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Perspectives on Environmental Education, Citizenship, and Assessment: A Case Study of Elementary School Teachers and Principals in Israel

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Abstract: Environmental education (EE) is recognized as an important way to improve the environmental crisis. It seems that international and national educational assessment and accountability ideas are working against EE. By examining the perspectives of Israeli teachers, who are important change agents in society, this qualitative case study seeks to understand the potential of EE, when paired with citizenship, to foster a more equitable society in the context of the global educational reform movement. The study focuses on EE implementation in two Israeli schools, asking, "How do Israeli elementary school teachers understand EE's role in fostering citizenship in the context of assessment and accountability?" The findings contribute to the literature by exploring the relationship between EE, assessment, and citizenship. They also suggest that a school's ontological perspective on knowledge, namely the constructivist approach, enhances pro-

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environmental behavior, while the positivist approach matches the EE scientific approach that focuses more on assessment. A whole-school approach to EE deepened the active involvement of participants and enhanced their sense of citizenship more than an inquiry-based learning approach. This study recommends integrating the social component of EE and developing action skills for citizenship, taking into consideration the global assessment movement and accountability context.
Keywords: environmental education; civic education; environmental citizenship; constructivist-positivist approach to knowledge construction; assessment and accountability; pro-environmental behavior

Perspectivas sobre educación ambiental, ciudadanía y evaluación: Un estudio de caso de maestros y directores de escuelas primarias en Israel

Resumen: La educación ambiental (EE) es reconocida como una forma importante de mejorar la crisis ambiental. Sin embargo, parece que las ideas de evaluación y rendición de cuentas educativas nacionales e internacionales están trabajando en contra de la EE. Al examinar las perspectivas de los maestros israelíes, que son importantes agentes de cambio en la sociedad, este estudio de caso cualitativo busca comprender el potencial de la EA, cuando se combina con la ciudadanía, para fomentar una sociedad más equitativa en el contexto del movimiento de reforma educativa global. El estudio se centra en la implementación de la EE en dos escuelas israelíes y se pregunta: "¿Cómo entienden los maestros de escuelas primarias israelíes el papel de la EE en el fomento de la ciudadanía en el contexto de la evaluación y *accountability*?" Los hallazgos contribuyen a la literatura al explorar la relación entre EA, evaluación y ciudadanía. También sugieren que una perspectiva ontológica del conocimiento, a saber, el enfoque constructivista, mejora el comportamiento proambiental de una escuela, mientras que un enfoque positivista coincide con el enfoque científico de EE que se centra más en la evaluación. Un enfoque de educación integral de la escuela profundizó la participación activa de los participantes y mejoró su sentido de ciudadanía más que un enfoque de aprendizaje basado en la indagación. Este estudio recomienda integrar el componente social de la EA y desarrollar habilidades de acción para la ciudadanía, tomando en consideración el contexto de evaluación global.
Palabras clave: educación ambiental; educación cívica; ciudadanía ambiental; enfoque constructivista-positivista de la construcción del conocimiento; evaluación y accountability; comportamiento proambiental

Perspectivas sobre educação ambiental, cidadania e avaliação: Um estudo de caso de professores e diretores do ensino fundamental em Israel

Resumo: A educação ambiental (EA) é reconhecida como uma importante forma de amenizar a crise ambiental. Ainda assim, parece que as ideias de avaliação e responsabilização educacional internacional e nacional estão trabalhando contra a EE. Ao examinar as perspectivas dos professores israelenses, que são importantes agentes de mudança na sociedade, este estudo de caso qualitativo busca compreender o potencial da EE, quando combinada com a cidadania, para promover uma sociedade mais justa no contexto do movimento de reforma educacional global. O estudo se concentra na implementação da EE em duas escolas israelenses, perguntando: "Como os professores israelenses do ensino fundamental entendem o papel da EE na promoção da cidadania no contexto de avaliação e *accountability*?" Os resultados contribuem para a literatura ao explorar a relação entre EA, avaliação e cidadania. Também sugerem que uma perspectiva ontológica do conhecimento, nomeadamente a abordagem construtivista, potencia o comportamento pró-ambiental de uma escola, enquanto uma abordagem positivista corresponde à abordagem científica da EE que se centra mais na avaliação. Uma abordagem de EE para toda a escola aprofundou o

envolvimento ativo dos participantes e aumentou seu senso de cidadania mais do que uma abordagem de aprendizagem baseada em investigação. Este estudo recomenda integrar o componente social da EA e desenvolver habilidades de ação para a cidadania, levando em consideração o contexto da avaliação global.
Palavras-chave: educação ambiental; educação cívica; cidadania ambiental; abordagem construtivista-positivista da construção do conhecimento; avaliação e accountability; comportamento pró-ambiental

Perspectives on Environmental Education, Citizenship, and Assessment: A Case Study of Elementary School Teachers and Principals in Israel

Societies across the globe are presently suffering from environmental crises that demand immediate, urgent action. These crises include climate change, water, air, and land pollution, loss of biodiversity, and social-environmental injustices such as unequal access to environmental resources and exposure to pollution (Saylan & Blumstein, 2011). Policymakers have formally recognized the importance of reversing environmental degradation through the implementation of environmental education (EE) programs (UNESCO/UNEP, 1975, 1977). Consequently, EE has developed to create a deep level of knowledge about the environment, foster awareness of it and positive attitudes toward it, as well as enhancing pro-environmental behaviors (Stevenson, et al., 2014). Though it has been four decades since the United Nations Educational, Scientific and Cultural Organization (UNESCO) recognized EE as a way to decrease environmental degradation (UNESCO/UNEP, 1975, 1977; United-Nations, 1992), and despite similar declarations worldwide since then, such as the Decade of Education for Sustainable Development (2004-2015), and the United Nations Sustainable Development Goals (United-Nations, 2015), the actual implementation of EE has been difficult. It remains a marginal educational issue in many developed countries (Gruenewald & Manteaw, 2007; Huckle & Wals, 2015), including Israel (Tal, 2020).

Usually, EE remains even more marginal in the context of accountability and assessment, since teachers narrow the curriculum to focus on preparing for tests (James & Williams, 2017). Places that had begun implementing EE have since stopped doing so due to the stress on international and national testing, which mainly emphasizes literacy, math, and science (Smith & Stevenson, 2017) and focuses less on non-tested curricula such as EE (James & Williams, 2017). Israel has joined this trend of accountability and places emphasis on the international and national assessment agenda (Pizmony-Levy, 2018), which also influences EE's marginal implementation. As such, EE is not a compulsory subject matter in Israel, and policy documents leave its implementation for schools to decide on voluntarily (Tal, 2020).

When schools do manage to implement EE, it is usually bound to the area of science, focusing mainly on environmental knowledge and attitudes (Skamp, 2010). This trend is in line with the assessment and accountability movement because science is one of the highlighted subjects in the national and international testing movement (Smith & Stevenson, 2017). Due to social crises affected by environmental factors, EE should, however, also include social components which, in turn, demonstrate to learners that active citizenship can be a democratic tool for solving these crises (Orr, 2002; Schild, 2016). The social component of EE includes exploring the relationship between humans and the environment, focusing on how individuals and communities use and share natural and social resources in a just way, and developing action skills and dispositions for citizenship and environmental justice (Bonnett, 2013).

For the purposes of this study, I focused on the following main characteristics of EE that frame the relationship between humans and the environment: holism, interdisciplinarity, and critical

thinking (Bonnett, 2019). One of the important components of EE is encouraging learners' and educators' active learning, critical thinking, and community engagement around social-environmental justice (Gough, 2006). This has the potential to foster pro-environmental behaviors that can lead to solving pressing environmental problems (Stevenson et al., 2014) and social problems (Furman & Gruenewald, 2004; Schild, 2016).

In recent years, some groups have broadened the scope of EE to include social-environmental aspects. These efforts often emphasize the need for solving environmental problems through political change (Parra et al., 2020). Thus, we need to educate for civic engagement within the public sphere and not only for pro-environmental behavior at the individual level or within the private sphere (Chawla & Cushing, 2007). In light of this understanding, citizenship becomes a particularly important pro-environmental behavior, although this concept is usually overlooked by researchers and has only recently garnered scholarly attention (Berkowitz et al., 2005; Chawla & Cushing, 2007; Dobson, 2010; Jagers et al., 2014; Meerah et al., 2010; Schild, 2016). No study has yet investigated citizenship as part of EE in Israel in the context of the accountability and assessment movement.

Although EE and civic education research is well established, there is a lack of research combining the two bodies of literature (Schild, 2016), especially in Israel in the context of accountability and assessment. Therefore, this research contributes to the broader view of EE and civic education for scholars and practitioners in the context of test-oriented education systems. To better understand how EE—when paired with civic education—fosters social action, I explored how educators see the relationship between EE and social change in the context of accountability and assessment, which is most prominent in Israel. Here, emphasis is placed on the local national test (the Indices of School Efficiency and Growth—the "Meitzav") and the international test (e.g., Program for International Student Assessment—PISA) (Inbar-Lourie & Shohamy, 2021). As such, teachers, who are important change agents in society, focus on "teaching to the test", which becomes the end rather than the means. This approach reflects a positivist knowledge ontology, in which Israeli teachers claim that their efforts to raise test scores destroys their ability to create deep learning processes (Zohar & Alboher Agmon, 2018).

It is even more difficult to implement EE, which is voluntary in Israel, when the education system emphasizes accountability and test-oriented teaching and learning. Teachers' perceptions about the link between EE and citizenship education is most valuable, since it will shape how they teach it (Peterson & Bentley, 2017). Therefore, the purpose of this study was to explore the influence of the assessment and test-oriented national policy on implementing EE in two Israeli elementary schools. The question I asked was, "How do Israeli elementary school teachers and principals understand EE's role in fostering citizenship for a more equitable society in the context of the assessment and accountability movement?"

Theoretical Background

Social - Environmental Education and Citizenship in the Context of Ontological Approaches to Knowledge

Understanding the relationship between environmental degradation, social problems, and the urgent need for action to address these social-environmental problems, should lead teachers, administrators, and policymakers to realize that EE should be part of education at every level, with a greater emphasis placed on citizenship (Orr, 1994). Citizenship is one of the main aims of EE for promoting pro-environmental behavior (Stevenson et al., 2014). However, the complexity of pro-environmental behaviors makes investigating this topic similarly complex. The sources of complexity

relate to the conceptual framework of research on pro-environmental behaviors. While past scholars have suggested that environmental knowledge could be used to predict pro-environmental behavior (Rickinson, 2001), subsequent research has shown that this is not the case (Alkaher & Tal, 2011; Berkowitz et al., 2005; Negev, et al., 2008). Therefore, it is important to investigate teachers' perceptions on the relationship between knowledge construction and pro-environmental behavior, especially in the context of assessment, which mainly emphasizes knowledge building on specific subject matters, as is the case in the positivist approach, rather than action-oriented learning, such as citizenship (Smith & Stevenson, 2017), which is based on the constructivist approach.

According to the positivist approach, it is important to enable students to get as much broad knowledge as possible by teaching general principles with diverse examples (Hirsch, 2011). It is considered more effective to teach the broad concept before moving to the details, and it is important to emphasize science, which includes tests and a core curriculum; all of which will enable economic success and maintain the social status quo (Stevenson, 2007). According to Hirsch (2001), it is essential for citizens to learn the elite core curriculum because this is the way to understand the hegemonic culture. This is a profound difference between the positivist and constructivist approaches. While the positivist approach emphasizes a core curriculum and broad knowledge before—or even without—the active part of doing, the constructivist approach promotes a student-centered approach to building knowledge, rooted in students' cultures and offering opportunities for learning by doing, which in turn will guide learners to explore diverse subjects.

More specifically, according to the constructivist approach, knowledge does not exist in a vacuum, waiting for humans to discover it, and no fixed truth can exist when knowledge is separate from practical activity (Golding, 2011). Dewey (1929), as an influential constructivist, emphasized the importance of combining actions and knowledge and integrating thinking and doing. Consequently, the constructivist approach to knowledge, which is part of directed action, emphasizes constructing knowledge in critical engagement and applying current scientific thought to relevant topics and contexts, particularly concerning citizenship, community, and being an agent of change in society (Gordon, 2009).

Despite the necessary combination of EE and citizenship, scholars have tended to examine EE independently of civic education, and especially citizenship. Citizenship education, in the context of the environmental arena, is the obligation to take care of the common good over individual rights (Dobson, 2010), while understanding that protecting the environment is part of the common good (Schild, 2016). Moreover, citizenship education, as for EE, aims to cultivate knowledge, values, skills, and actions, which include participation in the private and public sphere, nationally, and globally (Parra et al., 2020). Despite the fact that teachers have an important role in implementing EE and citizenship, they are still using knowledge transmission (positivistic approach), rather than transformative pedagogy (constructivist approach), which includes enhancing action for social change (Bell, 2016). Research in this area needs to be conducted in deeper and more thoughtful ways to make clearer connections between EE and its wider civic and social implications (Schild, 2016). This is especially true in Israel, where research on these topics is limited.

Environmental Education – Global Context in Research and Practice

Environmental Education (EE), Education for Sustainability (EfS/ESD), and Environmental and Sustainable Education (ESE)

The past decade has seen EE research become much more complex and diverse, both methodologically and philosophically (Pizmony-Levy, 2011). Developments in EE programs, research, and conceptual frameworks have led to a wider definition of EE. Consequently, several conceptual approaches have developed worldwide during its history: EE initially focused on raising

environmental awareness; education for sustainability (EfS), which is linked to education for sustainable development (ESD), initially focused on increasing citizen engagement and the understanding of the connection between environment, society, and the economy; and environmental and sustainability education (ESE) related to sustainability education but also included connecting with place and the non-human world, global citizenship and local identity (Wals et al., 2017). The main principles of all these definitions are, however, the same, and include holism, inter-disciplinaryy, and critical thinking. Given that the term *EE* is used by researchers and policymakers in Israel (Goldman, et al., 2012; Tal & Argaman, 2005), EE will also be meant in this study, interchangeably with EfS, ESD, and ESE.

Environmental Education in Practice and Policy

Despite growing interest and declarations of the importance of EE, in practice it remains marginalized, especially regarding its social-environmental and citizenship aspects. An important aspect of global EE that could influence educators and policymakers is illustrated in findings that EE increases student performance on international and national tests (Bartosh, et al., 2009; Bybee, 2008; Ernst, 2007, 2009; Ernst & Monroe, 2006). Although teachers claim that these assessment trends made them focus on preparing students for tests and prevented them from focusing on higher levels of education, such as developing critical thinking (Smith & Stevenson, 2017; Zohar & Alboher Agmon, 2018), researchers point to examples where students from low socioeconomic status (SES) backgrounds achieve higher scores when learning in diverse ways with an emphasis on inquiry-based learning (Stevenson, 2007). However, the global assessment and accountability movement has become a barrier to implementing EE, focusing on citizenship (Stevenson, 2014).

EE has many advantages in 21st century education: As an interdisciplinary and learner-centered, constructivist approach (Ratcliffe & Grace, 2003), it offers experiential, problem-based learning and hands-on outdoor training that develops critical thinking (Dreyfus & Veinberger, 2011; Johnson & Morris, 2010), affects school climate (Gislason, 2009), and improves academic achievement (Bartosh et al., 2009; Ernst, 2007; Lieberman & Hoody, 1998, 1999). Experiential learning, as one of EE's advantages, is rooted in the constructivist approach, which is especially effective when combined with outdoor learning (Robertson, et al., 2015). Experiential learning theory is based on the idea of learning by doing and is a process of knowledge production through holistic and integrative experience, focusing on perception, cognition, and behavior (Kickul, et al., 2010; Kolb, 2014; Stevenson & Peterson, 2015). Therefore, it is beneficial to implement it as a whole-school approach.

A whole-school approach to EE, comprises the following characteristics: (1) Integrating sustainability across diverse subject matter, including a whole-school curriculum. (2) Involving a variety of participants, including students, staff, parents, and community. (3) Incorporating an EE agenda in the school vision. (4) Employing EE leadership and a policy related to it, and (5) implementing EE into school practices, including daily activities, management of resources, encouraging environmental citizenship by emphasizing students' action, and introducing relevant professional development (Hunt & King, 2015; Kennelly, et al., 2011; Mogren et al., 2018). Moreover, EE, when implemented into a whole-school approach, requires creating changes in pedagogy and practices to include the constructivist approach (Henderson & Tilbury, 2004). In a whole-school approach, school and local communities promote EE in all aspects of school life, which helps to organize the school as a caring community for all its members (Kennelly et al., 2011).

Despite the advantages of EE and experiential learning as part of the whole-school approach, administrators and teachers' choices regarding their incorporation into the curriculum can be significantly influenced by the dictates of state and international tests (Bartosh et al., 2009; Ernst, 2007; Suarez-Orozco & Qin-Hilliard, 2004). In Washington State, for example, EE is required in all

grades. However, teachers and administrators have found it difficult to implement EE programs due to the assessment and accountability movement. Ernst (2007) pointed out that one of the main barriers to implementing EE is national and international testing: Schools' emphasis on state testing often prevents teachers from implementing EE programs. Other research, however, has indicated that EE improves academic achievement for many students (Bartosh et al., 2009; Lieberman & Hoody, 1998, 1999). For example, a study conducted in 40 U.S. schools with EE programs reported that students who participate in EE programs "tend to have higher scores on standardized tests in math, reading, writing, science, and social sciences" (Lieberman & Hoody, 1998, p. 3). Understanding EE's effect on academic achievement may help administrators and teachers adopt EE programs and implement them more effectively (Bartosh et al., 2009). The question is whether the testing and accountability movement is the right approach for the educational system.

Social Change: Pro-Environmental Behavior and Citizenship

Changing students' pro-environmental actions is considered to be one of EE's primary goals (Kollmuss & Agyeman, 2002). Despite this, there is currently relatively little research dealing exclusively with behaviors (Stevenson et al., 2014), therefore, understanding the context of environmental behavior is important for evaluation and investigation, especially when dealing with teachers' perceptions about pro-environmental behavior and citizenship.

Environmental behavior is classified into two categories: First are behaviors that have a direct influence on the environment in the private sphere, such as recycling, energy and water conservation, and composting. Second are behaviors of a social nature that have indirect influences on the environment, or the public sphere, such as donating money, political and civic engagement, gathering environmental information, membership in environmental organizations, and community projects (Chawla & Cushing, 2007; Kollmuss & Agyeman, 2002). Indirect environmental behaviors, or public actions, are less common.

Educators need to emphasize the significance of both public and private sphere behaviors. Research in this area could develop these concepts as well as identify the kinds of EE programs that encourage civic engagement, creating a link to civic education and enacting social change. This is even more important in the context of assessment and accountability, which usually do not pay attention to civic education, focusing primarily on the literacy and numeracy arena (Stevenson, 2014).

Society, Education, and Environment in Israel

The Israeli case, which is the focus of this study, is complicated both socially and environmentally. These complexities have influenced the civic and EE practice and research in Israel. It is important to emphasize that Israel is a geographically small and densely populated country, with 8.7 million residents (Central Bureau of Statistic [CBS], 2017). These residents suffer from many social and environmental problems, which have had substantial negative effects on the country's air, land, and water pollution. However, Israel is still not paying enough attention to environmental degradation and social-environmental problems (Michaels & Tal, 2015). In Israel, it is usually Arabs, and other poor, minority communities who suffer most from environmental problems (Omer & Or, 2005). One way to address this situation is through education. Currently, Israel has only an average education system and low scores on international tests (Ben-David, 2010, 2011a, 2011b), and although there have been many attempts at reform, there are not enough people who are willing to make changes in the education system, which is the large-scale overhaul that is required.

Although education spending in Israel is second only to defense spending (Central Bureau of

Statistic [CBS], 2017), there are many education challenges similar to those in the United States. For example, as in the United States, the goals of increasing the number of students finishing high school, decreasing inequity between communities, and integrating immigrant students (Darling-Hammond, 2010) are all part of the Israeli education system. Even though Israel's government spends more time and money on the poor than on the wealthy, wealthy schools have much better teachers compared to poor schools because good teachers usually prefer to teach in the wealthy schools. Furthermore, parents with higher SES can afford to spend more money on educating their children (Dagan, 2009). While Israel invests more in education per capita than most developed countries, Israeli students receive fewer benefits from this investment. The cost of the system is very high, but teachers' salaries are among the lowest in the world (Bar-Yishai & Pe'er-Li, 2008). Although the Israeli education system has set itself the explicit goals of improving student achievement and reducing the achievement gap, neither of these goals have yet been achieved, and only 52% of Israeli students currently complete high school (Central Bureau of Statistic [CBS], 2017). Despite Israel's problems, it must invest more wisely in improving its education system to prepare it for the challenges of the 21st century (Ben-David, 2011a).

Environmental Education Research in Israel

Various studies regarding EE and pro-environmental behavior have been conducted in Israel in the past decade (Alkaher & Tal, 2011, 2013; Gal & Gan, 2020; Goldman et al., 2012; Negev et al., 2008; Parra et al., 2020; Pizmony-Levy, 2011; Tal, 2010; Yavetz et al., 2009). These studies are just the beginning of much-needed EE research on pro-environmental behavior and citizenship in Israel in the context of accountability and assessment. In this context, Israel is no different from other OECD countries. Israeli government policy emphasizes the trend of assessment, focusing on the global PISA, TIMSS, and PIRLS tests (Pizmony-Levy, 2017) and local tests (Meitzav). These actions decrease the opportunities to engage in deep EE that integrates civic education.

Methodology

Qualitative Case Study

This qualitative case study's goal was to examine EE and citizenship in the context of global and local educational assessment, and to understand how teachers and principals develop subjective meanings from their experiences. I conducted this case study based on a naturalistic and holistic research approach, which includes thick description and interpretation of the phenomenon (Yin, 2009). The case presented in this study represents a complex social phenomenon (EE and citizenship in the context of global and local assessment movements) with multiple factors (e.g., diverse participants such as teachers and principals, diverse projects, social and environmental aspects).

Participants and Sampling Strategy

In this study, I used two levels of sampling: site-level (schools), and individual-level (teachers). At the site level, I used a criterion sampling strategy that focused on specific characteristics. First, the school had to allow me to interview teachers and principals, collect data from curricula and documents, and observe EE events and lessons. Second, the school had to have been involved in EE for more than five years and awarded Continuous Green School Certification (CGSC). Third, the school had to include communities from middle to low SES. Two schools that met the criteria were identified: The first school was located in northern Israel and the second school was located in central Israel. At the individual level, I used a purposeful sampling strategy

that allowed me to explore different perspectives to get a better understanding of the phenomenon (Creswell, 2012). The principals recommended a purposeful sampling of six teachers from each school based on the following factors: teachers who had been involved in EE programs for more than five years, teachers who had taught fourth to sixth grade, and teachers with a special role in the school (e.g., vice principals, art and science teachers). Fourteen participants, in total, from both schools were interviewed (i.e., six teachers and a principal from each school). The average tenure of the participants as a group was 21.5 years.

Data Collection and Analysis

As typical for a case study, I drew extensively on multiple sources of information:

Curriculum and Document Analysis

Analysis of curriculum documents from both schools was used as a preliminary dataset to identify the main EE themes and focal points, and the major pro-environmental behaviors, including citizenship, that were expected to be implemented. I reviewed and deductively analyzed the documents to supplement information obtained from interviews and observations. In the analysis process, I looked for evidence of pro-environmental behavior encouragement, citizenship opportunities, and social and environmental knowledge focus at each school. The types of documents included general and EE curriculum documents, EE lesson plans, PowerPoint presentations, projects and special events plans, EE-related documents published on the Internet, mission statements and regulation documents, relevant professional development program documents, and documents that were submitted to the Ministry of Environmental Protection through the Green School Certification (GSC) process. Overall, I reviewed and analyzed approximately 140 documents.

Interviews

I conducted semi-structured 45 to 90-minute individual interviews with each participant (i.e., 14 teachers and principals). The purpose of the interview in qualitative research is to gain a better understanding of a participant's experience and the meaning they make of that experience (Galletta, 2013). Semi-structured interviews are carefully planned to provide a repertoire of possibilities, based on an interview protocol (Lodico, et al., 2010; Seidman, 2012). The interview is one of the most important data sources in case study and qualitative research. Curricula do not always reflect the perceptions of the teachers because they may be interpreted differently. Therefore, it is important to identify participants' perspectives according to their experience and not only according to the written curricula. Furthermore, pro-environmental behaviors and citizenship are not always explicitly mentioned in the curriculum. The analysis process included first and second cycle coding, followed by categorization using an inductive approach (Saldaña, 2009).

Observations

Direct observation is useful in providing additional information (Yin, 2009). Observations were used to collect data from the EE programs in the schools, and to observe the relationship between EE and civic education as it appeared in the school and the teachers' activities. Observations of EE lessons and special EE project events were conducted as additional information and a deductive approach was used according to the category developed from the interviews. The observations contained field notes to capture the phenomenon. I engaged in approximately 40 hours of observations across both schools between May and June, 2015. Data was managed by providing pseudonyms for participants and their schools, which helped protect privacy and improve the confidentiality of the research.

Data Analysis

Case study data analysis included the following steps: organizing the data, reading and writing memos, forming initial codes, describing the case and its context, classifying and interpreting data into codes and themes (aggregating codes to categories and themes), and representing the data (Saldaña, 2009). First cycle coding was conducted after collecting the data via interviews and observations. In the first cycle coding, values coding, which "reflects a participant's values, attitudes, and beliefs, representing his or her perspectives" (Saldaña, 2009, p. 90), was used for analysis because it is particularly appropriate to case studies and research that "explore[s] cultural values and intrapersonal and interpersonal participant experiences and actions" (p. 90). For the second cycle coding, I used the axial coding, employing Atlas.ti software, due to its capacity to conduct analysis in Hebrew. The Atlas.ti software enabled an analysis of all the types of resources used in the study: curriculum, lesson plans, teaching materials, transcripts of interviews, and field notes of observations. Finally, cross-case analysis and synthesis was employed to compare the similarities and differences between the two schools, which is presented in this article. The triangulation of these diverse data sources and methods was part of the validation strategy to establish credibility. Another means of increasing validity was member checking and consulting with others (Denzin & Lincoln, 2011): The participants reviewed the data for accuracy, and peer review was obtained by a second reader, who provided an external check of the research process.

Context of the Study

Green School Certification (GSC) and Continuous Green School Certification (CGSC) in Israel is a voluntary policy process for EE implementation, which was established by the Ministries of Environmental Protection and Education in 2004. As such, schools can decide whether or not to participate. In the first stage, the criteria include three domains: pedagogy – to increase knowledge and awareness of environmental issues; rational use of resources – to increase pro-environmental behavior, mainly in the private sphere; contribution to the community – through projects such as developing community gardens and promoting environmental campaigns. After three years, schools can deepen their EE practices and receive CGSC by involving all grades in the EE program, by rationally using resources in all criteria, and by continuing to promote pro-environmental behavior in the community (Ministry of Environmental Protection, 2012). The domain does not explicitly promote citizenship, although it can be interpreted as pro-environmental behavior. In this study, both schools were certified as Continuous Green Schools.

Beach School

Beach School is an elementary school located in the north of Israel in a city with a mix of Jews (64%) and Arabs (30%; Central Bureau of Statistics [CBS], 2012). In the school, however, students are mostly Jews; 60% are Jewish immigrants and only three students are Arabs. The school is located in a mostly Arab-populated neighborhood. At the time of the study, the school consisted of 270 students and 30 teachers, and the sociodemographic characteristics of students' parents were middle-low SES. Beach School's principal had only served two years in this position, although, before her promotion, she spent 33 years as vice principal and a teacher at the school. Because the school was open to everyone in the city, Beach School made an extensive effort to attract educated families by building its credibility and scores in standardized tests and emphasizing the high-quality level of teaching and learning. The beach, located near the school, and the inquiry approach emphasized at the school, also helped to build this credibility. Students with highly educated parents

(relative to the city) attended the school, which, at the time of the study, was considered to be one of the best academic schools in the city.

Beach School has been involved in EE programs for the past ten years. It received GSC in 2009 and CGSC in 2012 (Ministry of Environmental Protection, 2012). The school's EE pedagogical approach was based on science and inquiry focused on the nearby Mediterranean Sea. Consequently, the school encouraged outdoor and experiential learning, and focused on knowledge about the environment, primarily related to the sea. Despite the fact that EE was mentioned by the documents as one of the three main themes in the school, in reality, EE was only one program among many, including language, arts, music, dance, computers, cycling, and chess. The Green Council —a student leadership group particular to the school that was established as part of the GSC process—was one of the extracurricular opportunities available to students. The Green Council was particularly involved in many aspects of EE, such as citizenship, pro-environmental behavior, and creating a more sustainable school (Table 1).

River School

River School is an elementary school located in central Israel. It is predominantly populated by Jews (98.9%), of which 13% are immigrants (Central Bureau of Statistics [CBS], 2012). The school was established in 1992 and, at the time of the study, consisted of 454 students and 30 teachers (Gan, 2016). The school is located near a stream (although it only flows in the winter) and near archeological sites. The sociodemographic characteristics of students' parents are middle-low SES to middle-high SES. The school attempts to influence the community regarding the environment to create a sustainable society.

The principal had been working at the school since its establishment; first as a teacher, then as vice principal, and as principal for the past 17 years. She believed in cooperation with the staff and community, and worked with all the teachers as a team. The school was recognized as an innovative school for sustainability, focusing on EE and sustainability through curriculum programs that emphasized using natural resources in a way that recognized and considered the needs of next generations. The school was awarded GSC in 2005 and received CGSC in 2009 (Gan et al., 2019).

River school has been involved with EE since its founding in 1992, and has implemented different types of EE approaches: In the beginning, it focused on outdoor learning, which later became known as EE. During the last 10 years, the school has become an innovative school for sustainability and, in recent years, it has become a distribution center, teaching others how to implement EE. The school vision was based on a humanistic, ecological, and citizenship approach. The purpose of the EE innovation was education for engagement, influence, critical thinking, and social-environmental citizenship responsibility. These elements were presented in the mission statement and the activities of the school (Table 1).

Table 1

School Descriptions: River School and Beach School Main Characteristics

Theme	Characteristic	River School	Beach School
Demographic & School Characteristics	Location	Central Israel	Northern Israel
	City population	99% Jews, 1% others	64% Jews, 30% Arabs, 6% others
	SES	6 (out of 10, 1 is the lowest)	4 (out of 10, 1 is the lowest)
	School's establishment	1992	1960

Table 1 cont.

School Descriptions: River School and Beach School Main Characteristics

Theme	Characteristic	River School	Beach School
	No. of students	454	267
	No. of teachers	30	32
	Average no. of students per classroom	s31.8	20
	Standardized tests (ranked out of 10 – 1 is the lowest)	2nd grade - Hebrew Language (4) - 2012 5th grade - Math (9) - 2012 5th grade - Hebrew Language (10) - 2012 5th grade - Science (8) - 2010 5th grade - English (3) - 2014	2nd grade - Hebrew Language (1) - 2014 5th grade - Math (2) - 2013 5th grade - Hebrew Language (6) - 2013 5th grade - Science (10) - 2011 5th grade - English (5) - 2014
	Years of principal's experience	23 years in other roles, 17 years as principal in the same school	33 years in other roles, 2 years as principal in the same school
EE characteristics in school	Awarded GSC	in 2005	in 2009
	Awarded CGSC	in 2009	in 2012
	Special EE programs & events (examples)	Whole-school approach; Student leadership groups; Sustainability center for the community; Art & yard sustainability program	Sea inquiry & adapting the seashore; green council – student leadership group; Recycling in the school; Outdoor learning

Findings

Cross-Case Analysis

There were several similarities between River School and Beach School, which were found in the cross-case analysis based on the documents and observations (Table 2). For example, both schools integrated EE in their school as part of their school mission statement, and were awarded the highest level of CGSC, which was evident in their EE curriculum for all grades, encouragement of pro-environmental behavior in the private sphere. Both schools created a community project for the environment; for example, Beach School invited the community to take part in cleaning the beach; River School created opportunities for the community to be involved in environmental campaigns, as discussed below. As part of the strategies employed by the schools, both participated in professional development related to EE.

As part of the structures used by teachers to offer students opportunities for active involvement, both schools used experiential learning, emphasizing outdoor learning. For example, Beach School, according to its curriculum, created opportunities for inquiry processes of learning by students' investigation of water quality and its effect on animals. River School encouraged outdoor

integrative learning, such as learning math through EE. As one teacher explained, they "made holes in poles for plants to use math for building the poles and then for learning about multiplication." Both schools used the outdoors and the environment for engaging students in the learning process. River School, for example, according to curriculum documents and observations, used inquiry-based learning to collect rainwater for irrigation, and explored the effect of aerosols on the air to learn about climate change. Moreover, both schools emphasized environmental values and beliefs related to an ecological worldview, and the belief that teachers need to be role models in demonstrating pro-environmental behaviors.

Table 2

Similarities between River School and Beach School

Similarities Criteria	**River School & Beach School**
Continuous Green School Certification (CGSC)	• EE curriculum for all grades, emphasizing knowledge about the environment as an important component of EE • Pro-environmental behavior in the private sphere, such as conservation (energy, paper, etc.), reusing materials (such as reusable lunch boxes), and biodiversity conservation • Creating a community project – parents were engaged and involved in the schools' activities • Student leadership groups
Declaration of EE in school	Sustainability and EE was declared as a priority in the school and was part of the schools' mission statements.
Strategies employed in school	Participating in EE professional development for more than 5 yrs.
EE pedagogy and curriculum	Implementing integrative EE programs, which focused on experiential and outdoor learning
Involvement of NGO	Assistance from the green network NGO
Environmental ethic approach	Emphasizing natural ecosystems as part of school's EE values
Environmental beliefs	Ecological worldview with the understanding that change was needed to activate more pro-environmental behaviors

Despite these similarities, the schools were more different than alike according to the qualitative cross-case analysis, especially regarding emphasis on citizenship in the context of assessment. For example, based on the documents, the schools' locations were different. River School was located in central Israel, in a mainly Jewish community. Beach School was a mainly Jewish school located in an Arab neighborhood, in a mixed Arab and Jewish city in northern Israel. River School was characterized by a middle SES community (6 out of 10), and Beach School was characterized by a middle-low SES community (4 out of 10). In addition to these differences, two primary, overarching differences emerged from the data analysis based on the interviews, observations, and documents, which were found to have influenced the rest of the EE interpretation and the development of students' active involvement (Table 3).

Approaches to EE Implementation and School Assessment

The EE pedagogical approach at River School was, as presented by participants, "a whole-school approach and life of the school," as part of the holistic current which included civic and place-based education. One of the teachers explained about the link between sustainability and citizenship:

"Sustainability … must be democratic, active citizenship with critical thinking … everything is included in sustainability." The pedagogical approach influenced many other factors that emerged from the data analysis, such as structures related to the integrative and holistic implementation of the curriculum and strategies like school culture which, as was found in the observations, made EE visible in every aspect of school life.

The whole-school EE approach at River School also related to attitudes toward assessment. As the principal pointed out, "We don't care about grades and tests … I usually don't even open the results of the "Meitzav" [national test] … we construct students' knowledge for developing their actions and citizenship." This quote reflected River School's approach to knowledge and tests not as an end, but as a means for action.

Beach School, on the other hand, had a different pedagogical approach. It was, as presented by participants, "an inquiry-based learning school" rooted in science educational pedagogy and, while it actually implemented EE as a single, integrative program, it was not part of the whole school. Beach School, according to the principal and participants, wanted "to be a school with high achievement standards … we want to be the school with the highest achievements in the city … we want our students to have the best grades to succeed in society." This approach reflected the school's focus on the standardized testing and assessment movement, while EE was a scientific tool for achieving this goal, and not part of the school's sustainability culture.

Pro-Environmental Behavior Types: Relationship between Social and Environmental Issues

At River School, the relationship between social and environmental issues was clear. As presented in their mission statement, River School's approach to sustainability was to, "integrate social and environmental issues and assert that sustainability and environmental awareness should be human endeavors." This was also evident from teachers' perceptions: As one teacher pointed out, "Social and environmental aspects are the main focus of the school." Furthermore, the role of EE in the school was to create environmental social change: As another teacher emphasized, "It is very important to create citizenship … we integrate social and environmental aspects in all school activities." As such, the school gave many opportunities for students to be actively involved, and to influence their parents and community. For example, the students collaborated with the community to save the river near the school from urban development. The principal described the campaign as "very powerful … The students wrote letters ... We tried to protect the river ... When there was nothing to do anymore, we collected flowers … and saved the natural fauna." This example represented how the whole school—teachers, staff, and community—were engaged in environmental citizenship.

Moreover, integrating components from civic education, such as democratic principles and active citizenship, like "meeting with the mayor for discussions about environmental problems in the city," as part of the school culture and curriculum was another way the relationship between environmental and social issues was built at River School. One of the teachers stressed, "I'm teaching the students power relations in society and the importance of justice … I explain everything to the students, and they get it." The principal summed up the school's approach by emphasizing, "Our influence is starting from a drop, and then another drop. You start from nothing, but once you are doing things to change society and the environment, it's as if you get this virus and get others infected by the same virus."

At Beach School, on the other hand, there was a different approach, which separated social and environmental issues. Participants did not see the connection between social and environmental issues and they engaged with them separately at the school. As one teacher emphasized, "The students are not at the age that they could do something … They cannot vote, they actually cannot do anything about social justice or citizenship … this is far too early to deal with it." This quote

reflected Beach School's approach to citizenship. Their EE program, as claimed by participants, "was based on a pedagogical scientific approach which focused on environmental knowledge and awareness." There was a relatively small student leadership group —the Green Council—which gave opportunities for active involvement and offered several examples of active citizenship. As one participant explained, "The Green Council student leadership group will become the role model for other students." According to Beach School's EE approach and its participants, "the role of school is to foster a change in behavior [mainly in the private sphere] through recycling, green consumerism, and taking care of the beach through cleaning activities."

Interestingly, both schools in this study engaged with the beach as part of their environmental citizenship, although they dealt with the subject in different ways. River School emphasized social and environmental justice while, at Beach School, students cleaned the beach without dealing with any social aspects. At River School, for example, while teaching about the coastland and acting to return it to the public, participants emphasized the idea that "the beach is part of the common good and it should not be given to rich people that want to build along the shore." At Beach School, on the other hand, environmental citizenship was reflected mainly in the Green Council's activities and in the "cleaning of the beach by the whole school." Cleaning the beach, however, did not include grappling with any social or environmental justice.

Table 3

Cross-Case Analysis According to EE's Values, Beliefs, Norms, and Behaviors

Categories of Comparison	**Beach School**	**River School**
Values	• **Awareness** of environmental crisis • **Taking care** of the natural environment and **protection** of nature • **Engagement** in learning	• **Respect** and **responsibility** for the environment, for each other, for society • **Sense** of belonging to the place
Beliefs	• **Beliefs** related to **ecological worldview**: "Natural resources are not unlimited" • **Beliefs** related to **advancing consequences** for valued objects	• General belief in **creating a better society through sustainability** • Beliefs related to **ecological worldview:** in a holistic way • Belief in the **student's ability to be a change agent**
	Beliefs about the human-environment relationship, their consequences and the individual's responsibility for taking corrective action	
Norms	• The sense of **obligation to adopt pro-environmental behavior is not the norm in the school**	• **Engagement, respect**, **taking care**, and **responsibility** for the environment are the norms • **Democratic principles**
Pro-environmental behaviors in the private sphere	• Teachers as a role model especially as related to Reuse, Reduce, Recycle, and saving resources, mainly energy & water	
	• Conserving biodiversity **awareness**	• Conserving biodiversity **actions**
Behaviors in the public sphere	• Not emphasized by school • Activism: cleaning the beach • School and decision makers are not part of the learning process	• Active citizenship • Activism: school culture • School and decision makers as part of the learning process

Discussion

My research findings provide explanations for the relationship between EE and citizenship, and the barriers to including citizenship as part of EE, in the context of assessment and accountability. The research question, "How do Israeli elementary school teachers understand EE's role in fostering citizenship in the context of assessment and accountability?" is addressed in the discussion according to three sub-topics: (1) ontological perspectives on knowledge: the constructivist notion of knowledge, which is the foundation of EE, and the positivist notion of knowledge, which is the basis for the assessment trend. (2) ecological and civic literacy as part of knowledge production aspects, and (3) pro-environmental behavior as related to environmental citizenship.

Ontological Perspectives on Knowledge

The first topic explores two ontological perspectives related to knowledge: constructivist and positivist. The first—the constructivist notion of knowledge—focuses on the knowledge production of learners, using experiential learning, citizenship, and knowledge creation through action. This approach to knowledge, as was found at River School, supports the idea that individual representations of knowledge are socially mediated (Banks, 1995; Hyslop-Margison & Strobel, 2007) and that knowledge is constructed by people, who are socially and culturally embedded in their interactions with the world (Gordon, 2009). The second perspective—the positivist notion of knowledge—emphasizes the need for core and general knowledge, which correlates with a general ability to learn (Hirsch, 2001). This approach, when paired with EE, as was found at Beach School, tends to emphasize assessment and accountability, while focusing less on citizenship and social-oriented aspects as part of learning about the environmental crisis and issues related to sustainability.

The findings suggest that River School demonstrated a constructivist notion of knowledge, focusing on students' knowledge creation by emphasizing critical thinking and learning. For example, dealing with environmental justice, such as in the case of the social problem related to the beach, enabled the students to use critical thinking. Moreover, knowledge construction at River School was implemented through experiential learning, hands-on application and testing of current scientific thought. Educators at River School viewed their role as offering the foundations of knowledge to equip students with what they needed to know to take an action or produce their own knowledge. The school also supported students in contextualizing the application and analysis of scientific thought in local contexts, as was found in the water collection for irrigation, or learning about climate change through investigating aerosols. Knowledge acquisition was only the first step at River School, and not the sole goal.

Beach School, meanwhile, demonstrated more positivist notions of knowledge and approached scientific study from a more conservative stance. Beach School emphasized the acquisition of science-oriented knowledge without offering many opportunities for students to connect that learning with society. For Beach School, knowledge acquisition was the main goal of their inquiry-based EE program. The differences between these two ontological perspectives on knowledge are important because they influence how researchers and educators define knowledge, how those definitions affect practice, and how educators' ontological perspectives on knowledge can lead to or restrict EE's effectiveness to foster social and environmental change. This is especially important in the context of assessment and accountability, since environmental citizenship and EE are hard to assess, and are not the focus of national or international tests.

Focusing on knowledge in the old, conservative paradigm revealed that the role of many schools, including Beach School in this study, is to prepare workers to compete in the new knowledge-based economy (DeYoung, 1995; Jickling & Wals, 2008; Stevenson, 2007). In this

approach, as found at Beach School in regard to its emphasis on standardized tests and national ranking, the role of schools is to create a centralized curriculum which emphasizes literacy, mathematics, and science, and demonstrates standard measures of student performance as indicators of the quality of education (Apple, 2008). Beach School was extremely proud of its relatively high national ranking (compared to other schools in the city) and its prestige as a high-quality educational school. Research has found that this focus on standardized metrics causes schools to stay in the old paradigm of educating students for working in industrial roles by using traditional education approaches (Darling-Hammond, 2010; Goodlad, 1984; Sahlberg, 2011). The role of schools, according to this approach, is social reproduction through the implementation of curriculum and pedagogical practices that transmit disciplinary-derived factual information (Stevenson, 2007). Since Beach School adopted this approach, they implemented EE as a scientific program, emphasizing information about the environment. By focusing schools' agendas on students' knowledge and skills in the traditional content areas of literacy, mathematics, and science, schools may undermine the social and active goals of EE (Smith & Stevenson, 2017; Stevenson, 2007), a phenomenon I observed at Beach School.

Ecological Literacy and Civic Literacy. In addition to the two schools' approaches to knowledge, this study revealed two primary types of EE-related literacy: *ecological literacy* and *civic literacy*, which was connected to the knowledge construction approach of the schools. Ecological literacy is the ability to use ecological understanding, thinking, interaction, and study to protect the environment; civic literacy is the ability to use an understanding of social systems, social skills, and the study of and participation in society to change social and environmental problems (Berkowitz et al., 2005). Beach School focused mainly on ecological literacy and emphasized the need to protect the environment. In many schools, worldwide and in Israel, including Beach School, the civic component of knowledge is usually de-emphasized due to high-stakes testing, which narrows the curriculum to emphasize the basic skills of literacy and numeracy and neglects subjects outside those core areas, such as creative arts and citizenship (Smith & Stevenson, 2017; Stevenson, 2007). Consequently, this narrowing phenomenon has limited the purpose of teaching and learning to the preparation of students for tests to determine their individual life chances (Hargreaves, 2008), rather than trying to prepare them to become responsible environmental citizens who work collectively to contribute to a better society (Stevenson, 2007). As civic literacy was not present in the school, Beach School served as an example of these findings.

Civic literacy includes knowledge of how to effect and create change. This procedural knowledge includes competency in the citizen action skills needed to participate in civic life. According to the findings, River School promoted civic literacy: it incorporated knowledge about the environment, and about how to effect change throughout the school's curriculum and programming. As was the case at River School, educators can help develop this procedural knowledge by providing opportunities to determine if action is warranted, identifying others involved in the issues, selecting appropriate action strategies, and creating and evaluating an action plan. This was evident in River School's campaign for saving the river, in which they were involved for several years. Educators can also provide opportunities to build skills in oral and written communication; a practice that River School employed while teaching about social problems in the coastal zone when students wrote letters to decision makers and stakeholders. Schools should provide opportunities for student leadership as well as opportunities to participate in the political process (Athman & Monroe, 2001), and these were provided in River School as in the case of the meetings with the mayor. Constructivist knowledge and critical thinking, as found at River School, could be adopted for the purpose of increasing students' understanding of the environmental crisis,

and preparing them to determine what kind of civic action is most appropriate in responding to both social and scientific challenges (Berkowitz et al., 2005).

Pro-Environmental Behavior—Environmental Citizenship. In this study, pro-environmental behavior at River School included environmental citizenship components, while Beach School focused on taking care of the environment without emphasis on the social component. This finding is important because it can point to one of the reasons EE has not succeeded in changing social and environmental crises for more than four decades. Several researchers have explained why the goal of changing behavior through EE has been unfulfilled by claiming that changing knowledge and attitudes does not lead to changes in pro-environmental behaviors (Bamberg & Möser, 2007; Chawla & Cushing, 2007; Yavetz et al., 2009). When schools like Beach School—and many other schools both in Israel and worldwide—implement EE, what is emphasized is scientific knowledge, and aspects related to social justice or pro-environmental behavior remain in the private sphere (Gan, 2021; Tubin & Ofek-Regev, 2010).

Subsequently, major social and environmental changes are unlikely to occur in this context. Educating for environmental citizenship with a focus on social and environmental justice is the entry point to fostering a more equitable society, the implementation of which is extremely complicated when policymakers emphasize assessment and accountability. In fact, as was found in this study and in the literature, the assessment trend is narrowing the curriculum and the opportunity to include EE, focusing on environmental citizenship (James & Williams, 2017; Smith & Stevenson, 2017). In order to promote EE and citizenship, schools and policymakers must be encouraged to change their point of view relating to assessment and educational outcomes. Schools need to perceive environmental citizenship as an outcome of their educational process, as was the case at River School, and not only consider test scores as their main outcome, as was found at Beach School.

River School emphasized both the private and public spheres by encouraging pro-environmental behaviors such as recycling and conserving water, while also creating opportunities for students to meet with decision makers and influence them. These actions in the public sphere—practicing active citizenship and engaging with public issues at the local level—are an effective way for children to learn about government and politics, allowing them to see democratic processes in action and witness the effects of their contributions. Research has shown that public issues gain personal meaning when young people confront the social inequities and environmental problems in their own communities. These pro-social experiences help young people develop a sense of civic identity (Chawla & Cushing, 2007). An example of this effect was reflected in River School's students, who took action to "save" the river located next to the school by working to have the government classify it as a natural area. Even though they did not succeed in this campaign, the participants were engaged, and the school saw it as a good opportunity for implementing and experiencing active citizenship. River School, in general, was more oriented toward environmental citizenship than Beach School, which focused almost exclusively on pro-environmental behavior in the private sphere.

Conclusions

Environmental education should not simply focus on the natural sciences, as was the case at Beach School, but should explore the interaction between human and environment, particularly the relationship between environmental citizenship and human well-being. River School took the latter approach by seeking to integrate social complexities into the curriculum (e.g., pro-environmental behavior and citizenship skills) rather than the scientific knowledge approach. River School's approach to integrating activism and social issues as part of its EE agenda is especially complicated

to implement in the context of assessment and accountability. It is exceedingly difficult to emphasize the citizenship and social aspects of EE when policy-makers are emphasizing numeracy and literacy, which are not related to social or environmental change. It is no wonder that Beach School chose to emphasize scientific knowledge under the reality of national and international test-oriented trends, and in the demographic context of the school, which represents a relatively low SES community. Furthermore, it is important to incorporate diverse approaches to EE to enable the best fit for the school, community, and social change.

The limitation of this case study relates to the fact that it was conducted with only two schools which, despite certain similarities, were very different. However, this does not reduce the usefulness of the study, which presents a clear picture of what happened in these two schools as related to EE and citizenship in the context of assessment and accountability. Additional research is needed to determine to what extent my findings and recommendations are reflective of and applicable to other schools in Israel and worldwide. The findings of the study should lead to further research to identify and examine the gaps between participants' claims and their actions during the time of interview and observation. The approaches to knowledge, pro-environmental behavior, and pedagogy are all EE characteristics, both globally and locally, and, therefore, my results can be used to identify types of schools and the directions that schools may consider for enabling the integration of citizenship. This is especially important in the context of tests and assessments, which limit the opportunity of EE implementation focusing on citizenship and social change.

Implications for Schools and Educators

This study could potentially provide other schools with the tools, methods, and knowledge for creating effective EE programs. Some of the elements that have emerged from this study can be incorporated into EE programs, such as the constructivist knowledge approach, integrating pro-environmental behaviors in the public sphere, and implementing citizenship elements throughout the whole-school approach. However, it is not simple, given the context of the schools, the communities, and the Israeli sociopolitical context, especially when the main policy remains focused on tests and assessments. According to the research findings, the following ideas are the keys to the relationship between EE and citizenship, which have important implications for schools.

Knowledge Approach

It is important to identify the knowledge approach of the school and change it if necessary. Two different overall knowledge approaches were identified here: a positivist knowledge approach, which emphasizes knowledge acquisition for economic success and simple environmental knowledge with little to no action (as found at Beach School), and a constructivist knowledge approach, which emphasizes civic knowledge for active engagement in the public sphere as informed citizens (as found at River School). A school's approach to knowledge strongly relates to how it perceives and teaches social issues, and it is an important component that can dictate how a school implements and understands EE.

According to the study findings, we must understand and emphasize the importance of establishing what we mean by knowledge, since it may likely affect a school's practices and actions toward social engagement and change. The way the schools in my study framed knowledge radically informed their philosophy and practice. In some ways, being critical and aware of what we mean by knowledge—emphasizing knowledge as a neutral and objective entity (positivism), or enacting knowledge to guide action that will create a humane and just world (constructivism) (Banks, 2008)—is one step toward the greater social consciousness embedded in the goals of EE. Using knowledge to guide action for social consciousness, we need to be able to identify the creators of knowledge

and their interests (Apple, 2012), and to uncover the assumptions about knowledge (Banks, 2008), which in turn will help to deepen our understanding of the social-environmental crisis and the actions needed to address it. Focusing on tests and assessments is probably not the answer for this need.

Pro-environmental Behaviors

An institution's knowledge approach is only one part of a range of factors that can affect the EE goals of pro-environmental behaviors and citizenship. According to the study's findings, pro-environmental behaviors in the private sphere are more common than pro-environmental behaviors in the public sphere (in both schools). Knowledge is a "necessary, however, not sufficient precondition for developing pro-environmental moral norms and attitudes" (Bamberg & Möser, 2007, p. 22). Many educators believe that increased knowledge will lead to behavioral change and responsible environmental action, but action is much more complex than knowledge (Hungerford & Volk, 1990). Despite the need to integrate EE and citizenship, research has found that building knowledge for action and citizenship is not a common phenomenon in Israel (Lemish, 2003), and thus River School's perspective on knowledge as a way to foster critical thinking, pro-environmental behaviors, and citizenship may be key to reforming and strengthening EE in Israel and beyond. Teachers and principals need to understand the relationship between social and environmental issues, as well as the relations between sustainability and a more just society.

School administration needs to support EE and citizenship, not only by promoting professional development, but also by incorporating these issues into everyday life in school, creating diverse opportunities for students to engage with decision makers, and implementing experiential learning that encourages the constructivist knowledge approach. Schools and policy-makers need to reduce the pressure of high-stakes testing and enable more autonomy for teachers, with emphasis on social-oriented education, as was found in River School, which serves as a good example of implementing environmental citizenship that can be replicated in other schools, not only related to EE. Meeting the mayor and presenting their questions and concerns about the city is an example of a skill for students to learn in order to be active citizens.

In conclusion, implementing EE continues to be difficult in countries such as Israel, which emphasize high-stakes testing, narrow subject matter, and have a wide range of social and security problems. However, there are people who want to implement EE and change environmental and social inequities in Israel. Educators and scholars need to choose the constructivist citizenship approach to knowledge in both philosophy and practice if they truly believe in EE as a transformative educational approach for a more equitable society in the context of: (1) Israel's environmental degradation and social complexities; (2) economic disparities in the schools, and (3) the contemporary world, which needs to value social and environmental justice, and requires compassion to be sustainable, as presented in this section.

Implications for Policymakers and Decision Makers

It is important for policymakers to be aware of their knowledge approach to better understand and identify the type of EE they wish to implement. Policymakers, especially at the national level, should give schools more freedom to focus not only on high-stakes testing but also on encouraging critical thinking, outdoor teaching, experiential learning, EE, and citizenship, as was evident at River School. As was found in this study, the principal of River School did not place emphasis on national tests and conveyed the message to her staff that EE and citizenship were more important than national assessment. Consequently, it is recommended that school principals show courage and act according to their beliefs, while convincing policymakers to give them autonomy to

act and implement EE and citizenship. Furthermore, CGSC should include citizenship components as part of a whole-school approach, to create distinctive factors for diverse schools. This policy tool may encourage schools to integrate citizenship into their EE implementation, in the same way that it helped schools to implement "green councils" to promote EE in school and in the community. It may also encourage schools to implement a whole-school approach if it were included as a component of the certification process.

This research is important for teachers and educators, administrators, and policymakers in Israel and beyond because of the urgent need to encourage teachers to educate students with an emphasis on promoting pro-environmental behavior and citizenship (Osler, 2011). There is a need for research on making EE more effective, especially in places like Israel, where there is substantial environmental degradation, wide social gaps, and a clear need for better EE for the betterment of society (Tal, 2010, 2020; Yavetz et al., 2009). In this study, there was a clear link between educators' approach to knowledge and the integration of social aspects, pro-environmental behavior in the public sphere, and active citizenship. This may help practitioners to emphasize constructivist knowledge to promote EE and citizenship, while placing less emphasis on assessment and accountability.

This research may enable practitioners and decision makers to implement comprehensive EE programs that more fully incorporate teachers' perspectives of pro-environmental behavior, civic education, and EE teaching practices in Israel and worldwide. Understanding the impact of EE on low SES schools through the perspectives of teachers could help educational systems in other countries facing similar challenges related to wide achievement gaps between low and high SES schools. Increasing pro-environmental attitudes and behaviors among teachers could increase their EE teaching effectiveness and therefore lead to greater student civic engagement (Ernst, 2007). This is important because it is valuable to educate not just for knowledge, but for pro-environmental action.

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