

Regular Paper

Indigenous Storytelling, Cherokee Traditional Ecological Knowledge, and Place-Based Education

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Abstract

Indigenous storytelling is a transaction between narrators and audiences that can be expressed through Traditional Ecological Knowledge (TEK). TEK narratives, such as those of the Eastern Band of Cherokee Indians (EBCI), can demonstrate ecological literacy by empowering audiences to co-create their engagement with the local environment of that Indigenous society and its TEK. Place-based education integrates relationships with ecological systems with progressive learning and holistic well-being for participants. TEK stories may describe how those interactions, prioritized by place-based education, promote inclusive bonds and sustainability with environments. To date, no known research has investigated the integration of Cherokee TEK narratives with place-based curricula for middle school students. This study explored middle school student interpretations of a field experience that integrated place-based education, EBCI TEK stories narrated by an EBCI storyteller, and the local environment. As participants reflected on their experience, three themes emerged: cultural literacy, well-being, and respecting nature.

KEYWORDS: *Narrative inquiry, Eastern Band of Cherokee Indians, place-based education, Traditional Ecological Knowledge*

Introduction

A Story¹ can create power and agency in the lives of its listeners. A story portrays the social expressions of audiences and their storytellers, constructing each participant's interpretations

¹"Story" is capitalized because of its performance as a social agency in human society (Clandinin et al., 2016).

through the landscapes of time, human and nonhuman communities, and places (Williams, 1997). This interactive conversation between narrator and audience, the process of sharing in a story, simultaneously educates and invites the audience to interpret and co-create their comprehension of the story. These narrations and their integrations are inextricably framed and experienced contextually, including those about outdoor environments (Aftandilian, 2011). Stories can be historical platforms of reality-based environmental expertise that continue to support inclusive sustainability of nature (Vander Ark et al., 2020). These understandings and strategies can promote ecological literacy and are foundational in place-based education and certain Indigenous societies (Vander Ark et al., 2020). Place-based pedagogy affirms the traditional constructs of Indigenous² cultures as those societies espouse their communal relationships with their outdoor environments (Gruenewald, 2003).

Stories may be expressed as oral narratives through Indigenous Traditional Ecological Knowledge or TEK (Pierotti & Wildcat, 2000). These repositories of experience and knowledge foster immersive participation with outdoor environments, support critical thinking skills, encourage environmental stewardship, and reject separating humanity from nature (McKeon, 2012; Sobel, 2014). Alternatively, the pervasive constructs of conventional learning may promote dichotomies objectifying Indigenous persons as nonmembers of society and ignoring their TEK's environmental consciousness (Nesterova, 2020; Roberts, 2012). TEK has the potential to contribute to place-based learning, which can foster environmental well-being for local communities.

The Eastern Band of Cherokee Indians (EBCI), used here interchangeably with their historical tribal title "Cherokee," demonstrate their ecological expertise and sustainable relationships through their TEK stories (Aftandilian, 2011; Goings, 2016). With this understanding, the EBCI and other Indigenous societies align their TEK ideologies with the ethical strategies of contemporary environmental advocacy (Berkes et al., 2000). Indigenous ways of being can demonstrate mutualistic integrity in relationships between Indigenous societies and their outdoor environments, disclosing how TEK narratives can expand learning with educational disciplines (Datta, 2018).

Place-based education encourages a realistic appraisal of self-identity and learning relationships through outdoor engagement and informs those social and environmental processes (Bang & Marin, 2015; Sabet, 2018; Sobel, 2014). Place-based pedagogy demonstrates the congruent intersections between its methods and the interdisciplinary connections of Indigenous environmental practices (Gritter et al., 2016; McKeon, 2012). Rather than desensitize attitudes and impede cognitive growth by imparting facts without situationality, place-based education can expand ethical competency for students toward nature by respectfully encompassing associated TEK (Sabet, 2018). Further research is needed to investigate the impact of inclusive learning through equitable partnerships that inform place-based education about local ecological systems with Indigenous TEK (Bang & Marin, 2015; Datta, 2018; Nesterova, 2020). Therefore, the purpose of this study was to explore middle school student interpretations of a field experience that integrated place-based education, EBCI TEK narrated by an EBCI storyteller, and the local environment.

Review of Literature

Societies use stories to describe, interpret, and build meaning about their identities and relationships in the environments they inhabit (Williams, 1997). Within these constructs, everyone leads "storied lives on storied landscapes" (Clandinin et al., 2016, p. 8). Observing a story as a phenomenon considers the resulting interactions while exploring the fundamental character-

²"Indigenous" is capitalized in recognition of the legitimate and equitable membership of Indigenous societies in all contexts, communities, and environments.

istics that emerge for the participants positioned within the narrative's chronology and place, including those of nature (Aftandilian, 2011; Clandinin et al., 2016). These storied encounters construct and redefine meanings as participants learn, make decisions, share their interactions with the discourse, and arrange their inherent narrative agency (Crites, 1971; Hall, 1973). As time and space contextualize the interpretations of an experience, each person negotiates the emerging relationships between their inner voice, the narrative, and the places they inhabit (Clandinin et al., 2009). These interactions can foster the increasing development of understandings, synthesizing interpretations with preexisting knowledge into greater comprehension (Clandinin et al., 2009). Such growth may challenge beliefs and practices, as participants encounter experiences that narrate diverse stories, inviting fresh interpretations previously unimagined or considered (Clandinin et al., 2009). Through this process, the narrator and audience "are being," while simultaneously creating "being" through the environments a story generates for each person (Freire et al., 2000, p. 90). In such a way, particular Indigenous stories describe an ideology that positions their relationships with local environments and imparts their environmental proficiency (Cajete, 2004; Vander Ark et al., 2020). Supporting comprehension through integrated engagement with nature, place-based education also facilitates continuous growth for students in the responsible attitudes and practices with nature that numerous Indigenous societies and TEK adhere to and promote (Gruenewald, 2003; Vander Ark et al., 2020).

Indigenous storytelling can inform audiences about sustainable roles in outdoor places by defining the necessary responsibilities of humanity toward nature (Aftandilian, 2011; Pierotti & Wildcat, 2000). Using TEK, the EBCI and other Indigenous societies communicate their authoritative environmental knowledge through their transcendent relationships with their local outdoor environments (Cherokee Preservation Foundation, 2014; McKeon, 2012). Collaborative experiences with Indigenous storytelling can instruct participants about interdependence with natural environments, and increase their factual reasoning in environmental consciousness (Datta, 2018; Goings, 2016; Kress & Lake, 2018). By examining the place-based properties, symbols, and members of an outdoor environment, the interdisciplinary processes and reciprocity of related TEK are defined for students (Gruenewald, 2003; Nesterova, 2020; Sepie, 2017). Inclusive learning in nature by students with Indigenous societies such as the EBCI is critical to effecting progressive environmental stewardship by comprehensively evaluating those evolving interactions (Nesterova, 2020; Ronen & Kerret, 2020; Sobel, 2014). Lowan-Trudeau (2012) notes how these active conversations between a land, its alliances, and people, acknowledge and authenticate the core of numerous Indigenous place-based identities. Beyond their historical attributes, TEK stories can advance environmental currency through their ecological knowledge and connections, confirming TEK ways of knowing about local ecosystems (Berkes et al., 2000; Hines et al., 2020). For example, Berkes et al. (2000) examined numerous international case studies documenting how the intersecting understandings and interactions between Indigenous TEK narratives and ways of being collaborated with non-Indigenous societies about local environments, informing and improving sustainable ecological relationships. These authors simultaneously acknowledge that the relevancy of an associated TEK to a specific outdoor place is determined by a reality-based assessment of the current environmental conditions existing there (Berkes et al., 2000). Furthermore, Hines et al., (2020) noted that the comprehensive facilitation of TEK can effectively transmit environmentally sustainable methodologies through educative opportunities for participants.

Instead of the facile constructs that conventional education has often conveyed about nature, TEK explains nature as teacher, relative, provider, and sustainer of every member coexisting in an outdoor environment (Gritter et al., 2016; Gruenewald, 2003; Nesterova, 2020). Rather than restrict learning to the boundaries of recorded data and assessments, TEK expresses the human-nature connections in their entirety, situated by location (Nesterova, 2020). Conceptualizing and synthesizing authentic learning in outdoor places through a holistic engagement opposes the ho-

mogenization commonly promoted by traditional education for economic goals (Gruenewald, 2003). As Indigenous storytelling expresses reality-based and allegorical lessons about a local ecosystem that information can generate deeper understanding for students in their interpretations of their environmental responsibilities (Datta, 2018). Respectfully inviting the instruction and integration of relevant TEK would position Indigenous expertise as an esteemed contribution to the objectives and practices that are hallmarks in the place-based discipline (McKeon, 2012; Nesterova, 2020; Smith, 2002).

These place-based principles within TEK environmental philosophies cultivate a symbiotic exchange between people and nature and portray their sustainable coexistence possibilities (Gritter et al., 2016; Lowan-Trudeau, 2012; McKeon, 2012). Every ecosystem described through an Indigenous story shares a communal literacy with that culture and promotes nature's agency through engagement (Datta, 2018; Lowan-Trudeau, 2013; Sabet, 2018; Somerville & Hickey, 2017). Integrating these Indigenous ecological meanings with place-based lessons cultivates an evolving comprehension of those approaches and scaffolds them into a universal educational framework (McKeon, 2012). This can help arrange the knowledge and tools necessary to develop cooperative inquiry, critical thinking, and social justice skills for students leading to environmental sustainability (Sabet, 2018). Additionally, this continuum of learning shifts the locus of control away from Eurocentric domination and encourages a climate of equity between diverse populations. Discrimination against TEK environmental ideologies can restrict collaboration with place-based learning while simultaneously reducing student understandings of their relationships with nature (Nesterova, 2020; Roberts, 2012).

Conventional education and philosophy have often degraded Indigenous societies and their environmental attitudes, by objectifying their communities and outdoor environments as non-members of society, the Other, and perpetuating the oppression of both (Nesterova, 2020; Roberts, 2012). These assignments arrest efforts to both orchestrate an interdisciplinary synthesis between educational disciplines with Indigenous TEK and liberate students from fallacious ecological understandings (Smith, 2012). Such nominations exclude TEK as antithetical to academic disciplines, but educators are seeking out strategies that respectfully blend TEK and its practices to facilitate more comprehensive instruction about environments (Datta, 2018; Nesterova, 2020). When deciphered beyond a didactic focus, such TEK stories reveal experiential intelligence, cultural expertise, and environmental relationships that unify a currency of learning through their symbolic and explicit language (Datta, 2018). Because historical misconceptions remain, more research is needed to learn how educators can holistically approach Indigenous communities to cultivate and activate inclusive learning about the outdoor environment through TEK, so that ongoing ecological literacy is supported (McKeon, 2012; Somerville & Hickey, 2017).

Indigenous communities consider their local ecosystem as an essential part of how they identify themselves in the world (Bechtel, 2016). Certain environmental educational philosophies attempt to bridge Indigenous and non-Indigenous politics to outdoor environments (Zocher & Hougham, 2020). These included ecopedagogy, a comprehensive praxis extending from critical pedagogy, whereby all systems, including social justice and the stewardship of all natural environments, are examined, dissected, and supervised (Bowers, 2004; Misiaszek, 2020). By emphasizing experiential insight, ecopedagogy suggests a cooperative merger between non-Indigenous and Indigenous members with local places in nature. However, ecopedagogy supports an agenda of world unification that may nominate Indigenous groups as the Other, minimize Indigenous authority, eliminate their community participation, and embroil diverse cultures into deeper conflict (Bowers, 2004; Dussart & Poirier, 2017; Lowan-Trudeau, 2013; Zocher & Hougham, 2020). Bowers (2004) contends that this occurs by cloaking an awareness of environmental sensitivity under traditional Eurocentric constructs. Through this framing, ecopedagogy may continue and sustain the forced assimilation and repression of marginalized

societies (Bowers, 2004). Influenced through the Eurocentric lenses, ecopedagogy can dismiss the unique knowledge systems and ways of knowing particular to specific Indigenous societies about their outdoor environments (Nesterova, 2020). Neglecting to respect how such a Indigenous TEK positions their relationships with nature through reciprocal associations may diminish those Indigenous constructs (Sabet, 2018). Contempt for these diverse and equitable community connections between Indigenous societies and their outdoor environments will perpetuate the masterful control and utilization of both (Sabet, 2018; Somerville & Hickey, 2017). These biases deny the individuality, human rights, and accumulated wisdom about their outdoor environments by those idealizing, dominating, or expunging Indigenous worldviews about nature (Nesterova, 2020; Sabet, 2018; Somerville & Hickey, 2017). Place-based constructs that minimize the absorption of Indigenous cultures under dominant economic demands, frequently accompanied by ecological destruction, reiterate these injustices by desecrating Indigenous relationships and understandings, and negatively affecting the entire environmental landscape in a degenerative cycle of misconceptions (Gruenewald, 2003; Lowan-Trudeau, 2013). However, practicing an integrative reconciliation between the educational discipline and Indigenous TEK can empower collaborative growth that supports students in authentic environmental sustainability (Gritter et al., 2016; Lowan-Trudeau, 2013; Roberts, 2012).

Recognizing the dynamics of these educational processes is requisite for place-based education to promote environmental sustainability through the respectful inclusion of Indigenous TEK (Sabet, 2018). For the EBCI and other Indigenous peoples, the zeitgeist of Eurocentric dominance remains prominent by determining Indigenous understandings and identities, despite how Indigenous people define themselves. Historically, the dominant anthropocentric posture has, by all evidence, produced alienation between humans and their relationships with nature, the environment all life is dependent on (McKeon, 2012). This alienation by autocratic determinants is increasingly resisted by Indigenous societies throughout academia, but most significantly in research (Smith, 2005). As a social justice tool, Gruenewald (2003) proposes that a critical examination of place specifies an egalitarian agreement between all shareholders with their outdoor environment while supporting place-based learning. This reciprocity between place, language, and meanings demonstrates how environmental situationality is contextual and relational and fosters reconciliation with dispossessed and marginalized societies (Sabet, 2018). Facilitating these restorative TEK strategies dismantles the demeaning constructs of an environment and its members, and promotes cooperative learning (Gruenewald, 2003, McKeon, 2012).

Place-based education began as a pedagogical prototype formulated by theorists Lane-Zucker and Elder for The Orion Society prior to 1995 (Sobel, 2004). Recognizing the detriments resulting from human severance to nature, the place-based discipline initially prioritized outdoor recreation for individual well-being, character, and skills, yet neglected fact-based knowledge and sustainable exchanges with those environments (Sabet, 2018, Sobel, 2004). As the field developed, educators and advocates became aware that this relegated environmental experiences to individual and specialized group growth rather than integral scholarly approaches (Lowan, 2009, Sobel, 2004). These restrictions negated interdisciplinary social and ecological learning and eventually impoverished environmental relationships (Gruenewald, 2003; Smith, 2002). Exposing insufficient and erroneous instruction for students about their outdoor environments affirms the need for effective place-based education, but its success depends on the knowledge and practices that address the culture of power interconnected with outdoor environments (McKeon, 2012). Ruling entities define how societies, cultures, and relationships are interpreted and interacted with to maintain their dominant status (Kincheloe, 2001). Previous research has found that fallacious data and instruction methods, including historical assumptions, attitudes, and practices, in addition to Indigenous resistance to assimilation and exploitation, impede student development (Lowan-Trudeau, 2012; Sabet, 2018; Sobel, 2014). Place-based education now embraces progressive comprehension and reality-based self-actualization, emphasizes outdoor situationality, nurtures relationships with those places, and synthesizes the interactions

into genuine ecological learning and well-being (Gritter et al., 2016; Gruenewald, 2003). These constructs increase student proficiencies in critical reasoning, problem-solving, social justice agency, and sustainability (Chawla et al., 2014; Davvand et al., 2018).

Coordinating place-based education with TEK and integrating those with environmental experiences creates an interdisciplinary learning culture and repels allegations that challenge the veracity of TEK environmental expertise (Gritter et al., 2016; Keikelame & Swartz, 2019). Pursuing and implementing environmental competency through respectful reconciliation with Indigenous groups and their TEK has been incorporated by some educational institutions (Lowan-Trudeau, 2012; Nesterova, 2020; Sabet, 2018). Opportunities in these collaborations develop maturity for students in their environmental relationships while illustrating how TEK competencies about nature illuminate place-based education (McKeon, 2012; Sabet, 2018).

The ideology and practice of TEK reiterate the expertise and engagement that place-based education fosters in best learning practices (Vander Ark et al., 2020). This reinvigorates individuals within the construct of their local outdoors, connecting them individually and collectively to their values and responsibilities, toward themselves, each other, and everything in that place (Sobel, 2004). Reciprocal learning opportunities between Indigenous societies and non-Indigenous education systems can cultivate a climate of participatory immersion for students in the outdoors. This inclusiveness strengthens opportunities for partnerships between Indigenous TEK and place-based instruction about the environment. Gritter et al. (2016) note that inviting local Indigenous storytellers to middle school classrooms in the state of Washington, USA, and merging their TEK narratives with place-based lessons facilitated deeper attachments for students with their outdoor environment and its well-being. As students engaged with the TEK through place-based learning, understandings of the local environmental system's characteristics and processes and how students might ethically shape connections with it emerged (Gritter et al., 2016).

In a further example of how TEK illuminates reality-based learning, Somerville and Hickey (2017) studied the Cumberland Plain Woodlands Project that provided a collaboration between Indigenous and non-Indigenous students with place-based lessons for a public school in a town in western Australia. Most of the student population identified themselves as fully or partially Indigenous. The project design integrated local Indigenous TEK as those stories explained the relationships between that Indigenous society and their outdoor environment (Somerville & Hickey, 2017). The student interpretations resulted in significant growth in environmental knowledge and values because of the blended TEK meanings with the place-based lessons (Somerville & Hickey, 2017). These experiences synthesized the place-based pedagogy and its methods with the inclusive reasonings and strategies that the Indigenous TEK shared with their local outdoor environments. This type of mutualistic engagement with the outdoors can invite reconciliation and stewardship between the cultures of nature, academic disciplines, students, and Indigenous societies (Gruenewald, 2003).

Practicing egalitarian alliances between relevant Indigenous TEK with place-based education could diminish the alienating barriers to increasing experiential learning for students in outdoor environments. The context of each Indigenous TEK aligns that society's ways of being with local nature. Research that sensitively and equitably collaborates with Indigenous societies and their TEK could provide much-needed knowledge and strategies in environmental sustainability to the body of literature, including integration with place-based education. To date, no known research has investigated the integration of EBCI TEK narratives with place-based curricula for middle school students. Therefore, the purpose of this study was to explore middle school student interpretations of a field experience that integrated place-based education, EBCI TEK narratives communicated by an EBCI storyteller, and the local environment.

Methods

This study explored how participants reflected on their place-based experience through narrative inquiry and based on grounded theory (Lal et al., 2012). Grounded theory is a framework that closely examines meaning-making, relationships, and operations, accompanied by social mores and deciphers those through structured analysis (Lal et al., 2012). In this study, open-ended questions were employed to encourage the participants to share their emerging interpretations, framed through their social understandings (Charmaz, 2002; Creswell & Creswell, 2018). Narrative experiences are expressed and interacted with relationally, inviting the exploration by narrative inquiry into the evolving understandings and conjunctions that develop between stories and their audiences (Clandinin & Rosiek, 2007; Creswell & Creswell, 2018). A narrative inquiry approach helped us better understand how this integrated experience involving the middle school students from Summit Charter School, the EBCI TEK narratives shared by the EBCI storyteller, the place-based lessons, and the local environment was interpreted by the students (Clandinin et al., 2016). Through narrative inquiry, some of the meanings that evolved for the participants after their experiences were discovered (Clandinin & Rosiek, 2007).

The Summit Charter School (SCS) is a public charter school located in Cashiers, NC, USA, the traditional homelands of the Cherokee people. SCS “engages students in learning experiences that stimulate discovery, inspire excellence, and nurture a positive influence in an ever-changing world” (Summit Charter School, 2021). The school pursues experiences for students, including the EBCI community and their TEK about the local outdoor environment. A primary incentive of this engagement is SCS’s location within the boundaries of historical Cherokee landholdings. The EBCI pursue collaborative opportunities with populations located throughout these areas to promote cultural understanding between themselves and the non-Indigenous societies (Nikwasi Initiative, 2022). These include local conservation, historical, and county agencies (Nikwasi Initiative, 2022). The SCS has engaged with the EBCI in prior different educational initiatives to integrate the EBCI and SCS faculty and students, but this was the first opportunity for the EBCI to partner with SCS on this TEK storytelling activity. At the time of this study, SCS had a population of 237 students in kindergarten through twelfth grade for the 2021–2022 academic year. There were 60 students attending the SCS middle school sixth, seventh, and eighth grades. Following the SCS and EBCI’s design and approval of the place-based field experience, IRB approval was received in October 2021. Parental consent and student assent were secured prior to any collection of data.

The SCS middle school attended a field trip in November 2021, at the Nikwasi Mound in Franklin, NC, USA. The trip blended place-based lessons with the EBCI TEK and the local environment. Students participated in four groups of mixed grades, rotating through four, hour-long place-based lessons integrating the EBCI TEK and Cherokee storytelling by an EBCI member at the Mound. SCS faculty and EBCI members facilitated the activities, including the EBCI storyteller, who narrated Cherokee TEK stories with each group for one hour. Students also engaged in three informal activities about EBCI natural resources, Cherokee academics, and their history, experienced through the lenses of the EBCI’s traditional Cherokee ways of being. The primary researcher observed and took notes of the field trip activities to record the contextual information.

Student participants ($n = 18$) were selected based on criterion sampling (Creswell & Creswell, 2018) that included enrollment in the SCS middle school during the fall semester of 2021, attendance at the field trip, consent and assent, and completion of the post-experience reflection assignment. As a result of COVID-19 effects on school attendance, only 37 students from the middle school participated in the field trip at the Nikwasi Mound.

All SCS middle school students attending the field trip completed an open-ended reflection assignment through an online Qualtrics survey during a normal class session at SCS the week following the experience. The students’ responses who did not have consent and assent

were removed before data analysis resulting in the 18 study participants. The questions were informed by the EBCI TEK storyteller, the TEK narratives, and the SCS place-based lessons, and included: 1) describe the experience, 2) what lesson activities did you enjoy the most and why, 3) what would you like to investigate more deeply, 4) how would you explain the Cherokee narratives, 5) how the Cherokee TEK narratives explain human relationships with nature, 6) are these Cherokee narratives important, 7) how to practice respectful interactions with natural environments, and finally, 8) share any additional thoughts about the experience.

Data analysis followed a narrative inquiry approach, exploring the participants' reflections on their experiences and discovering what interpretations and relationships emerged for them (Clandinin et al., 2016) and utilizing an open and axial coding process (Creswell & Creswell, 2018). After exploring the similarities and differences between their connections and influences, the relationships between the coded meanings were interpreted and categorized into themes. To increase the trustworthiness of the findings (Creswell & Creswell, 2018), another researcher coded 20% of the data resulting in at least 80% agreement for each of the questions.

Our research team is comprised of male and female identifying educators (formal and non-formal) who are white, nonindigenous, and whose familiarity with the EBCI and their culture is limited to our own education and experience. Our focus throughout this study has been to better understand the student's interpretation of their experience and related learning and not to try to interpret the EBCI TEK narratives ourselves. We attempted to remove any potential biases in our interpretation of the student's comments and focus on understanding and representing the student's own perceptions of their experience engaging in the EBCI TEK storytelling experience. This study aimed to support place-based educators and their goals by developing a greater understanding of student interpretations following a field experience such as this place-based experience with the EBCI.

Results

The research question that guided this study was, "What interpretations emerged for the Summit Charter School middle school students following a field experience that integrated place-based education, EBCI TEK narratives communicated by an EBCI storyteller, and the local environment?" The participants totaled 18 non-Indigenous students, six females and 12 males that ranged from ages 10 to 14. Nine participants were in the sixth grade, six participants were in the seventh grade, and three participants were in the eighth grade. Three themes emerged as students reflected on their experience: cultural literacy, well-being, and respecting nature. These themes are described below utilizing the participant's voice via representative quotes.

Cultural Literacy

Cultural literacy emerged as a theme when participants interpreted their experience with the EBCI TEK. Cultural literacy as defined here refers to an introduction and a rudimentary familiarity with the beliefs, customs, and characteristics of the EBCI. One participant said the stories explained, "how people thought about the earth back then," and another reflected on how the ancestral Cherokee culture was founded on "the creation of fire." Seven participants articulated details about the Cherokee historical background by sharing their interpretations of the TEK storytelling. One recalled a story where "a turtle cut off a wolf's ears and the wolf's brothers ended up throwing him off of a cliff into a river" while another participant reflected on the advice the local animals gave a young man traveling on a journey to "find the oldest tree and pray to the Creator for four days and four nights without eating."

One student shared her understanding of how Cherokee relationships were illustrated through the EBCI TEK, including "all the different love stories." Another student interpreted those interactions that included nature stating:

There was this Crane in love with this beautiful girl. However, the beautiful girl did not want to marry the Crane, so she told the Crane to race the humibird [sic] and whoever wins gets to marry her. So, the Crane and humibird [sic] raced around the world. When they were halfway back the humibird [sic] begin to get super tired so he stopped to take a nap. The humibirds [sic] nap was a very long nap, so the Crane got in front of the humibird [sic]. Once they got back and the beautiful woman saw the Crane at her door so [she] turned him down. The Crane got very mad but found himself another woman that loved him for who he was. Then, the beautiful woman noticed that she wanted the Crane but found out he was married so she got upset.

The students voiced ways the TEK stories demonstrated the EBCI's interdependent relationships with nature recalling how "a spider got light from the sun, but no other animal could," and "they [the Cherokee] had animals representing their groups." One student explained:

...the Creator sent a woodpecker and peck[ed] holes on a branch of a tree and then took it off. It landed close to the young man, and he thanked the Creator, and then he left. He played it [for] the young beautiful woman and then he won her heart and they got married. The other men in the village wanted to win a woman's heart too. So, they did what the young man did but didn't succeed.

Two participants interpreted the negative assignments given to the Cherokee that emerged for them through the TEK stories remarking "how people mistreat them [the EBCI]" and the EBCI "don't live like we [non-Indigenous] think they do. They are normal people, and the real Indians live in the west." The latter statement and certain other interpretations by some students reflected traditional Eurocentric philosophies that profiled Indigenous populations as outside of society or marginalized them (Nesterova, 2020; Sabet, 2018; Somerville & Hickey, 2017). Such pejorative assignments perpetuate misconceptions and derogatory interpretations about Indigenous society and their TEK, but exploring whether evidence existed that challenged the participants' perceptions was beyond the scope of this study.

Enjoyable. A subtheme that emerged within cultural literacy was enjoyable, as students shared enthusiastically their positive reflections on the Cherokee activities. A student declared his enjoyment by stating, "I really did like to listen about all the cultures." Several participants explained how the TEK storyteller inspired their desire for additional experiences with him because, "the stories were funny," "very interesting," and "the storyteller was REALLY good." In describing what they liked best about the field trip, students chose the TEK storytelling as the most enjoyable saying it was "very entertaining," "cool," "really liked it," "love to learn more," and "listen to more stories about the Cherokee." Reflecting on his interaction with the Cherokee stories, one student explained how necessary it was to listen to the TEK stories for understanding because "It is a [sic] experience that you really have to listen for yourself to see all the meaning behind it." Alternatively, while four students' statements agreed on their enjoyment of the storytelling, they believed the stories themselves were "not very important," "not important," and communicated to them "no special bond to the mound." All the participants characterized the EBCI TEK with positive attributes, such as "super fun," "big and cool," and "incredible."

Education. The second subtheme that developed from participants' interpretations of cultural literacy was education. Participants shared how TEK stories explained the world, including one participant who declared "they tell us about how a lot of our things today came to be." The TEK stories said a student, "helped me think." The EBCI activities, including the TEK storytelling, were "a good learning experience with friends" noted another participant. One student described learning about Cherokee culture through the EBCI TEK as "how the Indians really

live” and an additional participant shared, “I thought it was a great opportunity to learn about the Cherokee people. We learned a lot about them, and I definitely want to attend the trip again next year.” A student summed up his experience by saying the TEK storyteller “spoke about the Cherokee and it was very cool to learn about the Cherokee.”

Well-Being

Well-being was the second theme that evolved for students from engagement with nature as explained by the EBCI and their TEK stories. Human well-being, including survival skills, was dependent on nature’s resources, said one student, “so I do not die,” while another one stated he wanted to know that “the water I’m drinking is clean.” One participant expressed how Cherokee societies are interdependent on nature to fulfill their needs because “if you need help you could always ask nature.” Another student reflected that the TEK stories provided “lots of real-life meaning,” explaining sustainable interactions between people and natural environments. Regarding these relationships, one participant remarked, “Cherokee Stories use animals in real-life ways to make them involve the nature.” Engaging with outdoor environments, according to a student’s interpretation of the TEK, provides opportunities to “go to the waterfalls and watch as the water is like all the bad stuff, and it just falls off you and they [the Cherokee] would see this and make a tradition out of it and they would bring tobacco, but they would not smoke it they used it as a meditating herb.” TEK understandings, described by another participant, explained how beneficial interacting with nature is for well-being by “taking care of all the land around you.” One student noted how “bad” attitudes and actions towards outdoor environments would produce negative “consequences” for those persons. Commenting on how humanity can learn about the benefits present in nature, one student declared that “all” the TEK stories fostered “good lessons in them” about life. Another participant commented that the TEK narratives informed how to develop and maintain “a self-sufficient lifestyle.”

Respecting Nature

Respecting nature was the third and final theme, as students explained how EBCI TEK, and the stories promoted a greater understanding of their relationships with their local outdoor environment. Students’ comments recognized nature’s intrinsic value to human society and added to their preexisting environmental knowledge. Reflecting on the TEK narratives, a student declared the EBCI members explain “If you respect nature, nature will respect you.” One student said, “That they [people] should sometimes just take their time and look around them and they should give back to nature itself.” Another participant commented, “They are people who care about the land around them, and they want to take care of it” and another interpreted how TEK explains the Cherokee “respected the earth and were stewards.” When asked how they could respect nature, each student responded with strategies such as “leave no trace,” “waste less water and help nature,” and “above all else to take care of the plants and animals.” Additionally, two participants used the term “respect” to describe their interpretations of the EBCI themselves and their outdoor environment saying to “respect them [the EBCI] and their living areas” and “you want to respect your surroundings.” These reflections express the students’ understandings of the EBCI’s relationship toward their local place as communicated through the TEK stories shared.

Discussion

The themes that emerged as the students reflected on their experience support previous research indicating how integrating TEK narratives with place-based education can support growth in understandings, relationships, and environmental consciousness with the local outdoor environment while simultaneously enjoying those learning experiences (Datta, 2018; Nesterova, 2020; Sabet, 2018; Vander Ark et al., 2020). A growing familiarity with the beliefs,

customs, and characteristics of the EBCI (cultural literacy) was described by the students after they engaged with the EBCI storyteller and the TEK stories. The students' comments about the EBCI stories reflect their interpretations of the origins of Cherokee culture saying how "people thought about the earth back then" and recognizing Cherokee interdependence on and intimate knowledge of their outdoor environment by describing "the creation of fire," "a turtle cut off a wolf's ears," and "find the oldest tree" (Keikelame & Swartz, 2019; McKeon, 2012; Nesterova, 2020). Relationships between the Cherokee, nature, and non-Indigenous societies were interpreted by the participants through their interaction with the EBCI TEK. The students developed meanings about Cherokee cultural social practices from the stories, as they explained how "the Crane and humbird [sic] raced around the world," and "he won her heart...they did what the young man did but didn't succeed." Demonstrating their growing comprehension of integrative relationships between the environment and the Cherokee, students related how nature provided light to the Cherokee stating "a spider got light from the sun" and created a traditional Cherokee instrument saying, "the Creator sent a woodpecker and peck[ed] holes on a branch in a tree." Two participants shared their disagreement with historical scripts that positioned the Cherokee outside of society as their interpretations illustrated their awareness of the relationships between Indigenous and non-Indigenous people. As reflected by Bechtel (2016) and Gritter et al. (2013), the students stated, "how people mistreat them" and the EBCI "don't live like we think they do."

Participants considered the EBCI storytelling as the most enjoyable activity from the field trip, commenting in their reflections "the stories were funny," "very entertaining," and they "really liked it." By interpreting this TEK activity as their favorite component of the field trip, students demonstrated their increasing regard for the active engagement TEK storytelling can promote for audiences (Gritter et al., 2016; Sobel, 2014). However, it was not evident why four students, though enjoying the storytelling itself, defined the actual stories as "not important." These negative reflections, as noted in others by Nesterova (2020) and Sabet (2018), appropriate and frame Indigenous resources, such as TEK narratives, under dominating Eurocentric constructs while simultaneously denying their significance.

The second subtheme, education, was described as how the EBCI TEK narrates the Cherokee perceptions of the world and its social interactions. This explained "how a lot of our things today came to be" and encouraged some of the students in cognitive development because the stories "helped me think," and "a good learning experience with friends" (Gritter et al., 2016; McKeon, 2012). These developments in student comprehension support place-based education goals (Gruenewald, 2003; Vander Ark et al., 2020).

The theme of well-being evolved through the students' understandings of the TEK stories and their support of human engagement with nature. As they reflected on the narratives, one participant expressed the realities of human dependency on nature to sustain life "so I do not die" and another explained, "if you need help you could always ask nature" (Datta, 2018; Goings, 2016; Kress & Lake, 2018). These relational benefits to humans extended to the outdoor environment, according to a student's discussion of the TEK because people should be "taking care of all the land around you" (Nesterova, 2020). Learning how Indigenous stories support practicing a sustainable way of living was interpreted by these students as well-being for both humans and the environment and reiterated place-based principles of ethical coexistence with nature (Gritter et al., 2016; Lowan-Trudeau, 2012; Nesterova, 2020).

Respecting nature was defined by the participants as how the EBCI TEK stories portrayed the Cherokee stewardship of their outdoor environment. The students in this study recognized how the TEK's reality-based knowledge proved how the EBCI had scaffolded their sustainable ways of being throughout their culture saying, "They are people who care about the land around them, and they want to take care of it" (Keikelame & Swartz, 2019). The environmental consciousness of the EBCI TEK was interpreted as "if you respect nature, nature will respect you" and "respected the earth and were stewards." These constructs are also tenets in place-based

education and affirm the learning power possible for students through its collaboration with TEK and nature (Datta, 2018; Gritter et al., 2016; Somerville & Hickey, 2017; Vander Ark et al., 2020). The participants' interpretations indicate how the agency of a TEK can potentially synergize knowledge, skills, and relationships through a holistic collaboration with place-based lessons and a local ecological system (Gruenewald, 2008; Nesterova, 2020; Sabet, 2018). Blending these elements can define and inform the strategies necessary for ongoing sustainability that interdependent relationships with outdoor environments require (Kress & Lake, 2018; Vander Ark et al., 2020). By fostering increasing connections about local systems in nature for place-based educative practices through the affirmative inclusion of Indigenous TEK and narratives, contemporary environmental consciousness can be fostered (Nesterova, 2020; Ronen & Kerret, 2020; Sobel, 2014). As conservationist T. T. Williams (1997) reminds her audiences, "Storytelling is the oldest form of education" (p. 4).

Limitations

This study had several limitations. This study was initially limited in scope because of COVID-19 precautionary measures that resulted in a smaller group that participated in the field trip. Second, because less than one-third of the middle school students completed the reflection questions after the field trip, the study's findings are limited to only their interpretations of the experience and the researchers' analysis of their interpretations. Third, the students were only able to spend four hours with the EBCI community including one hour with the EBCI storyteller. The relatively short time frame could have limited the student's learning, the depth and breadth of their responses, and how the responses were interpreted. Fourth, the students interacted with the EBCI community during a formal school-sponsored event instead of an informal gathering and this could have affected both their experiences and their responses to the questions. Finally, no member of the research team is a member of the EBCI community and this could have influenced the interpretation of student responses due to their unfamiliarity with the EBCI and the EBCI TEK.

Recommendations

As Gruenewald (2008) notes, the focus of place-based education has transitioned from a misapplied domination of outdoor environments and the misuse of its resources to a focused environmental consciousness. Contemporary place-based education and strategies consider outdoor environments as interactive social systems that include all interdependent relationships (Gruenewald, 2008). Understanding and supporting those connections and meanings between outdoor environments and people can promote ecological literacy. Future collaborations between place-based education, Indigenous societies, and TEK should pursue a synthesis of holistic engagement with local ecology systems. While the four-hour experience that was the focus of this study is limited, it does provide insight into the benefits of an attempt at a more holistic engagement and may be helpful for future curricula design. This intentional inclusion could expand reconciliatory attitudes and cooperation by integrating similar and different educational disciplines and strategies with local outdoor environments, non-Indigenous and Indigenous societies, and TEK stories. This learning structure would encourage a culture of environmental stewardship between those previously restricted from collaborating. This goal must recognize the diverse constructs of local outdoor environments and Indigenous societies and invite a partnership between them with educational institutions.

Further research is recommended specifically with the SCS middle school to better understand what characteristics contributed to the interpretations that emerged in the participants' reflections after this experience. Future studies could also provide a more comprehensive exploration that follows a comparable experience with similar and other populations, similar and

alternate grades at other academic institutions, and collaborations with diverse Indigenous communities and place-based lessons. Because the EBCI TEK and other Indigenous TEK demonstrate environmental literacy, we recommend that researchers pursue reconciliatory partnerships with EBCI members and diverse Indigenous societies in future studies. Finally, additional research with diverse Indigenous societies and place-based lessons could promote a deeper comprehension of the characteristics that best contribute to the increased learning noted in the students' reflections who participated in this experience.

Conclusion

This study sought to better understand the interpretations that developed for the SCS middle school students about their local environment following their field experience that integrated place-based lessons with the EBCI TEK stories narrated by an EBCI storyteller. Synthesizing TEK integrity about local outdoor environments with place-based education could diminish alienating factors and contribute essential knowledge and strategies in environmental sustainability. This study contributes to the related literature and enhances our understanding of the benefits of integrating TEK narrative experiences with a place-based education program, particularly one with similar characteristics. Formal and non-formal educators are encouraged to consider how their curricula might be supported through the integration of TEK narrative experiences with place-based platforms.

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