore, 23 percent to 30 percent of students in grades 6 through 8 revealed that they were considering a career in an environmental field after being exposed to curriculum that included environmental subjects (Wheeler et al., 2007).

Along with this, studies have shown that geography has become a common class that may be able to more easily incorporate place-based education than other subjects while remaining compliant with current education standards (Preston, 2015). Though geography is essentially the study of place, it does not often include a focus on place-based education in most schools. This absence of a place-based perspective in geography is a disservice, as the interconnections of human activities and surrounding environments is an essential component of the subject (Preston, 2015).

A study explored Australian primary geography and found that there are alignments between standard geography curriculum and place-based education, such as exploring characteristics of a place and the various "intersections and interactions" that occur within and beyond place (Preston, 2015). The synergies between place-based education and geography are abundant, allowing for the potential of the integration of certain aspects of place-based education into more geography classes.

Bioregionalism in Education

In order to enhance the instruction of place-based education, a specific focus on bioregions can improve students' comprehension of "place" and increase their awareness of the importance of preserving the environment around them and beyond.

Bioregionalism is a somewhat new concept that is slowly becoming integrated into more schools. However, the audience of this construct has remained quite limited over the last 40 years (Lyndgaard, 2008). The subject of bioregions has been introduced primarily into colleges and not public school for grade levels 1st-12th in the U.S. (Lyndgaard, 2008). The introduction of the term bioregion into middle and high schools will enhance participatory and critical engagement of students regarding the diverse concepts that surround the environment (Kahn, 2008).

Though bioregions may present an abstract concept, they actually provide an increased context of place with practical means of understanding the places that students' inhabit (Sarkar & Behura, 2018). Introducing students to the idea of bioregionalism provides a relatable context for students to more firmly grasp presented class materials and the information's relevance to their own lives. Information that is more relevant to students leads to increased learning of the material (Kahn, 2008).

A study was conducted in Newfoundland over the course of four weeks that investigated standard curriculum versus bioregional curriculum taught to middle school and high school students (Howard, 2012). Students were provided with a notebook to record their thoughts as they reflected on different text presented to them throughout the study with all of the literature containing bioregional influence (Howard, 2012). Students' thoughts were then examined through discussions, their notebooks, and conversational interviews to determine if literature that emphasized bioregionalism aided in students' understanding of their connection with the environment and value of living more sustainably (Howard, 2012). Through exploring bioregional literature, students were able to make connections and examine relationships resulting in intergenerational relationality, personal relationality, and place-based relationality (Howard, 2012).

Overall, interacting with text that supported bioregional constructs allowed students to better engage with environmental matters. Diverse curriculum containing artwork and intriguing literature can aid in the portrayal of environmental values by encouraging greater environmental awareness of students in the areas where they live (Howard, 2012). The introduction of bioregional concepts is proven to enhance students' understanding of their natural surroundings as well as the importance to sustainably interact with the natural world, making it an important construct to introduce into more schools.

Conclusion

Education that is focused on the environment, such as place-based education, is clearly lacking in multiple schools and other organizations across the nation and beyond. Students continue to suffer when there is an absence of the natural world in their schooling. Their critical thinking skills are lower, they are more prone to nature-deficit disorder, and they are less likely to take actions presently and in the future that support the environment (Smith

& Sobel, 2010; Louv, 2010). The incorporation of place-based and bioregional curriculum into more schools will allow for students to have an opportunity to develop a sense of place through bioregionalism activities, which assists with fostering students' relationship with the natural world. As the lack of place-based education persists, it will be essential to continue to implement education about the environment into more schools.

The reinhabitation that occurs through concepts within place-based and bioregional education prompts students to embrace the necessity to construct an ecologically sustainable society. Sustainable development at a global level can only be achieved if local regions where life takes place are first understood, and relationships within them are then created (Thayer, 2003). Along with this, a correlation has been found between the strength of place attachment and willingness to assist with solutions for prospective environmental issues, suggesting that place-based education is essential to engage students with becoming the actors that are necessary in the world tomorrow (Kudryavtsev et al., 2012). Introducing place-based and bioregional education into the school system will enable students to increase their ability to become these actors who will be stewards of the environment for years to come.

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