INDIGENOUS STORYTELLING, CHEROKEE TRADITIONAL ECOLOGICAL
KNOWLEDGE, and PLACE-BASED EDUCATION

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INDIGENOUS STORYTELLING, CHEROKEE TRADITIONAL ECOLOGICAL

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Indigenous storytelling, a transactional communication between narrators and audiences, is expressed through the narratives of Traditional Ecological Knowledge or TEK (Pierotti & Wildcat, 2000). These stories of Indigenous societies such as the Eastern Band of Cherokee Indians (EBCI) demonstrate and explain their ecological literacy and sustainable relationships with their local outdoor environments (Berkes et al., 2000). TEK stories impart this authoritative information and empower the story's participants in co-creating their interpretations and connections (Aftandilian, 2011; Hall, 1973). The EBCI, as do other Indigenous communities, share their interrelatedness with nature by acknowledging their interdependence with nature (Cherokee Preservation Foundation, 2014; Datta, 2018; Lowan-Trudeau, 2012; Pierotti & Wildcat, 2000). TEK stories align with and provide support for the ethical strategies of contemporary environmental advocacy (Berkes et al., 2000). The EBCI, used here interchangeably with their historical tribal title "Cherokee," are members descended from the original Cherokee peoples, indigenous to the southeastern North American continent (Cherokee Preservation Foundation, 2014). Place-based education integrates the experiential relationships

between humans and nature to encourage growth in values, comprehension, and skills in environmental sustainability (McKeon, 2012; Sabet, 2018). TEK narratives inherently possess the interactive agency and equal responsibility with local places that place-based education now prioritizes (Aftandilian, 2011; McKeon, 2012). Advancing informed environmental sustainability through place-based instruction for students requires a cooperative engagement that values Indigenous TEK and its practices (Gruenewald, 2003; McKeon, 2012). However, Eurocentric philosophies have historically restricted collaboration with Indigenous societies and their TEK by defining those as non-members of society (Bechtel, 2016; Roberts, 2012). By integrating environmental experiences with TEK, place-based learning can synthesize those narratives with evolving place-based concepts into interdisciplinary sustainability, dissolving artificial barriers that may limit ecological meanings for students (McKeon, 2012). To date, no known research has investigated the integration of EBCI TEK narratives with place-based curricula for middle school students. TEK narratives have the potential to articulate place-based learning, which can foster environmental well-being for local communities, and yet little research has explored this pedagogy. The purpose of this study was to explore middle school student interpretations of a collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment. As participants reflected on their experience, three major themes emerged through narrative inquiry analysis: cultural literacy, well-being, and respecting nature.

 Keywords: narrative inquiry, the Eastern Band of Cherokee Indians, ecological literacy, outdoor environment

CHAPTER ONE: BACKGROUND

Background

"But Stories…well when Stories are told they go into my soul and never leave. When I need them, they come back to my memory. They truly feed my spirit forever. You see, THAT is the most important thing – Story" (Wolfe, 2013, para. 13).

Wolfe, of Cherokee and Celtic descent, captures and illuminates the power that a Story[1] can create in the lives of its listeners. Stories portray the social expressions of audiences and storytellers, constructing participant interpretations through the landscapes of time, human and non-human communities, and places (Williams, 1997). Those expressions also emerge through the choices made by a storyteller and an audience in a continually interactive process of "encoding" and "decoding" (Hall, 1973, p.4). This transaction determines what meanings evolve as the narrative circulates between everyone engaging in the story. Instead of a one-dimensional transmission from the speaker to the listener, this discourse mediates the communication production and reception in a perpetual cycle between them (Hall, 1973). This interchange performs through a culture's predetermined structures, through the immediacy of narration by its symbols and meanings, as those are expressed and received (Hall, 1973).

By exhibiting the interactive conversation between narrator and audience, the process of sharing in a story educates participants about the story and invites the audience to co-create a shared meaning with the narrator. Freire et al., (2000) describe how all individuals are

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

constrained firmly within the social constructs of time and space, which imprint on them as those individuals also imprint on each other. Within these responses, the narrator and audience "are being," while they are simultaneously creating "being" through the environments a story generates for each person (Freire et al., 2000, p. 90). Failing to realize these transformations and their power can negate the agency of a narrative for a participant (Hall, 1973). Because the narration and integration of stories inhabit essentially situated contexts, both are framed inextricably within those experiences, including those in outdoor environments (Aftandilian, 2011; Johnson et al., 2020). Historically, these local outdoor places were assessed as learning platforms for humans, whereby reality-based environmental knowledge and practices shared by older generations with their younger relatives sustained life (Vander Ark et al., 2020). As Dewey (1915) remarks, "Experience has its geographical aspect, its artistic and its literary, its scientific and its historical sides. All studies arise from aspects of the one earth and the one life lived upon it" (p. 104).

This learning in outdoor places is foundational in the place-based discipline and promotes ecological literacy for students about the environment (Orr, 2004; Vander Ark et al., 2020). Through its methodology and practice, place-based pedagogy affirms the traditional constructs of Indigenous[2] cultures because these societies espouse their communal relationships with their associated outdoor environments (Gruenewald, 2003). Indigenous stories exhibit a complex, layered ideological system that positions life and its intrinsic meanings within a cohesive,

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

inclusive approach to their local environments (Cajete, 2004). These narratives reiterate the ecological veracity of Indigenous knowledge as they communicate the attitudes and practices that demonstrate true intimacy with and comprehension about nature (Goings, 2016; Gritter et al., 2016). The Eastern Band of Cherokee Indians (EBCI), officially recognized by the United States government, share those active repositories of ecological wisdom and strategies with their Cherokee relatives, the Cherokee Nation, and the United Keetoowah Band of Cherokee Indians (Powell et al., 2006; United States Attorney's Office Western District of North Carolina, 2021). The EBCI, used here interchangeably with their historical tribal title "Cherokee," are members descended from the original Cherokee peoples, indigenous to the southeastern North American continent (Cherokee Preservation Foundation, 2014).

Traditional Ecological Knowledge (TEK)

Here, story and storytelling are defined as the oral narratives expressed through Indigenous Traditional Ecological Knowledge or TEK (Pierotti & Wildcat, 2000). TEK storytelling by Indigenous cultures are testimonies about human habitation and sustainable relationships within local environmental communities (Berkes et al., 2000). This ecological literacy immerses participants into an outdoor culture, leads them into critical thinking skills and environmental stewardship, and rejects an artificial separation between humanity and nature (McKeon, 2012; Sobel, 2014). Alternatively, the pervasive constructs of conventional learning may promote erroneous dichotomies that objectify Indigenous persons as non-members of society or the Other (Cochran et al., 2008; Roberts, 2012; Smith, 2012). Smith (2012) explains how educative disciplines marginalize Indigenous society because their foundations and practices perpetuate a Eurocentric framing that trespasses Indigenous understandings. Elevating

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marginalizing attitudes and practices above Indigenous knowledge fosters a climate of ignorance that can disempower genuine environmental consciousness (Nesterova, 2020; Smith, 2012). These assignments arrest the collaborative efforts between non-academic groups and educational disciplines with Indigenous societies and decrease their ability to synthesize sustainable knowledge and practices about nature (Smith, 2012). TEK narratives have the potential to articulate place-based learning, which can foster environmental well-being for local communities, and yet little research has explored this pedagogy. Consequently, co-contributing by non-Indigenous groups with Indigenous TEK narratives about regional ecological relationships needs additional study (Bang & Marin, 2015; Berkes et al., 2000; Cochran et al., 2008; Datta, 2018; Johannes, 1991; Lowan-Trudeau, 2012).

The Eastern Band of Cherokee Indians (EBCI) and TEK Oral Narratives

Indigenous societies, including the Eastern Band of Cherokee Indians (EBCI), have practiced the vehicle of storytelling to explain and preserve their ways of being relating to their native outdoor environment or place. Such TEK narrates an Indigenous worldview that considers every past, present, and future inhabitant as a shareholder in their outdoor habitat (Pierotti & Wildcat, 2000). With this understanding, specific Indigenous ecological ideologies and narratives parallel the ethics and strategies of contemporary environmental advocacy (Berkes et al., 2000). The EBCI, their Cherokee relatives, and other Indigenous groups share an interrelatedness with nature by acknowledging their interdependence on each living and non-living member in their place (Cherokee Preservation Foundation, 2014; Datta, 2018; Lowan-Trudeau, 2012; Pierotti & Wildcat, 2000; Powell et al., 2006).

TEK oral narratives, such as the EBCI stories, situate Indigenous members as legitimate

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co-constructors of meaning, possessing interactive agency and sharing equal responsibility with their local place (Aftandilian, 2011). "This land is ours because of what is buried in the ground… the only thing separating us is the stories we choose to tell about them" (Clapsaddle, 2020, p. 1). This conviction explains how Indigenous peoples convey their identity equity with the members of their local place, as they assign environmental sensitivity to every biotic and abiotic entity existing within that outdoor environment (Sepie, 2017). Affirming this evaluation necessitates a recognition of the "way that nature speaks, that land speaks … [so] pay attention to the story" (Hogan, 1994, p.126). In this way, the TEK narratives shared by the EBCI and other Indigenous communities demonstrate these injunctions, as they intertextually weave the stories' embedded meanings throughout their culture (Goings, 2016). As counter-narratives to Eurocentric mores, these stories contradict the denigrating definitions of Indigenous peoples and their holistic orientation between themselves and their local ecosystems (Bechtel, 2016; Nesterova, 2020). Indigenous ways of being can provide a mutualism that informs and sustains integrity in relationships between humanity and outdoor environments (Datta, 2018; Lowan-Trudeau, 2013). TEK environmental narratives illuminate the tenets of place-based education and expand student learning as place-based educators collaborate with Indigenous knowledge about sustainable practices with nature.

Place-Based Education and TEK

The priorities and goals of place-based education are confirmed by certain TEK because TEK can convey Indigenous expertise about the environs of local outdoor places (Bang & Marin, 2015). Place-based education is an effective instructional method that informs social and environmental processes, defines their preexisting relationships, invites new ones, and has been

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practiced consistently by Indigenous populations (Sabet, 2018; Smith, 2002). Against typical learning strategies, place-based education can encourage a realistic appraisal of self-identity for learners through outdoor engagement (Sobel, 2014). Examining place-based pedagogy reveals the correlation between the discipline's framework and the multi- and interdisciplinary connections accessed through Indigenous environmental practices (Gritter et al., 2016; Gruenewald, 2008; McKeon, 2012). Despite this evidence, the integration of TEK and Indigenous strategies with place-based experiences has not been implemented extensively. There are studies of collaborative experiences between place-based lessons with students, Indigenous societies, and TEK in Australia, the states of Washington and Michigan, and including the integration of TEK with place-based pedagogy at the University of Hawai'i at Manoa for its student teachers (Gritter et al., 2016; Somerville & Hickey, 2017; Sutherland & Swayze, 2012; Zuercher et al., 2012). Rather than desensitize attitudes and impede cognitive growth by imparting facts without situationality, place-based education expands ethical competency towards nature (McKeon, 2012; Sabet, 2018). Through authentic involvement with an outdoor environment, students can embark on an ecological journey that expands through experience, knowledge, and practice (Gruenewald, 2003). In a synergistic exchange between humans and nature, these relationships can meld environmental knowledge with sustainable responses, solidifying place-based learning objectives for students as they progress (McKeon, 2012). By collaborating TEK narratives with place-based education, those interpersonal relationships with nature are cultivated and energized for participants (Gritter et al., 2016; Sabet, 2018). Vander Ark et al., (2020) describe how critical this climate of sincere cooperation with Indigenous populations is for the health of both human and outdoor societies. Lowan-Trudeau (2012)

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confirms this active conversation between a local landscape and all the relationships therein attest that place-based understanding *is* the intrinsic core identifying Indigenous norms. The TEK of the EBCI and other Indigenous societies are the dynamic organic repositories that convey reality-based practices through their everyday relationships with their local outdoor environments (Datta, 2018; Roberts, 2012).

    With this understanding, specific Indigenous potential benefits from integrating TEK narrative experiences with a place-based education program, particularly one with similar characteristics. The purpose of this study was to explore middle school student interpretations of their local environment following a place-based educational experience that integrated EBCI TEK narratives. The research question was, "What interpretations emerged for the Summit Charter School middle school students of a collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment?" The methodology of narrative inquiry was used to search out what meanings developed for these students as they reflected on their engagement with the collaborative experience as the phenomenon.

CHAPTER TWO: LITERATURE REVIEW

Literature Review

      Human societies use stories to interpret and build meaning about their identities and

relationships in the outdoor and engineered environments they inhabit and engage.

Stories describe life by living it, telling it, and explaining it to each of us (Clandinin et al., 2016).

Within these constructs, everyone leads "storied lives on storied landscapes" (Clandinin et al.,

2016, p. 8). Framing the understanding of any life experience as a *Story* reveals its historical

character and its inherent narrative agency (Crites, 1971). Narratives shape human

comprehension because they explain their storied meanings day by day (Shields, 2005).

Observing a story as a phenomenon considers how narratives perform with speakers and

audiences while exploring the fundamental characteristics as those emerge (Clandinin et al.,

2016). These storied encounters are simultaneously constructing and redefining perceptions as

participants make decisions about the discourse they are interacting with (Hall, 1973). Instead of

a static, finite transmission, these interpretations continue to develop and communicate, enabling

an audience to learn and share in the creative process with the narrative. Freire et al., (2000) and

Hall (1973) agree that a discourse never isolates its participants because its parameters of time

and space locate the interpretations of those who engage with it. 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 a participant's understandings, synthesizing

their interpretations with their 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).

Indigenous Narratives as Experiences of Place

These avenues of expression decipher and construct with participants their roles in local places by defining those performances with themselves, each other, and the world around them. TEK stories exemplify this, as Indigenous societies describe their authoritative knowledge about their environments and frame that expertise through their transcendent relationships with those local places (Aftandilian, 2011). Participation with Indigenous stories empowers diverse understandings in place-based education of social and environmental processes, and reveals the vital realities of human interdependence with a place in nature (Kress & Lake, 2018). Examining the place-based properties, symbols, and members situated in outdoor environments access the interdisciplinary associations present throughout TEK stories (Gruenewald, 2003; Pierotti & Wildcat, 2000). Inclusive cooperation with the EBCI and other Indigenous populations that integrate their knowledge and relationships with local nature are critical in education about environmental sustainability (Nesterova, 2020). Lowan-Trudeau (2012) notes how this active conversation between a land and its relationships acknowledges the core of Indigenous place-based identity. Indigenous narratives are living repositories practicing the fundamental identities shared between humans and nature (Basso, 1996; Datta, 2018; Roberts, 2012). Through a comprehensive system of equitable relationships, sustainable environments can be supported. This is not determined by preferences and desires but through the ecological interactions between humans and the outdoor environments they inhabit (Ronen & Kerret, 2020). Beyond

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historical attributes, TEK stories of the EBCI and other Indigenous peoples transpose their ancestral and innate mores into the environmental currency that confirms Indigenous expertise about their local ecosystems (Hines et al., 2020).

TEK Attributes

Without the facile constructs and boundaries conventional education has often conveyed about nature, TEK explains how nature is teacher, relative, provider, and sustainer of every member coexisting in an outdoor environment (Gritter et al., 2016; McKeon, 2012). These narratives express reality-based and allegorical lessons about a local ecosystem while their intertextuality instructs, acculturates, and generates environmental responsibility (Datta, 2018; Gruenewald, 2003; McKeon, 2012). Refuting marginalizing assignments, TEK exhibits the diversity of Indigenous identities and their transactions with their local outdoor environments throughout their generations (McKeon, 2012; Somerville & Hickey, 2017). Indigenous populations have consistently situated their transference of knowledge and skills to younger generations about their local outdoor environments by their TEK (McKeon, 2012; Smith, 2002). Accepting these differences in philosophy and methods would position TEK as an equal in the cooperative alliances that are now hallmarks in place-based educational goals (Smith, 2002).

By instigating principles that reiterate these place-based injunctions, such Indigenous philosophies command a symbiotic exchange between people, their lives, and nature. Because these relationships display the harmony of human interactions with the environment, Indigenous worldviews portray the egalitarian coexistence possible between them (Lowan-Trudeau, 2012). Instead of elevating the supremacy of humanity and its jurisdiction of the environment, TEK promotes nature's agency alongside that of people (Datta, 2018; Lowan-Trudeau, 2013;

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McKeon, 2012; Sabet, 2018; Somerville & Hickey, 2017). TEK goes beyond integrating environmental lessons for new generations of Indigenous cultures; instead, every ecosystem described through Indigenous TEK shares a communal literacy with that Indigenous culture (Datta, 2018; Lowan-Trudeau, 2013). This core perspective replaces outmoded environmental approaches with the Indigenous conceptions about a place and undergirds those through their relationships with that place (Datta, 2018; Lowan-Trudeau, 2013; Pierotti & Wildcat, 2000). Synthesizing these Indigenous ways of ecological partnership into the place-based discipline cultivates comprehension and scaffolds those approaches through a holistic framework about outdoor systems (McKeon, 2012). It can generate cooperative inquiry, critical thinking, and confrontation of social ills that produce effective ecological reform. Research confirms how these priorities activate sustainability and often attain educational objectives for students (Sabet, 2018; Smith, 2002; Sobel, 2014). Because TEK can coalesce the requisite learning processes between people, outdoor environments, and relationships, future generations can acquire the attitudes, tools, and actions needed to promote social justice and sustainability (McKeon, 2012; Sabet, 2018). This continuum of learning shifts the locus of control away from Eurocentric domination and encourages a climate of equity between diverse populations. Discrimination against the ideology of Indigenous TEK restricts opportunities for their collaboration with place-based learning while simultaneously reducing veracious comprehension of outdoor environments for students.

TEK Narratives as Learning Relationships

Eurocentric philosophies have excluded TEK narratives, considering TEK as antithetical to several academic disciplines, including education and science (Datta, 2018; McKeon, 2012;

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Pierotti & Wildcat, 2000; Sabet, 2018). However, educators, scientists, and researchers are seeking out counterhegemonic measures that can challenge this axiom by reexamining Indigenous TEK. All cultures transfer their mores through the stories told by their members as their interpretations of life and its realities, including their attitudes, actions, and connections to their local outdoor places (McKeon, 2012). As Indigenous societies communicate about their relationships to nature, those narratives demonstrate their holistic structure in co-constructing their identities by relational intimacy with their local outdoor environments. These relational threads between Indigenous ontologies and epistemologies confirm TEK, leading to its growing acceptance by academic professionals as reality-based environmental cognizance (Datta, 2018; Pierotti & Wildcat, 2000). When examined, TEK stories reveal Indigenous experiential intelligence and teach life strategies for those societies (Datta, 2018). These meanings are communal literacies sourcing the past, present, and evolving interdependencies, sharing the ideals instructing and sustaining equity between Indigenous peoples and their local places (Datta, 2018; McKeon, 2012; Pierotti & Wildcat, 2000). Beyond a didactic focus, TEK stories unify a currency of learning through their experiential intelligence, cultural expertise, and environmental relationships by their symbolic and explicit language (Datta, 2018; Pierotti & Wildcat, 2000). Because misconceptions can silence earnest engagement with the environment, more research is needed to learn how place-based educators can holistically approach Indigenous communities to cultivate inclusiveness (McKeon, 2012). When the agency of Indigenous knowledge, relationships, and TEK stories is activated, increasing ecological literacy is supported (Gritter et al., 2016; Somerville & Hickey, 2017).

Indigenous Society

Indigenous societies and narratives, including those of the EBCI, express distinct alternative constructs that oppose the politics that have misappropriated them (Lather, 2006). Dismissing these cultural expressions denigrates the Indigenous experiences and relations with their associated ecosystems (Datta, 2018; Nesterova, 2020). Furthermore, rejecting TEK stories as mythological abstracts or exploiting TEK resources without equitable collaboration with Indigenous authorities reinforces Indigenous oppression (McKeon, 2012).

Multitudes of Indigenous communities esteem all life, adhering to a biocentric core exhibiting their rationale that describes their land-based ecosystems (Bechtel, 2016). This identification contends against the pejorative discourses of Eurocentric environmental philosophies and methodologies (Gritter et al., 2016; McKeon, 2012). Subjugating Indigenous societies under an entrenched rejection as social outcasts or Other can profile native identities as naïve, guileless environmentalists, and culturally homogenous (Cochran et al., 2008; Datta, 2018; Pierotti & Wildcat, 2000; Roberts, 2012). These biases deny their individuality, human rights, and inherent accumulated wisdom about their associated outdoor environments (Roberts, 2012; Sabet, 2018).

Despite the evidence, the veracity of TEK remains opposed by those idealizing, dominating, or expunging Indigenous worldviews about nature (Roberts, 2012; Somerville & Hickey, 2017). Certain environmental philosophies, such as ecopedagogy, attempt to bridge Indigenous and non-Indigenous political constructs to outdoor environments (Misiazek, 2016; Zocher & Hougham, 2020). By emphasizing experiential insight, ecopedagogy suggests a cooperative merger between non-Indigenous and Indigenous members with local places in

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nature. However, ecopedagogy supports an agenda of world unification that may nominate

Indigenous groups as the Other, minimize Indigenous authority, and embroil diverse cultures into

deeper conflict (Dussart & Poirier, 2017; Lowan-Trudeau, 2013; Zocher & Hougham, 2020).

Similar constructs can reiterate what certain studies have forced by subjecting participants and

critics to oppressive powers. These constructs may desecrate the Indigenous intersubjective

relationships and understandings, negatively affecting the entire environmental landscape in a

degenerative cycle (Gruenewald, 2003; Lowan-Trudeau, 2013). As a result, researchers and

educators have advocated for environmentally sound learning pedagogies and practices for

students with neighboring Indigenous peoples and their TEK (Gritter et al., 2016; McKeon,

2012; Pierotti & Wildcat, 2000). Implementing such an integrative reconciliation can elucidate

environmental learning and empower Indigenous human rights and ecological strategies

(Cochran et al., 2008; Lowan-Trudeau, 2013; Roberts, 2012). Kincheloe (2001) states "[P]ower

wielders play a profound role in filtering the ways all of us come to see and make sense of the

world, ourselves and our relationship to it…produced by particular groups who stand to benefit"

(p. 53). Examining how these oppressions suppress and ignore the deeply interactional processes

connecting a particular land and its members promotes equity and deferential cooperation

(McKeon, 2012).

Recognizing these processes is requisite for the ongoing success of place-based pedagogy

and its methodologies to increase environmental sustainability through the respectful inclusion of

Indigenous TEK (Sabet, 2018). Given these goals, researchers and educators must be vigilant

about the continual outflow from marginalizing norms and how those perpetuate Indigenous

exclusivity. For the EBCI and any Indigenous group, the zeitgeist of Eurocentric dominance

remains prominent by determining their understandings and identities, despite how Indigenous people define themselves. This alienation by autocratic determinants is resisted increasingly by Indigenous societies throughout academia, but most significantly in research, Smith (2005) notes:

> For indigenous peoples, research has a significance that is embedded in our history as natives under the gaze of Western science and colonialism. It is framed by indigenous attempts to escape the penetration and surveillance of that gaze while simultaneously reordering, reconstituting, and redefining ourselves as peoples and communities in a state of ongoing crisis. Research is a site of contestation not simply at the level of epistemology or methodology but also in its broadest sense as an organized scholarly activity that is deeply connected to power. (p. 87)

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 situationality is contextual and relational, fostering the reconciliatory processes with dispossessed and marginalized societies (McKeon, 2012; Sabet, 2018). When these restorative TEK strategies are accepted, they can dismantle the oppressive constructs that demean such a place and its members (Gruenewald, 2003).

Place-Based Education

Place-based education has developed in response to the growing disquiet of educators through the analysis of conventional educative practices and the subsequent dichotomy in outcomes from those traditions in life applications (Gruenewald, 2003; Smith, 2002). Now

established as an educational discipline, place-based pedagogy describes a holistic approach to reality-based learning situated in local places (Sobel, 2004). Structuring learning within these environments can impart hands-on knowledge and invite transactional relationships leading to ethical values and practices for society (Gruenewald, 2003). Smith (2002) notes how place-based education evolved as an alternative to the historical learning systems prescribed through media and generally restricted from outdoor environments. Though validated as equipping students with scientific information, skill acquisition, and applications, conventional education has most often functioned outside actual engagement (Smith, 2002; Sobel, 2014).

The origins of place-based education prioritized recreation in the outdoors, accompanied by individual well-being, character, and skills, because of urban population demands (Sabet, 2018). This focus largely neglected sustainable fact-based knowledge and responsible exchanges with outdoor environments (Gritter et al., 2016; Sabet, 2018). Eventually, it became evident that place-based education relegated environmental experiences to address human individual and specialized group growth rather than an integral scholarly approach (Lowan, 2009). This strictly bounded view negates interdisciplinary social and ecological learning and eventually impoverishes environmental relationships (Gruenewald, 2003). Place-based education now embraces progressive comprehension, reality-based self-actualization, emphasizes situationality in the outdoors, creates relational opportunities with those places, and synthesizes those into genuine learning (Gruenewald, 2003; Smith, 2002; Sobel, 2014). This active participation contributes to student interpretations about societal well-being and facilitates growth in their ecological responsibilities (Gritter et al., 2016). Place-based methods increase student proficiencies in critical reasoning, problem-solving, social

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justice agency, and sustainability (Chawla et al., 2014; Dadvand et al., 2018). Challenging detrimental constructs affirms the effectiveness of place-based instruction, but its continued success depends on inclusion, knowledge, and practices that address the culture of power interconnected with outdoor environments (Gruenewald, 2003; McKeon, 2012: Sobel, 2004).

As place-based education promotes growth for students about their local outdoors, the impetus to increase environmental well-being can progress. Studies find that excluding Indigenous comprehensions restricts the advantages of place-based education by reducing cognitive development and sustainability (Gruenewald, 2003; Sobel, 2014). As Gruenewald (2003) notes, the critical thinking that can recognize environmental detriments expands by integrating the socio-cultural meanings of an environment and its members. Fallacious data, instruction methods, including historical assumptions and practices, and Indigenous resistance to assimilation and exploitation, are also contributing factors (Lowan-Trudeau, 2012; McKeon, 2012; Sabet, 2018). Critically applying place-based pedagogy to conversations about learning in nature can lead to altruistic cooperation between diverse participants, ecological literacy, and humanitarian well-being (Gruenewald, 2003; Lowan-Trudeau, 2012).

By coordinating environmental experiences with TEK, place-based learning can coalesce those narratives with place-based concepts into interdisciplinary sustainability, deconstructing discriminations against Indigenous ways of being (Keikelame & Swartz, 2019; McKeon, 2012). Implementing environmental competency through respectful reconciliation with Indigenous groups is pursued in place-based education and has been incorporated by some institutions (Lowan-Trudeau, 2012; Nesterova, 2020; Sabet, 2018). This process initiates a journey into reality-based connections to local nature. This suggests that as students mature in

relationships with their environments, recognizing Indigenous land-based competencies that illuminate place-based education will be perceived (McKeon, 2012; Sabet, 2018).

Place-Based Education and TEK

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). The expertise and engagement that place-based education foster in best learning practices replicate those of TEK (Vander Ark et al., 2020). TEK stories encourage participants to engage and interact with the narrator by co-creating meanings as place-based education does (Sobel, 2004). These renavigate individuals within the construct of their local outdoors, connecting them individually and collectively to their values and responsibilities, towards themselves, each other, and everything in that place (Sobel, 2004). Reciprocal learning opportunities between Indigenous societies and 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.

Sutherland and Swayze (2012) describe how the inner-city youth of Winnipeg, Manitoba, Canada, participated in the place-based learning program Bridging the Gap. The program design facilitated experiences engaging the largest Indigenous population concentrated in Winnipeg (Sutherland & Swayze, 2012). The program's inception focused on accepted environmental science but was modified as the administration realized adopting Gruenewald's (2003) philosophy assimilating place-based education with Indigenous knowledge would successfully integrate student learning (Sutherland & Swayze, 2012). This agreement verifies how place-

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based lessons about a local outdoor environment can be most productive founded on the associated Indigenous understandings and strategies (Sutherland & Swayze, 2012).

Gritter et al., (2016) note that inviting local Indigenous storytellers to middle school classrooms in Washington and merging their TEK narratives with place-based learning encouraged a deeper recognition of the local outdoor places and their environmental well-being. As the TEK stories were narrated, understandings about those places and how students might ethically shape connections with those emerged (Gritter et al., 2016).

Middle school students in Kenton, Michigan joined a place-based learning project that invited students to engage in virtual Indigenous societies (Andrews & Conk, 2012). These students encountered genuine place-based happenings through their temporary participation in the daily lives of the Indigenous communities (Andrews & Conk, 2012). These interchanges with an Indigenous society, initially framed through their non-Indigenous understandings, enriched students with deeper meanings that transformed their views of the alternate realities existing between cultures and nature (Andrews & Conk, 2012).

Studied by Somerville and Hickey (2017), the Cumberland Plain Woodlands Project provided a collaboration between Indigenous and non-Indigenous students and place-based lessons for a public school in the town of western Australia. Most of the student population identified themselves as fully or partially Indigenous. The project design integrated local Indigenous TEK narratives as those stories explained how Indigenous society related to their outdoor environment (Somerville & Hickey, 2017). The resulting interpretations exhibited significant growth in environmental knowledge and values through blending TEK meanings with the place-based lessons (Somerville & Hickey, 2017).

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To foster instructor knowledge, skills, and experience in merging TEK with place-based strategies, the University of Hawai'i at Manoa implemented an educational program combining both for American Samoa middle school teachers (Zuercher et al., 2012). The program empowered new teachers in their abilities to integrate the cultural traditions and knowledge of the Samoans with the most current place-based pedagogy for their students (Zuercher et al., 2012).

Learning experiences that synthesize place-based pedagogy and its methods with the inclusive relationships that Indigenous TEK practices with local outdoor environments coalesce the instructional objectives of each for students (Vander Ark et al., 2020). Gruenewald (2003) describes how such mutualistic engagement with the outdoors invites reconciliation and stewardship between the cultures of nature, academic disciplines, students, and Indigenous societies by restoring the socio-ecological understandings with an environment.

Conversely, neglecting the acknowledgment of Indigenous TEK expertise can prolong the oppression that restricts collaboration between TEK with non-Indigenous cultures and academic disciplines. Integrating Indigenous TEK integrity about local outdoor environments with place-based education could diminish limitations in comprehensive reality-based learning. Future studies that equitably participate with Indigenous TEK would contribute essential knowledge and strategies in environmental sustainability to the related literature and place-based pedagogy.

To date, no known research has investigated the integration of EBCI TEK narratives with place-based curricula for middle school students. The purpose of this study was to explore middle school student interpretations of a collaborative experience that integrated place-based

education, EBCI TEK narratives, and the local environment. The research question was, "What interpretations emerged for the Summit Charter School middle school students of a collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment?" Narrative inquiry was the methodology used to explore the middle school student interpretations of their place-based collaborative experience with the Cherokee TEK stories shared by the EBCI.

CHAPTER THREE: METHODS

Methods

Employing grounded theory as the methodological foundation, this study analyzed the thematic structures that distinguished what meanings emerged for participants as they interpreted those interactions as narrative experiences (Lal et al., 2012). Charmaz (2002) notes grounded theory considers interpretive methods through social constructivism and employs open-ended questions to explore the phenomenon (Creswell & Creswell, 2018). Bruner (1987) defined how this cognitive development occurs through the framing of paradigmatic-positivist or narrative streams. In contrast to the former's cerebral rationality, narrative framing recognizes and co-creates authentic meanings through the narrative agency (Lal et al., 2012). Certain character qualities of narrative framing, founded on grounded theory, embody the experiences of life realities as interpretive, symbolic social expressions applicable in this study (Bruner, 1991). As narrative experiences are expressed intertextually and interacted with relationally, narrative inquiry supports an exploration into the evolving understandings and conjunctions that develop between stories and their audiences (Charmaz, 2002; Clandinin & Rosiek, 2007; Creswell & Creswell, 2018; Hall, 1973; Lal et al., 2012; Marshall & Rossman, 2016). By exploring this phenomenon, narrative inquiry deciphered how a collaborative experience between middle school students, Cherokee TEK stories, place-based lessons, and the local environment was interpreted by those participants (Clandinin et al., 2016). Narrative inquiry probed what meanings evolved for participants in their reflections of their field trip experience (Clandinin & Rosiek, 2007). Functioning as an educational institution that practices place-based pedagogy, the

Summit Charter School pursues collaborative learning experiences for members of its student body with the local EBCI and their TEK.

Summit Charter School (SCS)

The Summit Charter School (SCS) is a public charter school with approximately 237 students enrolled for the 2021-2022 academic year in Cashiers, NC. The population includes the elementary school of kindergarten through fifth-grade, the middle school of sixth through eighth-grade, and the high school of ninth through twelfth-grade. There are currently 60 students in the middle school. SCS strategizes its curriculum through a place-based instructional focus. The school mission states that 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). To promote these goals, SCS pursues collaborative opportunities fusing its place-based lessons with the TEK of the local EBCI community. By integrating environmental experiences with TEK, place-based learning can synthesize those narratives with evolving place-based concepts into interdisciplinary sustainability, dissolving artificial barriers that may limit ecological meanings for students (McKeon, 2012).

The Nikwasi Mound field trip. An immersive field trip blending SCS place-based lessons with the EBCI and Cherokee TEK narratives was available for the sixty middle school students as part of their fall semester coursework. The place-based lessons were scripted and facilitated by the SCS faculty as part of the middle school Science and Language Art curriculum during the SCS fall 2021 semester regardless of this study's involvement. The EBCI members at the field trip experience were invited through the Nikwasi Initiative, a non-profit Cherokee entity (Nikwasi Initiative, 2021). The field trip was designed collaboratively by the SCS faculty and

EBCI members. Within this framework, Cherokee TEK stories were limited to those chosen by an EBCI storyteller. Students were divided into four small groups of mixed grades by the faculty in attendance. Each group rotated through the experience's activities for the duration of the field trip: a) TEK storytelling, b) EBCI apple orchard history, c) EBCI historical water source and its quality control, and d) Cherokee numbering system and science. Three EBCI members, a Cherokee TEK storyteller, a Matriarch, and a staff member, in addition to SCS faculty, facilitated each of the activities. The EBCI storyteller shared Cherokee TEK stories with each of the four groups for one hour at the base of the Nikwasi Mound. The apple orchard, its history and future, water and its quality, the numbering system, and science were experienced through the lenses of the EBCI's traditional Cherokee ways of being. The co-investigator was present at the field trip to take field notes in order to provide contextual information about the experience.

Participant Recruitment

Prior to participant recruitment, an initial review of research was submitted to the Western Carolina University (WCU) Institutional Review Board that included the study's letter of support received from the SCS administration (See Appendix A). Following the WCU Institutional Review Board approval in October 2021, the study was introduced via email. Parents and guardians of the SCS middle school students received an email with a link to a Qualtrics survey containing the details of the attached Consent form with the opportunity to provide electronic consent (See Appendix B). Each middle school student received an email with a link to a Qualtrics survey that included the details of the attached Assent form with the opportunity to provide electronic assent (See Appendix C). Each Qualtrics survey was an

encrypted online survey platform provided by WCU to the co-investigator. Student participants (*n*=18) were selected based on criterion sampling (Creswell & Creswell, 2018) and:

    a) were enrolled in the SCS middle school sixth, seventh, or eighth-grade classes in the fall semester of the 2021 academic year

    b) attended the SCS middle school field trip on November 12, 2021, from 8:30 am, until 2:30 pm, at the Nikwasi Mound in Franklin, NC

    c) completed the place-based lessons during the school field trip

    d) secured consent from their parents or guardians to participate in the study

    e) provided student assent to participate in the study

These criteria supplied a smaller sample size in comparison to the entire student population of SCS middle-school grades. In addition, due to the precautions regarding COVID-19, approximately only one-third of this middle school population attended the field trip at the Nikwasi Mound.

Data Collection

To explore the domains that emerged from the participants' experiences, a series of reflective open-ended questions was first submitted to the WCU Institutional Review Board to address issues of participant privacy and confidentiality. These reflection questions had been informed through the content of SCS place-based lessons and the Cherokee TEK shared by the EBCI. Following the WCU Institutional Review Board approval of the questions, students who had satisfied the criterion completed the questions using the online Qualtrics survey EBCI Cherokee Stories and Place-Based Learning (See Appendix D). As a data collection tool, an electronic survey is strategic and applicable in exploring best practices in educational pedagogies and related studies (Agostinho,

2005; Miles et al., 2020). However, online surveys such as Qualtrics may hinder insights by restricting participation to those familiar and adept with web-based applications, create a lack of more comprehensive information drawn from researchers' physical interaction with participants and their instinctual understandings, and affect the challenges of confidentiality and privacy (Marshall & Rossman, 2016). The SCS administration agreed to this study with the understanding that normal use of the Internet, including the completion of this survey, may have involved inherent issues. However, this study contained minimal risk to participants beyond ordinary engagement with the Internet. There was no identifying information accompanying the survey that distinguished the participants by their grade level or other personal facts. Those student responses without consent/assent were removed before analysis. Access to the data was restricted to WCU, the principal investigator, and the co-investigator. The survey findings were available to the SCS administration and middle school families. The survey was facilitated by SCS faculty with the students that attended the field trip during a regular school session on the SCS campus the week immediately following the experience. Participants were asked to complete eight questions and able to provide more details about their answers if they wished to do so: 1) describe the experience, 2) what lesson activities they enjoyed the most and why, 3) what they would like to investigate more deeply, 4) how would they 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) to share any additional thoughts about the experience. Data analysis explored the SCS middle school student interpretations of their local environment following their field trip that integrated EBCI TEK narratives with the place-based experience.

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Data Analysis

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). The process of open and axial coding was used in a close

reading of the survey responses to consider and determine what initial meanings were present

and organize those meanings using in vivo terms (Creswell & Creswell, 2018). These concepts

were evaluated for similarities and differences to explore their connections and influences. The

relationships between the coded meanings were interpreted and then categorized into themes. In

any study, there is the potential for a researcher's bias to influence the findings. The co-

investigator was attentive to those possible distortions resulting from her expertise level, non-

Indigenous identity, and her unfamiliarity with the EBCI and Cherokee culture. To increase the

trustworthiness of the findings (Creswell & Creswell, 2018), an independent intercoder coded

20% of the data.

As the co-investigator, I have chosen the journal manuscript option for chapters four and

five. The guidelines for submissions to the *Journal of Outdoor Recreation, Education, and*

Leadership are located at https:js.sagamorepub.com/jorel/about/submissions#authorGuidelines.

I am choosing to submit the following manuscript under the Regular Paper category in the

JOREL, which is to be 20-30 pages or 6,000 – 9,000 words, including all references, tables, and

figures.

CHAPTERS FOUR AND FIVE: INDIGENOUS STORYTELLING, CHEROKEE TRADITIONAL ECOLOGICAL KNOWLEDGE, and PLACE-BASED EDUCATION

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 such experiential relationships with ecological systems into progressive learning and holistic well-being. TEK stories can describe how those interactions promote inclusive sustainability with local places prioritized by place-based education. 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 collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment. As participants reflected on their experience, three major themes emerged through narrative inquiry analysis: cultural literacy, well-being, and respecting nature.

Keywords: narrative inquiry, the Eastern Band of Cherokee Indians, ecological literacy, outdoor environment

CHAPTERS FOUR AND FIVE: INDIGENOUS STORYTELLING, CHEROKEE
TRADITIONAL ECOLOGICAL KNOWLEDGE, and PLACE-BASED EDUCATION

Background

A Story[3] 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 through the landscapes of time, human and non-human 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 for society about nature (Vander Ark et al., 2020). These

understandings and strategies 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 Indigenous[4] 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,

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[3] "Story" is capitalized because of its performance as a social agency in human society (Clandinin et al., 2016).
[4] "Indigenous" is capitalized in recognition of the legitimate and equitable membership of Indigenous societies in all
contexts, communities, and environments.

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 social outcasts and ignoring their TEK environmental consciousness (Nesterova, 2020; Roberts, 2012). TEK has the potential to articulate place-based learning, which can foster environmental well-being for local communities, and yet little research has explored this pedagogy.

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 TEK ideologies parallel the ethics and strategies of contemporary environmental advocacy (Berkes et al., 2000). Indigenous ways of being provide mutualistic integrity in relationships between humanity and outdoor environments reveal 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 towards nature by respectfully encompassing associated TEK (Sabet, 2018). Initiating inclusive learning through partnerships that coalesce Indigenous TEK with place-based education about ecological systems needs additional study (Bang &

Marin, 2015; Datta, 2018; Nesterova, 2020). The purpose of this study was to explore middle

school student interpretations of a collaborative experience that integrated place-based education,

EBCI TEK narratives, 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

characteristics 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). By 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 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 humans 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 transliterate their ideologies into the environmental currency confirming TEK expertise about local ecosystems (Berkes et al., 2000; Hines et al., 2020).

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). As Indigenous storytelling expresses reality-based and allegorical lessons about a local ecosystem, their intertextuality instructs, acculturates, and generates integrity for students in their interpretations of their environmental responsibilities (Datta, 2018). Integrating relevant TEK in ecological education would position its expertise as an esteemed contribution to the objectives and practices that are hallmarks in the place-based discipline (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 in student engagement (Datta, 2018; Lowan-Trudeau, 2013; Sabet, 2018; Somerville & Hickey, 2017). Synthesizing these Indigenous ways of ecological partnership into place-based lessons cultivates an evolving comprehension of those approaches and scaffolds them into a holistic educational framework (McKeon, 2012). This integration can generate the knowledge and tools necessary to develop cooperative inquiry, critical thinking, and social justice skills for students that lead 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 about their relationships with nature.

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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 consider and 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). As these opportunities with TEK environmental ontologies and epistemologies are fostered, the authentic expertise accessible through relevant TEK can be increased. (Datta, 2018; Pierotti & Wildcat, 2000). 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 do 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).

Multitudes of Indigenous communities consider their local ecosystem as an essential part of how they identify themselves in the world (Bechtel, 2016). Certain environmental philosophies, such as ecopedagogy, attempt to bridge Indigenous and non-Indigenous politics to outdoor environments (Zocher & Hougham, 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, and embroil diverse cultures into deeper conflict (Dussart & Poirier, 2017; Lowan-Trudeau, 2013; Zocher & Hougham, 2020). These biases deny their 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). Certain constructs and studies can reiterate this by subjecting participants and critics to the desecration of 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 their collaborative growth that supports students in authentic environmental sustainability (Gritter et al., 2016; Lowan-Trudeau, 2013; Roberts, 2012).

Recognizing the dynamics of these interactional processes is requisite for successful place-based education of increasing 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. 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 situationality is contextual and relational and

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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 initially prioritized outdoor recreation for individual well-being, character, and skills, yet neglected fact-based knowledge and sustainable exchanges with those environments (Sabet, 2018). It became evident that place-based education had relegated environmental experiences to individual and specialized group growth rather than integral scholarly approaches (Lowan, 2009). These restrictions negated interdisciplinary social and ecological learning and eventually impoverished environmental relationships (Gruenewald, 2003; Smith 2002). 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; Dadvand et al., 2018). Exposing insufficient and erroneous instruction for students about outdoor environments affirms the effectiveness of place-based education, but its continued 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). Studies find that fallacious data and instruction methods, including historical assumptions, attitudes, practices, in addition to Indigenous resistance to assimilation and exploitation, impede student development (Lowan-Trudeau, 2012; Sabet, 2018; Sobel, 2014).

Coordinating place-based education with TEK and coalescing 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 renavigates individuals within the construct of their local outdoors, connecting them individually and collectively to their values and responsibilities, towards themselves, each other, and everything in that place (Sobel, 2004). Reciprocal learning opportunities between Indigenous societies and 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 about the local environmental system's characteristics and processes and how students might ethically shape connections with it emerged (Gritter et al., 2016).

Somerville and Hickey (2017) studied the Cumberland Plain Woodlands Project that provided a collaboration between Indigenous and non-Indigenous students and 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 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. Gruenewald (2003) describes how such mutualistic engagement with the outdoors invites reconciliation and stewardship between the cultures of nature, academic disciplines, students, and Indigenous societies.

Practicing egalitarian alliances between relevant Indigenous TEK with place-based education could diminish the alienating barriers to exponential learning for students with outdoor environments. The context of each Indigenous TEK aligns that society's ways of being with local nature. Future studies that sensitively and equitably collaborate 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 collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment.

Methods

As previously noted, the purpose of this study was to explore middle school student interpretations of a collaborative experience that integrated place-based education, EBCI TEK narratives, and the local environment. Employing grounded theory as the methodological foundation, this study analyzed the thematic structures that distinguished what meanings emerged for participants as they interpreted those interactions as narrative experiences (Lal et al., 2012). Grounded theory considers interpretive methods through social constructivism, employing open-ended questions to explore the phenomenon (Charmaz, 2002).). This cognitive development occurs and is defined through narrative framing by recognizing and co-creating authentic meanings through a narrative agency (Bruner, 1987). Certain character qualities of narrative framing, founded on grounded theory, embody the experiences of life realities as interpretive, symbolic social expressions applicable in this study (Bruner, 1991).

As narrative experiences are expressed intertextually and interacted with relationally, narrative inquiry supports an exploration into the evolving understandings and conjunctions that develop between stories and their audiences (Clandinin & Rosiek, 2007; Creswell & Creswell, 2018). By exploring this phenomenon, narrative inquiry helped us understand how this collaborative experience between the middle school students from Summit Charter School, the EBCI TEK narratives, the place-based lessons, and the local environment was interpreted by the students (Clandinin et al., 2016). Through narrative inquiry we were able to uncover what

meanings evolved for those participants through their reflections of their field trip experience (Clandinin & Rosiek, 2007).

The Summit Charter School (SCS) is a public charter school located in Cashiers, NC, USA. 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 collaborative experiences for students, including the EBCI community and their TEK and the local outdoor environment. SCS has a population of 237 students in kindergarten through twelfth-grade for the 2021 - 2022 academic year. There are 60 students attending the SCS middle school sixth, seventh, and eighth-grades. Following Institutional Review Board approval of the study 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, blending 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 at the Mound. SCS faculty and EBCI members facilitated the activities, including the EBCI storyteller, who shared TEK stories with each group for one hour. Students also engaged in three informal activities about EBCI resources, Cherokee academics, and history, experienced through the lenses of the EBCI's traditional Cherokee ways of being. The primary researcher observed and took field notes of the field trip activities to record the experience's contextual information.

Student participants ($n = 18$) were selected based on criterion sampling (Creswell & Creswell, 2018) that required enrollment in the SCS middle school during the fall semester of

2021, had attended the field trip, had consent and assent, and had completed the reflection questionnaire. As a result of COVID-19 precautions, only one-third of this middle school population attended the field trip at the Nikwasi Mound.

All SCS middle school students attending the field trip completed a school assignment of open-ended reflection questions through an online Qualtrics survey during a normal class session at SCS the week following the experience. The students' responses without consent and assent were removed before data analysis. The reflection questions were informed by the EBCI TEK, the TEK narratives, 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). Open and axial coding provided a careful examination and determination of the initial meanings presented, followed by organizing those using in vivo terms (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. The primary researcher was attentive to potential biases and distortions resulting from her expertise level, non-Indigenous identity, and unfamiliarity with Cherokee

culture. To increase the trustworthiness of the findings (Creswell & Creswell, 2018), an independent intercoder coded 20% of the data.

Results

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

Cultural Literacy

Cultural literacy was described by these participants as they interpreted their experience with the EBCI TEK. 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."

Enjoyable. A subtheme that emerged within cultural literacy was enjoyable, as students shared enthusiastically about 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

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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 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

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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 greater understanding of their relationships with the 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."

<div align="center">

Discussion

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The themes that emerged from this study 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). Cultural literacy was described by the students after they engaged with the EBCI 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 humibird [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 increased their awareness of the relationships between Indigenous and non-Indigenous people stating, "how people mistreat them" and the EBCI "don't live like we think they do" (Bechtel, 2016; Gritter et al., 2016; Lowan-Trudeau, 2013).

Participants considered the EBCI storytelling as the most enjoyable activity, commenting in their reflections "the stories were funny," "very entertaining," and they "really liked it." By

interpreting this TEK activity as their favorite one, 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."

     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 encouraging 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 the student's comprehension are constant goals in place-based

education (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 in well-being for both

humans and the environment and reiterate 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 to how the EBCI TEK stories

portrayed the Cherokee stewardship of their outdoor environment. The students 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 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 by a holistic collaboration with place-based lessons and a local ecological system (Gruenewald, 2008; Sabet, 2018; Nesterova, 2020). As conservationist T. T. Williams (1997) reminds her audiences, "Storytelling is the oldest form of education" (p. 4).

This study was initially limited in scope because of COVID-19 precautionary measures that resulted in a smaller group size that participated in the field trip experience. Second, because less than one-third of the middle school students completed the reflection survey after the field trip, the study's findings are limited to their interpretations of the experience. Finally, the participants' understandings may have been restricted because of their unfamiliarity with the EBCI and their TEK. Additional opportunities could contribute to progressive comprehension and engagement for the SCS students with the EBCI and the local outdoor environment.

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 the 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. 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 requires 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.

Conclusion

This study sought to better understand the interpretations that developed for the SCS middle school students about their local environment following their collaborative experience that integrated place-based lessons with EBCI TEK stories. 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. Further 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 collaborative experience.

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APPENDIX A: SCS ADMINISTRATION LETTER OF SUPPORT

SUMMIT CHARTER SCHOOL

370 Mitten Lane Cashiers, N.C. 28717   Phone: (828) 743-5755   Fax: (828) 743-9157

September 28, 2021

Rosemary A. Kinch
Graduate Student Experiential and Outdoor Education
Western Carolina University
Cullowhee, NC 28723

Dear Rosemary,

You are given permission to undertake a research study, "Indigenous Storytelling, Cherokee TEK, and Place-based Education." We understand that you will be collecting data from the sixth, seventh, and eighth-grade students of our middle school. We also understand that your study will be qualitative and consist of an online survey of the middle school population and one focus group interview consisting of approximately 12 students, a population that represents each of the middle school grades. Participants in the online survey will also be invited to participate in the follow-up focus group semi-structured interview. The online survey and the focus group interview will take place during regular school hours at the school location in Cashiers, NC.

It is understood that this study will be a collaborative inquiry that involves the students' understandings following the school-sponsored place-based educational field trip with the EBCI storytellers and both language arts and science assignments in Franklin, NC. The research may commence in November of 2021 and may continue through March of 2022 with necessary pre-planning from September-November of 2021. During the pre-planning, adjustments may be made to the timeline, the number of online survey and focus group participants in order to best support the research project and Summit Charter School's place-based educational goals. Summit Charter School will provide access to their middle school students and assist in recruitment of both the online survey and focus group participants so that the purpose of this study may be achieved. Additionally, we will provide ongoing guidance and supportive assistance to enable the successful completion of this study.

The research process, including the data collection, is designed to guard the confidentiality of the participants involved in the study. The data is only to be used for purposes consistent with the study's requirements. It is understood that Summit Charter School will be provided with a copy of the final report.

We look forward to undertaking this study with you, as we believe it will further the development of our place-based curriculum, promote future program design, and contribute to the literature informing the discipline of place-based education.

Sincerely,

Kent Parch

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APPENDIX B: WCU/QUALTRICS SURVEY CONSENT FORM

Below is the informed consent information which will be presented to the parent/guardian of the student through a WCU/Qualtrics survey. By clicking a button labeled [Consent to Participate] at the end of the form, parents/guardians of their student will indicate their consent.

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

This study is being conducted by:

Rosemary A. Kinch

Graduate candidate

Experiential and Outdoor Education

Western Carolina University

Andrew J. Bobilya Ph. D.

Professor and Program Director, of Experiential and Outdoor Education

Western Carolina University

Description and Purpose of the Research: The purpose of this qualitative study is to understand the impact of the place-based experience of the middle school students at the Summit Charter School (SCS). Your student is invited to participate in a research study about the

outcomes that follow the SCS field trip for the SCS middle school on November 12, 2021, in Franklin, NC. The data for this study will be collected through an online Reflection Assignment administered by SCS faculty conducted during regular school hours and on the SCS campus. By doing this study we hope to learn more how collaborative place-based education increases understandings about human relationships with local ecosystems and their environmental sustainability.

What your student will be asked to do: 6th, 7th, and 8th grade students will have already attended the field trip with Summit Charter School faculty on November 12, 2021, in Franklin, NC. After the trip, all students will complete a Reflection Assignment. Those students' Reflection Assignments whose parents/guardians have provided consent and their student has agreed to assent will be included in the study.

Risks and Discomforts: We anticipate that your student's participation in this Reflection Assignment presents no greater risk than everyday use of the Internet.

Benefits: There are no direct benefits to your student for participating in this research study. The study may help your student by improving their placed-based understandings through collaborative engagement with traditional knowledge and relationships with the local environment.

Privacy/Confidentiality/Data Security:

Collected Confidential Data. The data collected in this research study will be kept confidential. Participation in research may involve some loss of privacy. We will do our best to make sure that the information about your student is kept confidential, but we cannot guarantee total confidentiality. Your student's personal information may be viewed by individuals involved in the research and may be seen by people including those collaborating, funding, and regulating the study. We will share only the minimum necessary information in order to conduct the research. Your personal information may also be given out if required by law, such as pursuant to a court order. While the information and data resulting from this study may be presented at scientific meetings or published in a scientific journal, your student's name or other personal information will not be revealed.

There are two circumstances where we would be required to break confidentiality and share your student's information with local authorities. The first is if we become aware or have a reason to believe that a child, an elder, or a disabled individual is being abused or neglected. The second is if your student makes a serious threat to harm yourself or others.

We will collect your student's information through the online Reflection Assignment. This information will be stored in an encrypted cloud-based system.

Voluntary Participation: Participation is voluntary, and your student has the right to discontinue participation at any time without penalty. If they choose not to participate or decide to withdraw, there will be no impact on their grades/academic standing.

Contact Information: For questions about this study, please contact Rosemary Ann Kinch at (720) 982-7384 or rakinch1@catamount.wcu.edu. You may also contact Dr. Andrew J. Bobilya, the principal investigator and faculty advisor for this project, at ajbobilya@wcu.edu.

If you have questions or concerns about your treatment as a participant in this study, you may contact the Western Carolina University Institutional Review Board through the Office of Research Administration by calling (828) 227-7212 or emailing irb@wcu.edu. All reports or correspondence will be kept confidential to the extent possible.

By clicking "Consent to Participate" I give consent for my child, _____ (full PARENT/GUARDIAN name printed), to participate in this study. I understand what is expected of my child and that their participation is voluntary.

APPENDIX C: WCU/QUALTRICS SURVEY ASSENT FORM

Below is the informed assent information which will be presented to the student through a WCU/Qualtrics survey. By clicking a button labeled [Assent to Participate] at the end of the form, the student will indicate their consent.

Project Title: Indigenous Storytelling, Cherokee TEK, and Place-Based Education

This study is being conducted by:

Rosemary A. Kinch

Graduate candidate

Experiential and Outdoor Education

Western Carolina University

Andrew J. Bobilya Ph. D.

Professor and Program Director, of Experiential and Outdoor Education

Western Carolina University

Description and Purpose of the Research: The purpose of this qualitative study is to understand the impact of the place-based experience of the middle school students at the Summit Charter School (SCS). You are invited to participate in a research study about the meanings that follow your SCS field trip for your SCS middle school on November 12, 2021, in Franklin, NC. The

data for this study will be collected through an online Reflection Assignment provided by your SCS teachers during your regular school hours and on the SCS campus. By doing this study we hope to learn more how shared place-based education increases understandings about people's relationships with local ecosystems and their environmental sustainability.

What you will be asked to do: 6th, 7th, and 8th grade students will have already attended the field trip with Summit Charter School faculty on November 12, 2021, in Franklin, NC. After the trip, all students will complete a Reflection Assignment. Those students' Reflection Assignments whose parents/guardians have provided consent and their student has provided assent will be included in the study.

Risks and Discomforts: We believe that your taking part in this Reflection Assignment presents no greater risk than normal use of the Internet.

Benefits: There is no immediate reward for you for joining this research study. The study may help you by improving your placed-based understandings through sharing experiences with traditional knowledge and relationships with the local environment.

Privacy/Confidentiality/Data Security:
Collected Confidential Data. The data collected in this research study will be kept as privately as possible. Joining in research may involve some loss of privacy. We will do our best to make sure that the information about you is not shared, but we cannot guarantee that completely. Your

personal information may be seen by people working in the research and may be seen by people including those sharing with, paying for, and working with the study. We will share only the smallest amount of necessary information in order to conduct the research. Your personal information may also be given out if required by law, such as asked through a court order. While the information and data resulting from this study may be presented at scientific meetings or published in a scientific journal, your name or other personal information will not be shared.

There are two circumstances where we would be required to not keep your privacy and share your information with local authorities. The first is if we become aware or have a reason to believe that a child, an elder, or a disabled individual is being abused or neglected. The second is if you make a serious threat to harm yourself or others.

We will collect your information through the online Reflection Assignment. This information will be stored in an encrypted cloud-based system.

Voluntary Participation: Participation is voluntary, and you have the right to stop being part of the study at any time without correction. If you choose not to join or you decide to stop, that will not have any effect on your grades/academic standing.

Contact Information: For questions about this study, please contact Rosemary Ann Kinch at (720) 982-7384 or rakinch1@catamount.wcu.edu. You may also contact Dr. Andrew J. Bobilya, the principal investigator and faculty advisor for this project, at ajbobilya@wcu.edu.

If you have questions or concerns about your treatment as a participant in this study, you may contact the Western Carolina University Institutional Review Board through the Office of Research Administration by calling (828) 227-7212 or emailing irb@wcu.edu. All reports or correspondence will be kept confidential to the extent possible.

By clicking "Assent to Participate" I give my assent, _____ (full STUDENT name printed), that I will participate in this study. I understand what is expected of me and that my participation is voluntary.

Please type your first and last name below.

1) How would you describe your field trip to the Nikwasi Mound and learning from the Eastern Band of Cherokee Indians to someone who was not there?

2) What did you like best about the field trip? Please explain why?

3) What would you like to learn more about as it relates to the field trip? Please check at least one option. Choose as many as you want. Please explain your choices. Selected Choice:

      a) Mr. Wildcatt's Stories

      b) Learning about the Eastern Band of Cherokee Indians

      c) Learning about the Nikwasi Mound

      d) The apple orchard

      e) The water quality

      f) The math lesson

      e) The science lesson

      g) Other

4) If a friend asked you about the Cherokee stories shared at the Nikwasi Mound, how would you explain them?

5) How do the Cherokee stories explain ways people can live with nature?

6) Why or why not are these Cherokee stories important to you?

7) How can you and your family act respectfully towards nature? Please give a specific example or explain if you do not know.

8) Is there anything else you would like to share about your experience during your field trip to the Nikwasi Mound, the Eastern Band of the Cherokee Indians, and the Cherokee stories?