DISCOVERIES FOR WELLBEING IN AND WITH THE PROJECT EXPLORE COMMUNITY

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ABSTRACT

DISCOVERIES FOR WELLBEING IN AND WITH THE PROJECT EXPLORE

COMMUNITY

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Project EXPLORE (PEX) is a nature-based learning (NBL) program designed by the NC Arboretum to help North Carolina K–12 teachers implement community or citizen science-based curricula in their classrooms. Teachers in the program receive materials and on-site coaching to facilitate the NBL curricula. PEX and similar programs are part of ongoing efforts to reconnect youth with the natural environment through formal curriculum initiatives (Chawla & Jordan, 2019; Williams & Dixon, 2013). Despite successes, many real and perceived barriers prevent the broader adoption of nature-based learning (NBL) in public education systems (Oberle et al., 2021; Waite, 2020). Teachers' lack of confidence has been identified as critical to mainstream implementation (Chawla & Jordan, 2019). Furthermore, classroom stress and teacher attrition are symptoms of a crisis in teacher wellbeing, factors that negatively impact students (Lever et al., 2017). Teacher stress and burnout may be mitigated by the same positive outcomes of NBL that students experience—like improved student-teacher relationships (Toropova et al., 2021), emotional regulation (Williams & Dixon, 2013), and enhanced motivation (Dettweiler et al., 2017). Finally, few studies take *teachers'* wellbeing or their perceptions of nature-based stress management into account. This study considers if we promoted outdoor education as much for *teachers'* wellbeing as for students', whether more teachers might incorporate these practices. The purpose of this study is to explore how participating in PEX impacts teachers' "wellbeing." I will specifically investigate how participating in Project EXPLORE impacts teacher wellbeing and what Project EXPLORE experiences teachers associate with their sense of wellbeing. Informed by critical feminist theory, we used an amended two-part collective memory work (CMW) design. The collaborative process of CMW centers individual experience and reality while locating these within societal and cultural contexts (Johnson, 2018). I invited all 200+ former PEX participants to share a short video narrative about a memory of the program's impact on their wellbeing. Three teachers responded with videos and chose to participate as co-researchers in the focus group. As with traditional CMW, co-researchers analyzed the video diary entries for meaning. Within CMW, both the narratives and the group analysis are considered "data" as meanings are made through deconstruction, reflection, and dialogue (Haug, 1999; Johnson, 2018). The group discussed ways PEX supported identity development, self-actualization, student-teacher relationships, and importantly, was a powerful tool for self-liberation within a neoliberal school context. The co-researchers elected for the results to be presented and do work in a short video format.
Keywords: nature-based learning, teacher stress, teacher wellbeing, Project EXPLORE

CHAPTER ONE: INTRODUCTION

"It was a really exciting opportunity…I always think this is always going to be the project that I try to recreate every year in some way, shape or form."

"It makes me look forward to teaching."

"It's my excuse to go outside."

The above quotes refer to Project EXPLORE (PEX), a nature-based learning program from the NC Arboretum designed to help NC teachers implement community science-based curricula (Project Explore, n.d.). K-12 teachers or afterschool program facilitators apply to the program and are matched with an outdoor learning coach, typically an informal educator at an organization that offers environmental education. The teacher coach models an initial lesson and serves as a resource for the teachers throughout the school year. Teachers receive a set of binoculars, hand lenses, and other supplies to facilitate the curriculum. They are also awarded a $100 mini-grant for additional class materials. In return, teachers commit to lead their class outside for at least fifteen minutes a week to gather data for their citizen science project. At a mid-year check-in, the coach observes the teacher conducting a data collection session and provides feedback and mentorship if the teacher desires. The year ends with a celebratory learning activity led by the coach, and the teacher can participate for another year. If a teacher completes two years in the program, they are awarded a certificate of completion and may keep all the supplies for their classroom (PEX, n.d.).

My recollections of the first time I facilitated a PEX program remind me of why I got into environmental education. The kids' excitement and genuine connection with "their" tree made me feel like I was making a positive difference in not only their lives but the world of

which they are a part. Watching a teacher get caught up in the students' enthusiasm and become more comfortable with the outdoor lesson format made up for years of low pay and job insecurity, at least now. Would the teacher's zeal be sustained over the coming months? Would the weekly fifteen-minute commitment to observe the tree contribute to her sense of professional purpose? These feelings correlate with the idea of "wellbeing," which is defined as "a state of positive feelings and meeting full potential in the world" (Simons and Baldwin, 2021, p. 990) or "perceived enjoyment and fulfillment with one's life as a whole" (Goodman et al., 2020, p. 834). The professional flip side—burnout—is marked by emotional fatigue, depersonalization, and feelings of inefficiency (Maslach et al., 2001). There has been much debate on defining what "wellbeing" means for educators and teachers (McCallum et al., 2017). My own sense of wellbeing is closely tied to my profession, my *calling*, and the sense that I am fulfilling my vocational directives in the world. Palmer (1998) asserts that I am not alone in this feeling and that an educator's sense of identity, motivation, and satisfaction is inextricably linked to their profession.

Effects of Time in Nature

PEX employs a key element that may explain some of its success: going outside. The past two decades have seen an upswell in the literature on nature's many benefits. These benefits run the gamut from improving physical health (Twohig-Bennett & Jones, 2018), preventing workplace attrition (Leather et al., 1998), improving children's cognitive development (Dadvand et al., 2015), reducing inner-city violence (Kuo & Sullivan, 2001), and supporting general wellbeing (Bowler et al., 2010). These effects are so well documented that contact with nature has moved beyond an accepted preventative health promotion intervention (Maller et al., 2006)

and found its way to prescription pads (Kondo et al., 2020). Bratman et al. (2012) go so far as to refer to nature's effect on humans as a "psychological ecosystem service" (p. 120).

This research comes at a critical time: more humans live in urban areas than ever (United Nations, 2019). People spend increasing amounts of time indoors, on screens, and otherwise disconnected from the natural world (Frumkin et al., 2017). Much discourse has centered around the effect of this disconnect on children's growth and development. These concerns were famously detailed in Richard Louv's landmark book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (2005). This publication launched a global conversation on "nature-deficit disorder" and highlighted the growing body of knowledge on the positive influence of connection to nature on children's health and wellbeing (Cheng & Monroe, 2010; Martin et al., 2020; Mayer & Frantz, 2004; Sandifer et al., 2015).

Efforts to reconnect young people with the natural environment have grown over the past fifteen years as a result of this discourse. School garden programs have grown by the thousands and boast such outcomes as encouraging healthy eating, increased student physical activity and academic performance, and prosocial behavior in "challenging" students (Williams & Dixon, 2013). Field trips, outdoor adventure programs, and school-based outdoor learning initiatives have been implemented in schools to promote not only students' physical, cognitive, and psychosocial wellbeing but increasingly to develop nature connectedness or sense of place (Capaldi et al., 2015; Waite, 2020). A recent review of 147 studies concluded that although program design and research methods varied in quality, population, and context, nature-based learning supports "holistic growth" (Mann et al., 2022, p. 10). The authors advocated for teacher training, school design, and educational policies that would support its implementation. Despite

successes on these fronts and "mountains" of research, many real and perceived barriers prevent broader adoption in public education systems (Waite, 2020).

Barriers to Nature-based Learning

Teachers list systemic issues like funding, administrative support, and curriculum constraints as principal barriers to taking classes outside. Still, even in the absence of those obstacles, teacher preferences and confidence may keep students inside (Oberle et al., 2021). The Nature Based Learning Network identified supporting teacher training and developing teacher confidence outdoors as critical steps to increasing nature-based learning initiatives (Jordan & Chawla, 2019). One of the most significant barriers to teachers implementing curricular changes (taking classes outside or otherwise) is time and energy. According to the 2022 American Federation of Teachers (AFT) report on school staffing shortages, teachers are twice as stressed as the general population, and 62% report their work is "overwhelming" (p. 41). Teacher burnout and fatigue negatively affect motivation, energy, compassion, and enjoyment (Lever et al., 2017). This not only impacts students but potentially teachers' willingness to take on new methodologies or projects like outdoor learning initiatives.

However, time outside with their students may be precisely what teachers need. Teacher job satisfaction has been linked to student discipline, opportunities for teacher collaboration, enthusiasm, perceived autonomy, and positive teacher–student relationships, among other factors (AFT, 2022; Spilt et al., 2011; Toropova et al., 2021). Many of these—and other factors contributing to teacher wellbeing and job satisfaction—are outcomes of nature-based learning. For instance, although PEX provides coaching and community science-based curricula to teachers, it was not designed to address teacher wellbeing specifically (PEX, n.d.). However, teachers have reported that PEX does facilitate peer community building, professional

development, and positive student outcomes (Benavides, 2016). By employing outdoor teaching methods, instructors could benefit from the restorative qualities of natural environments and the student-specific effects of nature-based learning.

If outdoor education were promoted as much for teachers' wellbeing as it is for students', more teachers may be willing to incorporate these practices. However, few studies take teacher wellbeing or their perceptions of restorativeness into account. I hope to address this gap in the literature as an improved understanding of these possible effects could support curriculum design that intentionally accounts for teacher, as well as student, outcomes. Therefore, the purpose of this study is to explore how participating in PEX impacts teachers' "wellbeing." Informed by a feminist epistemology, I will engage collective memory work to address the following research questions:

- How does participation in Project EXPLORE impact teacher wellbeing?
- What Project EXPLORE experiences do teachers associate with their sense of wellbeing?

In this thesis, I begin with an overview of NBL and its outcomes, factors and impacts of teacher wellbeing, how NBL may mitigate teacher stress. Then, I will address how a critically informed feminist epistemology provides a framework for investigating NBL and teacher wellbeing. This background informs the next section, Methodology, where I detail the study's procedures and locate them within the existing body of collective memory work. In the final chapter, I present a manuscript for publication including the study's results and conclusions.

CHAPTER TWO: LITERATURE REVIEW

This literature review will begin by describing outcomes of outdoor education and nature-based learning (NBL) learning methodologies. In addition to exposing educators to the same

restorative environments that act on students, these teaching methods produce outcomes that mitigate teacher burnout. In the final section, I will argue that while the outcomes of this study may not be directly related to gender equity, the very nature of the project and methodology call for a critically- informed feminist epistemology.

Nature-based Learning (NBL)

There are many terms for outdoor learning in various contexts. For clarity, this paper will adopt nature-based learning (NBL) as defined by the NBL Research Network (Jordan & Chawla, 2019):

- Centers encounters and direct engagement with nature
- Set among natural elements, either introduced or organically occurring
- May be any subject, content, or skill set taught in a natural setting

NBL seeks to connect students with the natural world to support their wellbeing, development, and pro-environmental attitudes and behaviors (Mann et al., 2022). This focus on wellbeing, connection, and a foundational "ethic of care" (Blenkinsop & McKenzie, 2006; Russell & Bell, 1996) is aligned with a feminist epistemology valuing care, compassion, and relationships (Kheel, 1985; Noddings, 2013; Schindel & Tobert, 2017). Further, NBL physically removes students and teachers from the typical neoliberal classroom experience that feminist scholars have conceptualized as patriarchal (Blumenfeld-Jones, 1996; Dickson & Gray, 2022; Gallagher, 2000; Noddings, 2013). Taken all together, NBL can be seen as a feminist project that positions students and teachers to learn in and from the natural world in the hopes of promoting the wellbeing of the human and more-than-human participants.

Two principal frameworks provide explanations for nature's positive effects on humans' wellbeing and mental state. The Stress Reduction Theory (SRT) argues a psycho-evolutionary mechanism positing that nonthreatening natural environments, such as the open savannah-like landscapes where humans evolved, act positively on the parasympathetic nervous system to reduce stress (Ulrich et al., 1991). The Attention Restoration Theory (ART) proposes that stress reduction and other positive psychological outcomes are side effects of the cognitive fatigue relief natural settings confer (Kaplan & Kaplan, 1989). Kaplan (1995) updated the ART by proposing an integrated framework that accounts for stress reduction and attention restoration and emphasized the importance of natural spaces to psychological health. More recent research asserts that nature-relatedness, connection to and engagement with nature, is a basic psychological need and is necessary for fully realized wellbeing (Baxter, 2019). Among other outcomes, NBL explicitly seeks to bridge the gap in students' wellbeing as they are increasingly disconnected from the natural world (Mann et al., 2022).

Outcomes of NBL

NBL, especially programs with a more relaxed structure, facilitates student connections with the natural world, each other, and their teachers (Berg et al., 2021). Other frequently cited student outcomes of NBL include improved impulse control and prosocial behaviors. Self-regulation and impulse control help mitigate behaviors found to be disruptive in the classroom. Some of the most significant gains are found in children who struggle in these areas, like those with ADHD (Faber Taylor & Kuo, 2011), students of low socioeconomic status (Bølling et al., 2019), and "at-risk" youth (Ruiz-Gallardo et al., 2013). A German study found that students associate outdoor settings with autonomy and fun, which translated into higher degrees of motivation and self-regulation (Dettweiler et al., 2017). The same study showed, though, to a

less significant degree, that student–teacher relationships were perceived as more developed in the outdoor setting.

In Sweden, Fägerstam (2014) found that after a year of implementing new outdoor teaching methods, teachers cited increased collaboration among students, participation, motivation, enjoyment, and task-specific communication. The teachers themselves found greater value in shared experience and co-learning and experienced increases in motivation, job satisfaction, enjoyment, and quality of teacher–student relationships. Consistent with other literature, a Welsh study (Marchant et al., 2019) reported increased student concentration and engagement, improved sense of wellbeing and health, and increased teacher motivation and job satisfaction, as well as decreased student behavioral issues.

Volk and Cheak's (2003) five-year study of a cross-curricular environmental education program implemented in a Hawaiian community demonstrated that outcomes of such integrated approaches extend beyond academic achievement and even the classroom. Teachers reported that students had improved communication skills, confidence, and a clearer self-concept of their societal role. Teachers said the program had a positive impact on their occupational wellbeing through relationship development, improved feelings of efficacy, and a strengthing of their confidence in a role such as "guide" or "facilitator" rather than "instructor" (Volk & Cheak, 2003).

Barriers to Implementing NBL

Despite widely documented positive outcomes, NBL initiatives remain on the periphery of mainstream public education (James & Williams, 2017; Oberle et al., 2021). When surveyed, educators frequently cite systemic and administrative barriers to implementing NBL initiatives, such as supervisor support, transportation, funding, curriculum pressure, logistics, and lack of

suitable space (Jordan & Chawla, 2019; Oberle et al., 2021; Waite, 2020). Beyond systemic barriers, many classroom teachers are intimidated by taking students outside or feel they lack sufficient training (Feille, 2017; van Dijk-Wesselius et al., 2020; Waite, 2020).

Scott et al. (2013) found that Australian teachers faced with taking a lesson outdoors were concerned about adverse effects on student behavior and class management in addition to losing their "expert status" and authority. However, follow-up interviews after the lesson found these concerns unfounded: teachers reported increased student engagement, motivation, and self-regulation consistent with other literature. They also found that transferring their role from "expert instructor" to co-learner improved relationships and satisfaction.

Beyond pedagogical outcomes, some teachers may pursue NBL, thinking it may elevate their professional standing (Barfod, 2018). Instead of positive recognition for their efforts, teachers in Bardord's (2018) study reported NBL to be at odds with the curriculum demands of their schools' administration. They felt isolated from more normative colleagues and parents. Ultimately, however, these challenges were outweighed by the positive impacts of outdoor teaching on their students and satisfaction with their professional practice (Barfod, 2018).

Understanding and mitigating barriers to implementing NBL, especially teacher preparedness and confidence, have been identified as "priority" and "game-changing" research questions by the NBLR Network (Jordan & Chawla, 2019). By asking, "How does participation in Project EXPLORE impact teacher wellbeing?" this study hopes to learn more about the interactions of barriers and payoffs related to NBL and teacher wellbeing. To understand the unique position of teacher wellbeing as a potential barrier and/or positive outcome of NBL, we need to examine the current state of educators' mental health.

Teacher Wellbeing

Centering wellbeing and self-care in a discipline dominated by women is a resistance project in a neoliberal, patriarchal system (Bergland, 2018). Teachers experience some of the highest levels of work-related stress among professionals and have subsequently high rates of burnout and attrition (Lever et al., 2017). Teacher enthusiasm, or lack thereof, is linked to student–teacher relationships and student outcomes, including academic performance and motivation (Lever et al., 2017; Toropova et al., 2021). Supporting teacher wellbeing, which Simons and Baldwin (2021) define as "a state of positive feelings and meeting full potential in the world," not only improves rates of teacher attrition and burnout but also improves students' outcomes.

Burnout and Attrition

Teacher job satisfaction has been linked to student discipline, opportunities for teacher collaboration, enthusiasm, perceived autonomy, and positive teacher-student relationships (AFT, 2022; Spilt et al., 2011; Toropova et al., 2021). Unfortunately for everyone involved in the US public school system, teacher job satisfaction, mental health, and teachers themselves are suffering. The *2021 State of US Teachers Survey* (Steiner & Woo, 2021) found that 1 in 4, and nearly half of teachers of color, were considering leaving the profession at the end of the school year. The 1,006 teachers surveyed reported pandemic-related instructional changes and health concerns as the primary stressors contributing to work-related stress, poor working conditions, burnout, and depression they experienced at higher rates than the general population. Teachers experienced significant work-related stress at nearly double the rate of the general population (Steiner & Woo, 2021). The *2022 State of Teachers and Principals* survey (Steiner et al., 2022) found that high rates of stress and burnout among educators remained consistent despite an

easing-off of pandemic-related instructional changes and highlighted exceptionally high levels of depression in teachers of color.

A ubiquitous word in studies on educators, burnout is marked by emotional fatigue, depersonalization, and feelings of inefficiency (Maslach et al., 2001). The effects of teacher stress and burnout are not limited to their wellbeing but also negatively impact student learning (Lever et al., 2017; Oberle & Schonert-Reichl, 2016; Toropova et al., 2021). Oberle and Schonert-Reichl (2016) described stress as "contagious" in their critical study of the effect of teacher stress on student cortisol levels. The study demonstrated that teacher stress accounts for nearly 50% of variability in students' cortisol levels across different classrooms. This stress transfer contributes to a negative feedback loop of student behavior and performance that, in turn, contributes to teacher stress and burnout (Lever et al., 2017). Chang's 2009 teacher stress study adds that it is not only teacher stressors and stress but educators' ability to manage and self-regulate stress that contributes to burnout and subsequent adverse student outcomes.

Harmsen et al. (2018) link beginning teachers' stress to their staggering attrition rate in the US: 25%–50% within the first five years. They acknowledge the critical role student–teacher relationships play in teacher stress/satisfaction and recommend that programs to support these relationships could directly improve teacher stress loads and attrition. Teacher attrition and burnout have been described as an international problem that extends beyond the United States – critical issues for both teacher wellbeing and student outcomes (Toropova et al., 2021).

Student-Teacher Relationships

Spilt et al. (2011) suggest that "teachers' emotional involvement with students in the classroom is driven by a basic psychological need for relatedness or communion" (p. 470) and

that such a need may have set educators on their career path. Cui's (2022) review of student–teacher relationships found that teachers' emotional fatigue or burnout can negatively impact student–teacher relationships. Positive student–teacher relationships engender feelings of connection, effectiveness, and motivation that support teacher wellbeing and enthusiasm, which promotes positive student outcomes and engagement (Cui, 2022). Developing positive student-teacher relationships is a foundation of feminist epistemology and is necessary for both teachers and students to be self-actualized in the classroom space (hooks, 1994). The inverse association between burnout and student–teacher relationship has the potential as a tool in service of teachers' wellbeing. Identifying other contributors to wellbeing, like NBL initiatives such as Project EXPLORE, is essential to addressing the crisis of teacher mental health.

Other Mitigating Factors

A review of mental health support programs for teachers found that a supportive school environment and dedicated wellbeing interventions can mitigate the added stressors educators face (Lever et al., 2017). Turner & Thielking (2019) found that teachers instructed in positive psychology strategies (self-care and mindfulness methods like positive self-talk) reported that the methods improved their wellbeing, improving student wellbeing and outcomes. Additionally, they noted more positive teacher–student relationships, recognition of student needs, transfer of teacher role to "facilitator," less stress, and feeling calmer and more engaged in the lessons they presented. Students were more relaxed, more engaged, more independent, and more productive than before their teachers began the positive psychology strategies (Turner & Thielking, 2019).

These interpersonal relationships are vital to mitigating stress, and Gearhart et al. (2022) found peer–to–peer relationships to be particularly impactful. The teacher focus groups they facilitated concluded that multilevel, system-wide approaches that support teacher autonomy,

prioritize wellbeing, and encourage socialization will be the most effective at cultivating a more positive school environment. Not all interventions need to be so broad in scale. Though deceptively simple, enjoying giving a lesson goes a long way toward mitigating stressors that lead to emotional exhaustion (Keller et al., 2014). Finding ways to enjoy their professional time with students, colleagues, lesson content, and themselves may be a way for teachers to mitigate burnout and take control of their wellbeing. These acts of self-care are grounded in feminist notions of care and relationality that run counter to the increasingly neoliberal environment at every level of the education system (Bergland, 2018; Henderson & Hursch, 2014; Lloro-Bidart & Semenko 2017).

NBL as a Stress Intervention

Two principal problems arise from the literature reviewed here. The first is that, despite evidence for NBL's positive outcomes, teacher confidence remains a barrier to more widespread implementation. Second, teachers are facing extremely high levels of stress and burnout, which in turn affect student outcomes. Can NBL address these issues?

There is strong potential for NBL to contribute to teacher stress reduction and combat widespread burnout (Berg et al., 2021; Fägerstam, 2014; Marchant et al., 2019), but significant barriers have prevented wide-spread adoption (Jordan & Chawla, 2019; Oberle et al., 2021; Waite, 2020). To further explain the slow rate of NBL adoption, Dring et al. (2020) examined the use of NBL using Rogers' Diffusion of Innovation theory (Rogers, 2003). They identified "feasibility" and "compatibility" as the primary factors educators consider when implementing a new program, how easy it is to execute, and whether it resonates with them (Dring et al., 2020). These factors can and should guide schools and program developers interested in supporting NBL implementation.

Besides addressing the administrative barriers, schools could improve NBL feasibility by supporting NBL mentorship and curriculum-based programs. Sondergeld et al. (2014) found that when classroom teachers were supported in NBL through an integrated curriculum-based program, they were more confident, knowledgeable, and likely to continue using NBL strategies. Benavides (2016) examined the NBL program central to this study, Project EXPLORE (PEX), as a tool for science education professional development. Teachers reported peer community building, professional development, and positive student outcomes as benefits of PEX. The author notes that this and other citizen science programs may help overcome the poor science instruction training teachers receive and improve teacher confidence in these areas (Benavides, 2016). In addition to professional development, other factors contributing to successful NBL implementation are opportunities for peer mentorship and collaboration, school leadership support, and passion for the content (Rieckenberg, 2014).

Notably, these factors echo the outcomes of NBL described in the section above and similarly map against the feminist practices of collaborative relationship building and self/community care (Doetsch-Kidder & Harris, 2023). Indeed, relationships and community are central to NBL. Developing NBL's compatibility with teachers, or their passion for it, cannot come from an environmental education handout. This personal relevance could begin with feelings of rejuvenation after teaching outside – connection to the more-than-human community. Time spent in nature can be particularly restorative to those with higher levels of emotional exhaustion (Hartig & Staats, 2006). The data from the 2021 and 2022 State of Teachers surveys certainly indicates that teachers fall into that category. Norwegian researchers surveyed more than 1,400 adults and found that participants who sought out natural areas for their restorativeness were more likely to engage in environmentally friendly behavior (van den Berg et

al., 2007). Evidence shows that consciously engaging with nature for stress reduction can increase feelings of restoration (Pasanen et al., 2018). If stressed-out teachers can find relief in natural settings and intentionally incorporate these settings into lessons, will they be more likely to sustain the "environmentally friendly" behavior of NBL? Of course, taking responsibility for 20 children on a walk in the woods is different than a solo experience, but we cannot know to what degree unless we ask. Benavides' (2016) PEX study provided a detailed account of pedagogical development but did not directly examine whether the program contributed to stress relief or restorativeness. This study seeks to address that gap in the service of teacher wellbeing.

Critical Feminist Theory and Education

When considering wellbeing, especially that of educators, a feminist epistemology offers a clarifying framework to understand the interplay between educators, self/other care, the school system, and the more-than-human world. In the above sections, I've argued that NBL is a feminist project in that it provides an alternative to an indoor, patriarchal classroom and promotes the feminist values of connection, relationships, wellbeing, self-care, and care for the more-than-self. Within traditional education, K-12 teachers are predominantly women, with more than 75% identifying as women in the U.S. (AFT, 2022) and 70% worldwide (OECD, 2021). Significantly, despite statistical superiority, women and non-binary teachers are subject to scrutiny and judgment under the performance reviews of gendered hierarchical administrations (Connell, 2009; Moreau et al., 2008). Educators are frequently required to set themselves aside to focus on students (Bullough & Hall-Kenyon, 2011; Gustafson, 1982; Serow, 1994) in ways that mirror historic gendered oppression (Drudy, 2008; Simmie, 2023).

Importantly, the results of this study are not a feminist assessment of gender equity within the NBL space. However, the project is deeply guided by a feminist epistemology from

NBL to the profession to the collective memory work methodology. This epistemology is specifically informed by critical feminist theory which exposes, interrogates, challenges, and works to transform gendered and heteronormative structures of hegemonic oppression (Marshall et al., 2022; Parry et al., 2019). This systemic perspective goes beyond individual experiences to analyze how larger structural forces shape personal and professional lives. Some feminists may find the term "critical feminist theory" redundant, arguing that all feminist theory is critical (in that feminist theory emerged from critical theory). The word "critical" here serves two purposes: 1) to center the action-oriented, "productive" relationship between theory and practice (Ferguson, 2017; and 2) to locate the genre of feminist theory within the current political conversation, for instance, differentiating it from "poststructural feminism." In teacher wellbeing, this lens reveals how power imbalances within education systems can affect job satisfaction, career advancement, and mental health (Nwoko et al., 2023; Moreau et al., 2008; Simmie, 2023). By exploring these dynamics, critical feminist analysis prompts a reevaluation of institutional practices and policies to foster greater equity.

Feminism in Modern History

The roots of feminism can be traced back to the 18th century when women began advocating for their rights and equal treatment (hooks, 2018). The suffragette movement of the late 19th and early 20th centuries marked the first wave of feminism, primarily focused on securing women's right to vote. The second wave, which emerged in the 1960s, aimed to dismantle deeply ingrained gender roles and address issues like reproductive rights and workplace inequalities. The third wave, from the 1990s onwards, was led primarily by women of color and expanded the focus to include intersectionality and diverse experiences of women (Blumenfeld et al., 2018).

The most recent feminist discourse, the “fourth wave,” mobilizes previous work on identity and oppressive systemic structures in an increasingly connected digital landscape (Maclaran, 2015). Crenshaw’s (1991) concept of intersectionality, the notion that various identifiers, such as race, gender, and class, intersect to shape experiences, has taken on expanded applications and meanings in this fourth wave. Intersectionality is a crucial component of the critical feminist lens (Bilge & Collins, 2018) and, as I will detail below, this study.

Educator Identity and Intersectionality

Current feminist theory acknowledges the complexities of intersectionality and its impact on individuals' experiences. Teachers, like everyone, have diverse identities related to gender, race, class, and more. However, educators' identities often intersect with their professional roles, further strengthening their perception of teaching as central to their identity (Simmie, 2023; Williams et al., 2012). This perception is influenced by various factors, including personal fulfillment, societal expectations, and the significant impact teachers have on the lives of their students.

Teaching is “an occupation saturated with feeling” (Nias, 1999). Teachers build close relationships with their students, shaping their educational journeys and often providing emotional support. Educators of all genders navigate gendered expectations in their roles, which can affect how they view and experience their occupations and responsibilities (Nias, 1999; Simmie, 2023). Teachers engage in emotional labor daily, investing time and energy into developing relationships with their students and fostering a positive learning environment (Burić et al., 2021; Vogt, 2002). This emotional labor can lead to a deeper emotional investment in their profession, as educators experience a sense of responsibility and connection to their students' well-being (Burić et al., 2021).

These pedagogical relationships contribute to teachers' strong sense of identity. Teachers often derive a sense of accomplishment and purpose from seeing their students succeed academically and personally (Platsidou, 2010). The challenges teachers face—inadequate resources, demanding workloads, and societal pressures—can intensify the connection between their profession and identity (Cain et al., 2023). Critical feminist theory delves into the unequal distribution of emotional labor and challenges traditional notions of caregiving (Parry et al., 2019). Therefore, applying this lens to teacher wellbeing can illuminate how gendered roles, emotional labor, and professional fulfillment intersect and impact educators.

Equity, Empowerment, and Educators

The emancipatory nature of critical feminist theory aligns it with participatory action research in the "liberatory potential" of the knowledge it seeks (Marshall et al., 2022, p. 268). Per Marshall et al. (2022), critical feminist research is valuable when it "reveals oppressive practices and their effects" (p. 262). More than analysis, critical feminist theory is also about transformative action and "create[s] spaces to begin and renew vital conversations" (de Saxe, 2012, p. 199). The conversation around teacher wellbeing is often tied to feelings of empowerment, professional fulfillment, and purpose (Nwoko et al., 2023). Critical feminist theory underscores the struggles and potential barriers to wellbeing that educators, especially women and gender-nonconforming educators, encounter within patriarchal structures.

Considering the global predominance of women and gender-nonconforming people within primary and secondary education (OECD, 2021), and the "feminized" understanding of the occupation (Moreau et al., 2008), neither gender nor gendered oppression can be disentangled from teacher wellbeing. Critical feminist theory empowers educators to assess and challenge these gendered structures, fostering a deeper connection between their identities and

their roles as advocates for change (Chaudhry, 2000). A feminist epistemology confers unique tools to frame and analyze this study: uncovering power structures around wellbeing, prioritizing relationships, and recognizing self-care as a political act (Doetsch-Kidder & Harris, 2023; Lloro-Bidart & Semenko 2017).

To conclude, teachers often perceive their occupation as a crucial part of their identity due to vocational identity, emotional labor, and professional fulfillment. Applying critical feminist theory provides a framework that uncovers underlying power dynamics, questions societal norms, and promotes transformative change. Its focus on intersectionality, gendered expectations, and equity provides a robust philosophical foundation for exploring the intricate interplay between educators' experiences and the broader educational landscape.

Takeaways

There is a wealth of supporting literature demonstrating NBL's positive socio-emotional and psychological benefits for students, including increased motivation, increased self-regulation, and improved student–teacher relationships (Capaldi et al., 2015; Waite, 2020). Despite this, systemic barriers and lack of teacher confidence in the methodology prevent more widespread adoption of NBL (Oberle et al., 2021; Waite, 2020). Positive student–teacher relationships and peer–to–peer mentoring are key factors in mitigating teacher stress and burnout (Cui, 2022; Gearhart, 2022), which they experience at significantly higher rates than other professions (AFT, 2022; Steiner et al., 2022). When teachers are supported in NBL through mentorship programs, their efforts are more successful and enjoyable (Benavides, 2016; Sondergeld, 2014; Rieckenberg, 2014). Time spent in nature can reduce stress (Pasanen et al., 2018) and promote pro-environmental behavior (van den Berg et al., 2007). However, few studies take teacher wellbeing or their perceptions of restorativeness into account. Addressing

that gap and centering teacher wellbeing is a feminist and political act (Doetsch-Kidder & Harris, 2023; Lloro-Bidart & Semenko, 2017) against a patriarchal education system (Drudy, 2008, Nwoko et al., 2023). Therefore, the purpose of this study is to investigate the effect of regular outdoor instructional time through NBL on teacher wellbeing.

CHAPTER THREE: METHODOLOGY AND METHODS

This section begins with an introduction to Collective Memory Work, its philosophical underpinnings, and its appropriateness for the topic and population of the study. Then, I will describe the specific methods and methodological modifications for this study.

Collective Memory Work Research

The purpose of this study is to explore how participating in PEX impacts teachers' wellbeing. Given the highly personal and subjective nature of wellbeing and the complex ways

that teaching interacts with individuals, society, and culture, this study demands a methodology that allows for multiple truths and layered contexts. Developed by Frigga Haug in 1987, Collective Memory Work (CMW) is situated with Participatory Action Research (PAR) and is considered within critical feminist theoretical frameworks (Johnson, 2018). It is based on a recursive narrative development process and contextualization/de(re) construction around a shared experience (Haug, 1999). "Recursive" in that researchers are called to continuously reflect upon and revisit the central phenomenon and theoretical framework to ensure the study yields results that are meaningful to the community of study (Johnson, 2018). The results are subjective learnings with actionable praxis potential (Hamm, 2021). This process centers on individual experience and perceived reality while locating them within societal and cultural contexts (Johnson, 2018).

Collective Research

There is a growing body of literature on the use of CMW in education, which has shown its potential to uncover assumptions and challenge dominant discourses in teacher education (Beals et al., 2013; Bowler et al., 2021; Clark, 2020; Clift & Clift, 2017). The collective nature of this methodology naturally and intentionally unseats historic, dominant powers in the communities of study as well as power within the Academy and research itself (Haug, 1999; Johnson, 2018). To signify the importance of collective, the "lead" researcher develops memory prompts with "co-researchers" rather than "participants." These prompts are used to craft narratives that are analyzed through group discourse. The learnings from that discussion may be synthesized into a collective work product (e.g., collective narrative, collective biography, collective letter writing). As the content/data and analysis come from within the community of

study, there is built-in trustworthiness/credibility in the recursive, community-driven process of CMW (Johnson, 2018).

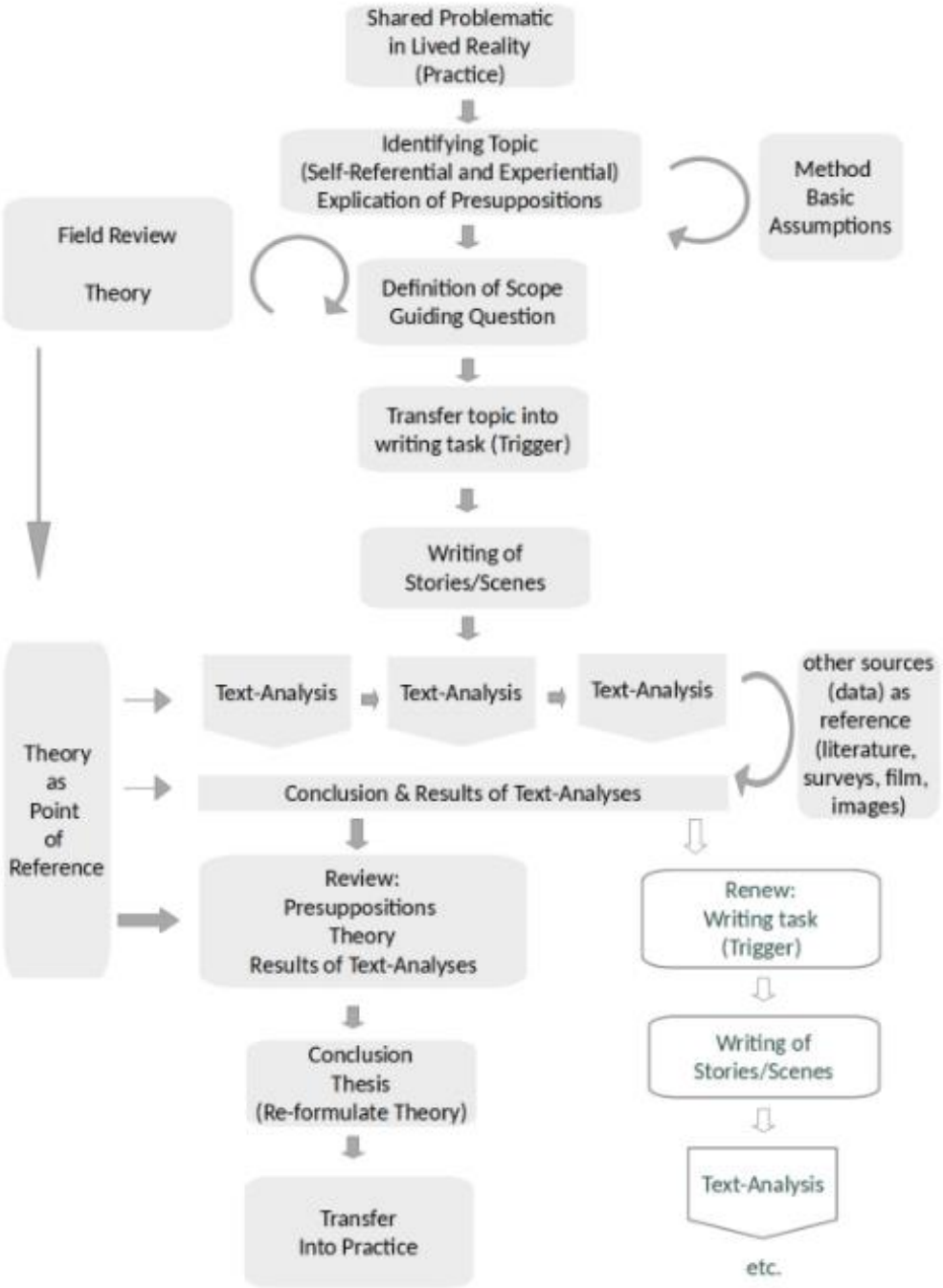
This structure runs counter to traditional study designs that center the researcher as the generator of knowledge through analysis of data collected on some phenomena or population (Cresswell & Cresswell, 2018). The relationship between the researcher and study participants in qualitative research has ranged from hierarchical to outright extractive (Marshall et al., 2022). In leveling the role of knowledge production to encompass the community of study, CMW and other PAR models do work on multiple fronts in a uniquely feminist way—through the creation of knowledge, community, support systems, and relationships that contribute to the critical work at the heart of the investigation (Johnson, 2018; Parry & Johnson, 2016). As previously discussed, although teachers are not marginalized in a conventional sense, the extent to which they are called to set aside their physical, psychological, and even fiscal wellbeing represents an injustice for critical consideration and correction (Bullough & Hall-Kenyon, 2011; Gustafson, 1982; Serow, 1994). At every step in the methodology, CMW provides opportunities to consider and center the wellbeing of the teacher community of study in a feminist act of resistance to hegemonic structures in the Academy and K 12 education.

Memory Work Origins and Development

The process developed initially by Haug (1999) calls for the research group to collectively determine the research objectives and then create a prompt for the memory narratives. The narratives are written using pseudonyms and then discussed and analyzed for meanings. The analysis can then be deconstructed, and the narratives are rewritten to encompass the meanings gleaned from recursive work (the circular arrows), as shown in Figure 1 (Hamm, 2021).

Figure 1

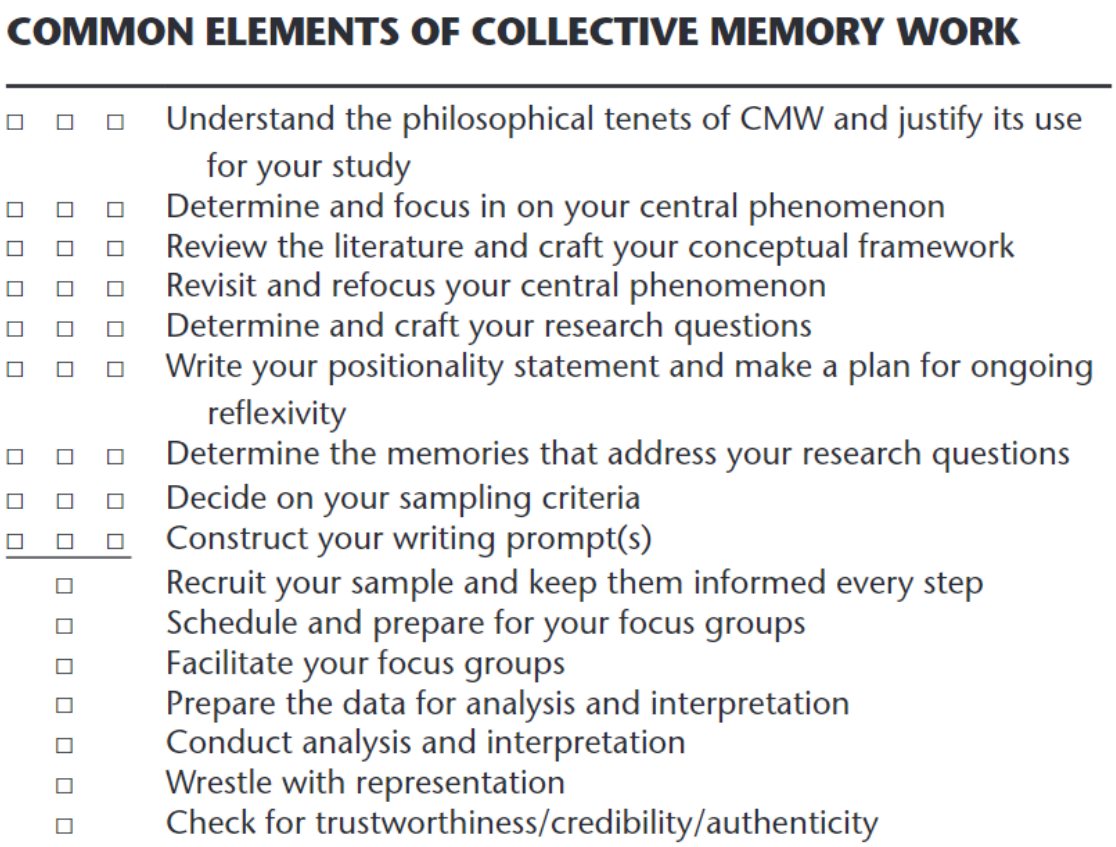
Recursive Process of Collective Memory Work from Hamm (2021)



This method has been adapted, and in some cases streamlined, to better serve the study community or subject. Johnson (2018) proposes a "focus group" framework wherein the narratives are analyzed in a single session, and the responsibility of recursiveness falls to the lead researcher in the process of developing the narrative prompt and questions to guide the group analysis (see Figure 2). Here, points for recursive reflection are indicated by multiple check boxes, an invitation to continually revisit these steps and refine.

Figure 2

Johnson's (2018) Amended CMW Process



It is worth noting that this application has been critiqued as a diluted version of Haug's original vision of a fully participatory and recursive research model (Hamm, 2021). However,

because Johnson's (2018) variation places slightly more power to construct the research question and final "product" in the hands of the lead researcher, it is more accessible to researchers and populations more constrained by time and logistics. In this, he establishes a "spectrum" of methodological purity (Johnson, 2018, p. 13).

Graduate students and teachers are both constrained by time, logistics, and resources. So, it is this amended iteration of CMW that we employed in the study which seeks to center the personal experiences of the teachers in the PEX program while also locating these experiences within the state-wide collective of PEX participants in addition to the societal context of the teacher wellbeing crisis. I will use Johnson's (2018) Common Elements of CMW (Figure 2) as a guiding framework to unpack my methods. I have established the first five elements above and in the preceding sections of this document and will detail the remaining elements in the following section.

Methods

In this study, we implemented a 2-part CMW design using video narratives and a focus group to empower public school teachers to identify impacts on their wellbeing, develop and participate in solutions, and drive positive change for themselves and their students. Using Johnson's (2018) Common Elements of CMW, I will outline each of the methods we used along with the data analysis process and a description of the artifact the data produced. As the data generation process is relatively complex and scaffolded, I provide the research steps in Table 1 as an overview.

Table 1

Chronological Progression of Research Methods

Step	Method/Analysis	Who
1	Video Narratives—All former PEX teachers were invited to create a 2-3 minute video narrative about a memory of PEX's impact on their well-being	Participants self-selected from a pool of 130+ former PEX teachers.
2	Focus Group Participant Selection—All participants who submitted videos were invited to become co-researchers and join the virtual focus group.	3 co-researchers self-selected from those who submitted video narratives
3	Pre-focus Group Work—All researchers watched the individual video submissions and wrote one or two questions to guide the conversation and video analysis in the focus group.	Lead researcher and co-researchers
4	Virtual Focus Group—All researchers participated in a group discussion of the videos and analyzed them for meanings. The discussion around the videos is both data analysis and generation. Researchers summarized their findings and elected a mode for data representation: a video.	Lead researcher and co-researchers
5	Review of Focus Group Analysis—the lead researcher reviewed the recording of the focus group for additional layers of context and meaning to incorporate into the group's final findings.	Lead researcher

6	Presentation—The lead researcher completed the video and manuscript summaries of the research, communicating with the other co-researchers for approval and edits.	Lead researcher and co-researchers

Reflexivity

Within CMW, recursive consideration of subjectivity and positionality are paramount for the lead research to maintain an appropriate relationship with the study and co-researchers (Johnson, 2018). Among my primary goals as the lead researcher was to hold my identities under scrutiny for how they may interact with and impact the research. For instance, as a current PEX teacher coach, I needed to be aware of whether that role conferred a perception of power or authority over the teacher co-researchers. How might my other identities (female, white, cisgender, etc.) align with or distinguish me from other group members? Despite fifteen years as an educator, I have never been a traditional classroom teacher. Would this be a source of mistrust or discredit with the teachers?

Pillow (2003) describes four strategies to guide reflexive consideration: "reflexivity as recognition of self; reflexivity as recognition of other; reflexivity as truth; reflexivity as transcendence" (p. 181). That is, beyond signaling our identifiers and acknowledging the limits of our ability to represent (or even understand) another's truth, she argues that reflexivity is a holistic embracing of "messy" engagement and discomfort (Pillow, 2003, p. 193). To that end, it was not enough to consider how I am similar or dissimilar to my co-researchers. I must be aware that, although the memories shared in this study were told with the co-researchers' voices, the whole process and setting of those tellings was my construction. My initial questions going into

the study included: Would the stories have been told if I did not ask? Does the fabricated platform for telling the stories impact their authenticity?

My approach to reflexivity in this undertaking was transparency. I communicated my position within the study, within the community of study, and with the data. My candid telling of the process is another layer of context I tried to account for in the analysis. I kept a video diary throughout the study to capture emerging concerns and reflect on the proceedings. I elected to keep a video rather than a written diary to echo the request I made of my co-researchers. I did not share these recordings as part of the focus group, they were a tool for personal reflection, but did share some of my insights that came out of the practice.

Co-researcher Selection and Recruitment

The NC Arboretum agreed to email all former participants of PEX to seek participation in the study. This pool consists of 200+ K 12 teacher participants across North Carolina from the program's inception in 2013. The email included the video diary prompt, a link to an Institutional Review Board (IRB) consent form, and an invitation to participate further by joining the focus group as a co-researcher.

- fter three emails over two months, three teachers responded with videos and elected to be co-researchers in the focus group: Yetta Williams, Amy Harrington, and Evelyn Warner. Click the photos below (Figure 1) to meet them through their video submissions.

Figure 3

Co-researchers

Yetta Williams • 24+ years in education • Pilot teacher for PEX • Advanced Academic Resource Teacher • Started in environmental education	
Amy Harrington • 22 years in education • 6th-year PEX alum • Teaches 8th grade science • Former environmental educator	
Evelyn Warner • 7 years in the classroom • 2nd year in PEX • Teaches 7th & 8th-grade science • Former environmental educator	

Narrative Prompt: Video Diaries

Informed by Johnson's (2018) "spectrum of PAR," I modified the standard approach to CMW. Instead of the typical memory narratives written under a pseudonym, I requested short video recordings no more than 2–3 minutes long. These video diaries answered the prompt, "Share a memory that illustrates the impact participating in Project EXPLORE has had on your wellbeing."

I chose to solicit video memory narratives rather than the typical written narratives for two reasons. First, I hoped submitting short video recordings would be less burdensome to working teachers than a 2-page writing assignment. Similarly, watching short videos may be less demanding than reviewing a series of written works. Secondly, I hoped the resulting video footage, edited into a compilation, would serve as a compelling testament to teachers' experiences implementing nature-based learning/teaching strategies and useful insight for prospective PEX participants. This necessarily forced us to abandon the anonymity of the narratives. However, the accessibility of video creation, especially for such an overburdened population, was a vital trade-off that supports the liberatory, participatory nature of CMW methodology and the feminist ethic of care.

CMW Focus Group

Per Johnson's (2018) framework, the research group, the three co-researchers and me, analyzed and theorized over a virtual two- and half-hour session. This is the principal data analysis of the study.

Data generation and analysis. Per Johnson's (2018) framework, the research group, the three co-researchers and me, analyzed and theorized over a virtual two- and half-hour session. This is the principal data analysis of the study. As with traditional CMW, co-researchers analyzed the video diary entries for meaning. Prior to the session, all group members watched the individual video submissions and formulated 1-2 questions or prompts to guide the groups' discussion and analysis. I prepared the following literature-informed questions:

- Did you notice common language/words linked to wellbeing across videos?
- How did PEX participants describe their relationship with their students in the videos?
- What physical experiences/sensations do participants describe in the videos?

- What role does the idea of self-direction or autonomy play in these narratives?
- Do participants describe a change or reconnection in/with an identity?
- Consider the video as you would a piece of media - what does the setting, clothing, movement, tone, etc. say?

In another effort to minimize the time commitment of teacher co-researchers, the focus group was held on a digital platform rather than physically in person. Guided by the prompts developed before the virtual session, the focus group discourse was both analysis and data generation. The video narratives and the way the co-researchers interpreted them are all data. Meanings were made through deconstruction, reflection, and dialogue (Johnson, 2018).

Reporting Findings/Data Representation. Beyond knowledge creation, the goals of PAR are the pursuit of knowledge that actively empowers the community of study to transform the status quo (Parry & Johnson, 2016). For the voices of this community to be heard and have power, our findings must be represented in a way that is accessible and readily put to work.

Informed by Davies (1992), the research group discussed ways to present the analysis that are more approachable and actionable than traditional academic writing. The co-researchers elected to present the finding as a video, a testament to the teachers' experience that preserves their voices, words, and gestures. We hope that the NC Arboretum and other agencies interested in NBL curriculum development can reference this video to better inform the way they consider instructors in program design. Prospective PEX participants can use the video to determine realistic expectations and goals for their wellbeing as participants in PEX. The draft video I created was shared with the co-researchers for final edits and approval.

Role of the Lead Researcher

Given the unique structure of CMW methodology, I'd like to clarify the role I played as lead researcher in this study.

Establishing Community. As the lead researcher, my task was to steward the community of co-researchers. This encompasses considerations for the emotional safety of the group, establishing group norms, and vetting potentially harmful discussion topics (Hamm, 2021; Roulston, 2010). For this work to be truly liberatory, every co-researcher had to feel able and empowered to participate to the extent they could (Parry & Johnson, 2016). This began with modeling a research community that values each member as a valuable contributor and expert in their experience. All communications provided co-researchers opportunities to ask questions, clarify, and give input. I reviewed informed consent throughout our communications and offered opportunities to co-researchers to withdraw or modify their consent.

Additionally, this role led communication not only of logistics but also ensured the content and analysis were accessible to all participants to maintain the emancipatory nature of the work (Johnson, 2018). I informed co-researchers of my progress on independent work through regular communication, which I hope conveyed a sense of their "ownership" in the process even when they were not directly involved. All co-researchers receive copies of the final findings and video.

Leading the purpose and process of research. To summarize, my role as lead researcher was distinct from that of the participant co-researchers in that I was responsible for:

- Maintaining recursive reflexivity in all aspects of study
- Maintaining security and comfort of the community
- Communicating the benefit of this work for teachers, students, and PEX

- Securing IRB permissions for video submissions and focus group co-researchers
- Developing final research products (summary video and thesis manuscript) and providing them to co-researchers for future use

I have said above that CMW provides uniquely feminist opportunities to consider and center the wellbeing of the community of study. Every responsibility I hold as lead researcher supports and respects the time, voice, and wellbeing of every member of this study. Together, we pursued the task of building knowledge, community, support systems, and relationships that address teacher wellbeing within NBL through the emancipatory methodology of CMW.

Manuscript Thesis Option

Per the Western Carolina University Experiential and Outdoor Education Handbook, I have chosen to complete the manuscript thesis format option. This option requires Chapters One, Two, and Three plus a full-length journal manuscript formatted to the requirements of a specific journal. The following chapter contains my complete manuscript, which I have chosen to submit to the *Journal of Outdoor Recreation, Education and Leadership* (JOREL) Special Issue: Coalition for Education in the Outdoors 2024. This journal requires authors to submit a manuscript of up to 9,000 words and written in APA format. Please note that the journal requests tables and figures are placed within the document where referenced.

Discoveries for Well-being in and with the Project EXPLORE Community

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Abstract

Project EXPLORE (PEX) is a nature-based learning (NBL) program designed by the NC Arboretum to help North Carolina K–12 teachers implement community or citizen science-based curricula in their classrooms. The purpose of this study is to explore how participating in PEX impacts teachers' "wellbeing. Informed by critical feminist theory, we used an amended two-part collective memory work (CMW) design. I invited all 200+ former PEX participants to share a short video narrative about a memory of the program's impact on their wellbeing. Three teachers responded with videos and chose to participate as co-researchers in the focus group. As with traditional CMW, co-researchers analyzed the video diary entries for meaning. The group discussed ways PEX supported identity development, self-actualization, student-teacher relationships, and importantly, was a powerful tool for self-liberation within a neoliberal school context. The co-researchers elected for the results to be presented in a short video format.

Keywords: nature-based learning, teacher stress, teacher wellbeing, Project EXPLORE

Introduction

"It was a really exciting opportunity…I always think this is always going to be the project that I try to recreate every year in some way, shape or form."

"It makes me look forward to teaching."

"It's my excuse to go outside."

The above quotes refer to Project EXPLORE (PEX), a nature-based learning program from the NC Arboretum designed to help NC teachers implement community science-based curricula (Project Explore, n.d.). K-12 teachers or afterschool program facilitators apply to the program and are matched with an outdoor learning coach, typically an informal educator at an organization that offers environmental education. The teacher coach models lessons and serves as a resource throughout the school year. Teachers receive supplies to facilitate the curriculum and a $100 mini-grant for additional materials. In return, teachers commit to leading their class outside for at least fifteen minutes a week to gather data for their community science project. If a teacher completes two years in the program, they are awarded a certificate of completion and may keep all the supplies for their classroom (PEX, n.d.).

Well-being

These quotes from PEX teachers address different facets of "well-being" which has been defined as "a state of positive feelings and meeting full potential in the world" (Simons and Baldwin, 2021, p. 990) or "perceived enjoyment and fulfillment with one's life as a whole" (Goodman et al., 2020, p. 834). The professional flip side—burnout—is marked by emotional fatigue, depersonalization, and feelings of inefficiency (Maslach et al., 2001). There has been much debate on defining what "wellbeing" means for educators and teachers (McCallum et al.,

2017). Palmer (1998) offers that an educator's sense of identity, motivation, and satisfaction is inextricably linked to their profession.

Impacts of Time in Nature

PEX employs a key element that may explain some of its success: going outside. Benefits of time outdoors run the gamut from improving physical health (Twohig-Bennett & Jones, 2018), preventing workplace attrition (Leather et al., 1998), improving children's cognitive development (Dadvand et al., 2015), reducing inner-city violence (Kuo & Sullivan, 2001), and supporting general wellbeing (Bowler et al., 2010). A recent review of 147 studies concluded that although program design and research methods varied in quality, population, and context, nature-based learning supports "holistic growth" (Mann et al., 2022, p. 10).

Barriers to Nature-based Learning

Despite successes, many real and perceived barriers prevent broader adoption in public education systems (Waite, 2020). One of the most significant barriers to teachers implementing curricular changes (taking classes outside or otherwise) is time and energy. According to a 2022 American Federation of Teachers (AFT) report, teachers are twice as stressed as the general population. This not only impacts students but potentially teachers' willingness to take on new methodologies or projects like outdoor learning initiatives.

However, time outside with their students may be precisely what teachers need. Teacher job satisfaction has been linked to student discipline, collaboration, enthusiasm, perceived autonomy, and positive teacher–student relationships (AFT, 2022; Spilt et al., 2011; Toropova et al., 2021). Many of these are possible outcomes of nature-based learning. By employing outdoor teaching methods, instructors could benefit from the restorative qualities of natural environments and the student-specific effects of nature-based learning.

If outdoor education were promoted as much for teachers' wellbeing as it is for students', more teachers may be willing to incorporate these practices. However, few studies take teacher wellbeing or their perceptions of restorativeness into account. Therefore, the purpose of this study is to explore how participating in PEX impacts teachers' "wellbeing." Informed by a feminist epistemology, we engaged collective memory work to address the following research questions:

- How does participation in Project EXPLORE impact teacher wellbeing?
- What Project EXPLORE experiences do teachers associate with their sense of wellbeing?

Literature Review

This literature review will begin by describing outcomes of nature-based learning (NBL) learning methodologies and discussion of teacher wellbeing. In the final section, I will argue that, while the outcomes of this study may not be directly related to gender equity, the very nature of the project and methodology call for a critical feminist epistemology.

Nature-based Learning (NBL)

There are many terms for outdoor learning in various contexts. For clarity, this paper will adopt nature-based learning (NBL) as defined by the NBL Research Network (Jordan & Chawla, 2019):

- Centers encounters and direct engagement with nature
- Set among natural elements, either introduced or organically occurring
- May be any subject, content, or skill set taught in a natural setting

NBL seeks to connect students with the natural world to support their wellbeing, development, and pro-environmental attitudes and behaviors (Mann et al., 2022). Recent

research asserts that nature-relatedness, connection to and engagement with nature, is a basic psychological need and is necessary for fully realized wellbeing (Baxter, 2019). Among other outcomes, NBL explicitly seeks to bridge the gap in students' wellbeing as they are increasingly disconnected from the natural world (Mann et al., 2022).

Outcomes of NBL

NBL, especially programs with a more relaxed structure, facilitates student connections with the natural world, each other, and their teachers (Berg et al., 2021). Other frequently cited student outcomes of NBL include improved concentration, engagement, impulse control, and prosocial behaviors which mitigate behaviors found to be disruptive in the classroom (Dettweiler et al., 2017; Fägerstam, 2014; Marchant et al., 2019). Some of the most significant gains are found in children who struggle in these areas, like those with ADHD (Faber Taylor & Kuo, 2011), students of low socioeconomic status (Bølling et al., 2019), and "at-risk" youth (Ruiz-Gallardo et al., 2013).

Few studies directly examine the outcomes of NBL programs for teachers. However, they are often listed with results in student-focused research including: increases in motivation, job satisfaction, enjoyment, and improved teacher–student relationships (Barfod, 2018; Fägerstam, 2014, Marchant et al., 2019; Scott et al., 2013). Teachers also valued strengthening their confidence in the role of facilitator or co-learner rather than instructor (Scott et al., 2013; Volk & Cheak, 2003).

Barriers to Implementing NBL

Despite widely documented positive outcomes, NBL initiatives remain on the periphery of mainstream public education (James & Williams, 2017; Oberle et al., 2021). When surveyed, educators frequently cite systemic and administrative barriers to implementing NBL initiatives,

such as supervisor support, transportation, funding, curriculum pressure, logistics, and lack of suitable space (Jordan & Chawla, 2019; Oberle et al., 2021; Waite, 2020). Beyond systemic barriers, many classroom teachers are intimidated by taking students outside or feel they lack sufficient training (Feille, 2017; van Dijk-Wesselius et al., 2020; Waite, 2020). Understanding and mitigating barriers to implementing NBL, especially teacher preparedness and confidence, have been identified as "priority" and "game-changing" research questions by the NBLR Network (Jordan & Chawla, 2019). By asking, "How does participation in Project EXPLORE impact teacher wellbeing?" this study hopes to learn more about the interactions of barriers and payoffs related to NBL and teacher wellbeing. To understand the unique position of teacher wellbeing as a potential barrier and/or positive outcome of NBL, we need to examine the current state of educators' mental health.

Teacher Wellbeing

Teachers experience some of the highest levels of work-related stress among professionals and have subsequently high rates of burnout and attrition (Lever et al., 2017). Supporting teacher well-being not only improves rates of teacher attrition and burnout but also improves students' outcomes.

Burnout and Attrition

The *2021 State of US Teachers Survey* (Steiner & Woo, 2021) found that 1 in 4, and nearly half of teachers of color, were considering leaving the profession. Teachers experienced significant work-related stress at nearly double the rate of the general population (Steiner & Woo, 2021). High rates of stress and burnout among educators remain consistent despite an easing-off of pandemic-related instructional changes and there are exceptionally high levels of depression in teachers of color (Steiner et al., 2022).

The effects of teacher stress and burnout also negatively impact student learning (Lever et al., 2017; Oberle & Schonert-Reichl, 2016; Toropova et al., 2021). Oberle and Schonert-Reichl (2016) described stress as "contagious" in their critical study of the effect of teacher stress on student cortisol levels. Harmsen et al. (2018) link beginning teachers' stress to their staggering attrition rate in the US: 25%–50% within the first five years. Teacher attrition and burnout have been described as an international problem that extends beyond the United (Toropova et al., 2021).

Mitigating Factors

A review of teacher mental health support programs found that a supportive school environment and dedicated wellbeing interventions can mitigate the added stressors educators face (Lever et al., 2017). Positive student–teacher relationships engender feelings of connection, effectiveness, and motivation that support teacher wellbeing and enthusiasm, which promotes positive student outcomes and engagement (Cui, 2022). These interpersonal relationships are vital to mitigating stress, and Gearhart et al. (2022) found peer–to–peer relationships to be particularly impactful. Though deceptively simple, enjoying giving a lesson goes a long way toward mitigating stressors that lead to emotional exhaustion (Keller et al., 2014). Finding ways to enjoy their professional time with students, colleagues, lesson content, and themselves may be a way for teachers to mitigate burnout and take control of their wellbeing.

NBL as a Stress Intervention

There is strong potential for NBL to contribute to teacher stress reduction and combat widespread burnout (Berg et al., 2021; Fägerstam, 2014; Marchant et al., 2019), but significant barriers have prevented wide-spread adoption (Jordan & Chawla, 2019; Oberle et al., 2021; Waite, 2020). Sondergeld et al. (2014) found that when classroom teachers were supported in

NBL through an integrated curriculum-based program, they were more confident, knowledgeable, and likely to continue using NBL strategies. Benavides' (2016) examined PEX and reported peer community building, professional development, and positive student outcomes as program benefits. Notably, these factors echo the outcomes of NBL described in the section above. This study provided a detailed account of pedagogical development but did not directly examine whether the program contributed to stress relief or restorativeness (Benavides, 2016). This study seeks to address that gap in the service of teacher wellbeing.

Critical Feminist Theory and Education

When considering wellbeing, especially that of educators, a feminist epistemology offers a clarifying framework to understand the interplay between educators, self/other care, and the school system. Significantly, despite statistical superiority (OECD, 2021), female and non-binary teachers are subject to scrutiny and judgment under the performance reviews of gendered hierarchical administrations (Connell, 2009; Moreau et al., 2008). Educators are frequently required to set themselves aside to focus on students (Bullough & Hall-Kenyon, 2011; Gustafson, 1982; Serow, 1994) in ways that mirror historic gendered oppression (Drudy, 2008; Simmie, 2023).

Importantly, the results of this study are not a feminist assessment of gender equity within the NBL space. However, the project is deeply guided by a feminist epistemology from the profession to the collective memory work methodology. This epistemology is specifically informed by critical feminist theory which exposes, interrogates, challenges, and works to transform gendered and heteronormative structures of hegemonic oppression (Marshall et al., 2022; Parry et al., 2019). In teacher wellbeing, this lens reveals how power imbalances within education systems can affect job satisfaction, career advancement, and mental health (Nwoko et

al., 2023; Moreau et al., 2008; Simmie, 2023). By exploring these dynamics, critical feminist analysis prompts a reevaluation of institutional practices and policies to foster greater equity.

Methodology & Methods

This section begins with an introduction to Collective Memory Work, its philosophical underpinnings, and its appropriateness for the topic and population of the study. Then, I will describe the specific methods and methodological modifications for this study.

Collective Memory Work Research

The purpose of this study is to explore how participating in PEX impacts teachers' wellbeing. Given the highly personal and subjective nature of wellbeing and the complex ways that teaching interacts with individuals, society, and culture, this study demands a methodology that allows for multiple truths and layered contexts. Developed by Frigga Haug in 1987, Collective Memory Work (CMW) is situated with Participatory Action Research (PAR) and is considered within critical feminist theoretical frameworks (Johnson, 2018). It is based on a recursive narrative development process and contextualization/de(re)construction around a shared experience (Haug, 1999). "Recursive" in that researchers are called to continuously reflect upon and revisit the central phenomenon and theoretical framework to ensure the study yields results that are meaningful to the community of study (Johnson, 2018). The results are subjective learnings with actionable praxis potential (Hamm, 2021). This process centers on individual experience and perceived reality while locating them within societal and cultural contexts (Johnson, 2018).

Collective Research

There is a growing body of literature on the use of CMW in education, which has shown its potential to uncover assumptions and challenge dominant discourses in teacher education

(Beals et al., 2013; Bowler et al., 2021; Clark, 2020; Clift & Clift, 2017). The collective nature of this methodology naturally and intentionally unseats historic, dominant powers in the communities of study as well as power within the Academy and research itself (Haug, 1999; Johnson, 2018). To signify the importance of the collective, the "lead" researcher develops memory prompts with "co-researchers" rather than "participants." These prompts are used to craft narratives that are analyzed through group discourse. The learnings from that discussion may be synthesized into a collective work product (e.g., collective narrative, collective biography, collective letter writing). As the content/data and analysis come from within the community of study, there is built-in trustworthiness/credibility in the recursive, community-driven process of CMW (Johnson, 2018).

In leveling the role of knowledge production to encompass the community of study, CMW and other PAR models do work on multiple fronts in a uniquely feminist way—through the creation of knowledge, community, support systems, and relationships that contribute to the critical work at the heart of the investigation (Johnson, 2018; Parry & Johnson, 2016). As previously discussed, although teachers are not marginalized in a conventional sense, the extent to which they are called to set aside their physical, psychological, and even fiscal wellbeing represents an injustice for critical consideration and correction (Bullough & Hall-Kenyon, 2011; Gustafson, 1982; Serow, 1994).

Memory Work Origins and Development

The process developed initially by Haug (1999) calls for the research group to collectively determine the research objectives and then create a prompt for the memory narratives. The narratives are written using pseudonyms and then discussed and analyzed for

meanings. The analysis can then be deconstructed, and the narratives are rewritten to encompass the meanings gleaned from recursive work (Hamm, 2021).

This method has been adapted, and in some cases streamlined, to better serve the study community or subject. Johnson (2018) proposes a "focus group" framework wherein the narratives are analyzed in a single session, and the responsibility of recursiveness falls to the lead researcher in the process of developing the narrative prompt and questions to guide the group analysis.

It is worth noting that this application has been critiqued as a diluted version of Haug's original vision of a fully participatory and recursive research model (Hamm, 2021). However, because Johnson's (2018) variation places slightly more power to construct the research question and final "product" in the hands of the lead researcher, it is more accessible to researchers and populations more constrained by time and logistics. In this, he establishes a "spectrum" of methodological purity (Johnson, 2018, p. 13). Graduate students and teachers are both constrained by time, logistics, and resources. So, it is this amended iteration of CMW that we employed in the study.

Methods

In this study, we implemented a 2-part CMW design using video narratives and a focus group to empower public school teachers to identify impacts on their wellbeing, develop and participate in solutions, and drive positive change for themselves and their students. Guided by Johnson's (2018) Common Elements of CMW, I will outline each of the methods I am using along with the data analysis process and a description of the artifact the data produced. As the data generation process is relatively complex and scaffolded, I provide the research steps in Table 1 as an overview.

Table 1

Chronological Progression of Research Methods

Step	Method/Analysis	Who
1	Video Narratives—All former PEX teachers were invited to create a 2-3 minute video narrative about a memory of PEX's impact on their well-being	Participants self-selected from a pool of 200+ former PEX teachers.
2	Focus Group Participant Selection—All participants who submitted videos were invited to become co-researchers and join the virtual focus group.	3 co-researchers self-selected from those who submitted video narratives
3	Pre-focus Group Work—All researchers watched the individual video submissions and wrote one or two questions to guide the conversation and video analysis in the focus group.	Lead researcher and co-researchers
4	Virtual Focus Group—All researchers participated in a group discussion of the videos and analyzed them for meanings. The discussion around the videos is both data analysis and generation. Researchers summarized their findings and elected modes for data representation.	Lead researcher and co-researchers
5	Review of Focus Group Analysis—the lead researcher reviewed the recording of the focus group for additional layers of context and meaning to incorporate into the group's final findings.	Lead researcher

6	Presentation—The lead researcher completed the video and manuscript summaries of the research, communicating with the other co-researchers for approval and edits.	Lead researcher and co-researchers

Reflexivity

Within CMW, recursive consideration of subjectivity and positionality are paramount for the lead research to maintain an appropriate relationship with the study and co-researchers (Johnson, 2018). Among my primary goals as the lead researcher was to hold my identities under scrutiny for how they may interact with and impact the research. For instance, as a current PEX teacher coach, I needed to be aware of whether that role conferred a perception of power or authority over the teacher co-researchers. How might my other identities (female, white, cisgender, etc.) align with or distinguish me from other group members? Despite fifteen years as an educator, I have never been a traditional classroom teacher. Would this be a source of mistrust or discredit with the teachers?

Pillow (2003) describes four strategies to guide reflexive consideration: "reflexivity as recognition of self; reflexivity as recognition of other; reflexivity as truth; reflexivity as transcendence" (p. 181). That is, beyond signaling our identifiers and acknowledging the limits of our ability to represent (or even understand) another's truth, she argues that reflexivity is a holistic embracing of "messy" engagement and discomfort (Pillow, 2003, p. 193). To that end, it was not enough to consider how I am similar or dissimilar to my co-researchers. I must be aware that, although the memories shared in this study were told with the co-researchers' voices, the whole process and setting of those tellings was my construction. My initial questions going into

the study included: Would the stories have been told if I did not ask? Does the fabricated platform for telling the stories impact their authenticity?

My approach to reflexivity in this undertaking was transparency. I communicated my position within the study, within the community of study, and with the data. My candid telling of the process is another layer of context I tried to account for in the analysis. I kept a video diary throughout the study to capture emerging concerns and reflect on the proceedings. I elected to keep a video rather than a written diary to echo the request I made of my co-researchers. I did not share these recordings as part of the focus group, they were a tool for personal reflection, but did share some of my insights that came out of the practice.

Co-researcher Selection and Recruitment

The NC Arboretum agreed to email the 200+ former participants of PEX to seek participation in the study. This pool consists of 200+ K 12 teacher participants across North Carolina from the program's inception in 2013. The email included the video diary prompt, a link to an Institutional Review Board (IRB) consent form, and an invitation to participate further by joining the focus group as a co-researcher. After three emails over two months, three teachers responded with videos and elected to be co-researchers in the focus group: Yetta Williams, Amy Harrington, and Evelyn Warner. Click the photos below (Figure 1) to meet them through their video submissions.

Figure 1

Co-researchers

Yetta Williams

- 24+ years in education
- Pilot teacher for PEX
- Advanced Academic Resource Teacher
- Started in environmental education

Amy Harrington

- 22 years in education
- 6th-year PEX alum
- Teaches 8th grade science
- Former environmental educator

Evelyn Warner

- 7 years in the classroom
- 2nd year in PEX
- Teaches 7th & 8th-grade science
- Former environmental educator

Narrative Prompt: Video Diaries

Informed by Johnson's (2018) "spectrum of PAR," I modified the standard approach to CMW. Instead of the typical memory narratives written under a pseudonym, I requested short video recordings no more than 2–3 minutes long. These video diaries answered the prompt, "Share a memory that illustrates the impact participating in Project EXPLORE has had on your wellbeing."

I chose to solicit video memory narratives rather than the typical written narratives for two reasons. First, I hoped submitting short video recordings would be less burdensome to working teachers than a 2-page writing assignment. Similarly, watching short videos may be less demanding than reviewing a series of written works. Secondly, I hoped the resulting video footage, edited into a compilation, would serve as a compelling testament to teachers' experiences implementing nature-based learning/teaching strategies and useful insight for prospective PEX participants. This necessarily forced us to abandon the anonymity of the narratives. However, the accessibility of video creation, especially for such an overburdened population, was a vital trade-off that supports the liberatory, participatory nature of CMW methodology.

CMW Focus Group

Per Johnson's (2018) framework, the research group, the three co-researchers and me, analyzed and theorized over a virtual two- and half-hour session. This is the principal data analysis of the study. As with traditional CMW, co-researchers analyzed the video diary entries for meaning. Prior to the session, all group members watched the individual video submissions and formulated 1-2 questions or prompts to guide the groups' discussion and analysis. I prepared the following literature-informed questions:

- Did you notice common language/words linked to wellbeing across videos?
- How did PEX participants describe their relationship with their students in the videos?
- What physical experiences/sensations do participants describe in the videos?
- What role does the idea of self-direction or autonomy play in these narratives?
- Do participants describe a change or reconnection in/with an identity?

- Consider the video as you would a piece of media - what does the setting, clothing, movement, tone, etc. say?

In another effort to minimize the time commitment of teacher co-researchers, the focus group was held on a digital platform rather than physically in person. Guided by the prompts developed before the virtual session, the focus group discourse was both analysis and data generation. The video narratives and the way the co-researchers interpreted them are all data. Meanings were made through deconstruction, reflection, and dialogue (Johnson, 2018).

Results & Discussion

The unique nature of CMW – simultaneous data creation and analysis – makes it difficult to present findings under the tidy "Results" and "Discussion" headers. Instead, I offer a landscape-level overview of the conversation under "Tributaries" and a finer-grained examination under "Rhizomes."

Tributaries

As we wound down the focus group session, we found it helpful to capture our reactions, responses, and language in broad categories to organize our thoughts. However, we did not want to flatten the discourse into traditional themes. It's important to note that these categories serve more as an overview and that the stories and insights shared cannot be divided out into easily consumable takeaways. All these elements overlap and intersect within the narratives like braided tributaries flowing and intersecting into a greater body. The three categories were: 1) PEX's impacts on Personal Well-being; 2) Professional Well-being; and, 3) Student Well-being.

Personal Well-being

Happiness	Identity/Reputation
Passion/Enthusiasm	Contribute to Science

Purpose	Hope
"See with new eyes"	"Something to look forward to"

Within the broad topic of Benefits to Personal Well-being, the following words and ideas came up repeatedly (emic ideas in quotations):

In our discussion, the ideas of passion, renewed enthusiasm, and "seeing with new eyes" were linked to the rejuvenation of re-experiencing the outdoors through their students. The students' capacity to appreciate and value natural wonders was a source of pride and motivation as well as sustenance for teachers' passion to educate. Similarly entangled were the ideas of purpose, scientific contribution, and hope for the future. The teachers expressed a personal directive to not only prepare their classes for the next grade level, but to educate a generation with the critical thinking and environmental connectedness requisite to handle the climate crisis:

> *YW: I'm not worried about them in the natural world on their own, and that makes me feel proud and happy, and it gives me a great sense of well-being. I think I can die a happy, elderly woman, because there's a whole generation of children out there that are gonna be like, "You have a problem? Let's get outside."...Because long term, I need them to run the world in a safe and healthy way for everyone.*

Professional Well-being

Regarding professional well-being, the teachers all thought of PEX as a legitimate front or "good excuse" for the subversive act of taking students outside. Other ideas that came up (again, emic categories in quotations) included:

"Reason to stay"	Class Culture	Admin support

"One less thing to plan"	Class management	Increased opportunities
Relationship building		

We found PEX didn't just protect teachers' well-being, it protected their careers. The renewed sense of purpose and passion acted as armor against the oppressive and stagnating atmosphere they experienced in the testing-driven, neo-liberal school system.

> *YW: I think that's why I stay in education, and I like projects like this because I can keep exuding that [purpose and passion] through tasks like this.*

There were more concrete benefits, too. Amy shared that her participation in PEX helped her stand out for grants and PD opportunities like a teaching workshop in Australia. The program also builds relationships and class culture. Evelyn shared a story about a student who now informs her of every bird that comes to the feeder in her yard. Amy's class hides a stuffed bird from her Australia trip every week. These small moments of joy, connection, and fun can increase student motivation and pro-social behavior which in turn make class management easier (Cui, 2022).

> *EW: I'm having one less lesson on my plate that I have to plan. One less thing I have to think about management and, you know, behavior concerns because it's become such a routine.*

Student Well-being

The benefits they identified for students tracked with NBL outcomes identified in the literature:

Time outdoors	"They open up"	Connection to the real world
Movement	Opportunity to discover	Enjoy being outdoors

More than anything, these conversations revealed ways the teachers saw their own well-being and their students' well-being entangled. Teachers engage in emotional labor daily, investing time and energy into developing relationships with their students and fostering a positive learning environment (Burić et al., 2021; Vogt, 2002). This emotional labor can lead to a deeper emotional investment in their profession, as educators experience a sense of responsibility and connection to their students' well-being (Burić et al., 2021). These pedagogical relationships contribute to teachers' strong sense of identity. Teachers often derive a sense of accomplishment and purpose from seeing their students succeed academically and personally (Platsidou, 2010). So, it follows that they offered these perceived "benefits to students" as examples of ways PEX supported their own well-being as educators.

> *AH: I'm supposed to make this about **self**-care and **my** well-being. Usually, I'm just talking about my students. So yeah, I remember, like, actively trying to say, "Okay, how does it affect **my** well-being?" and that was kind of almost hard to do.*

Rhizomes

The data or insight produced by collective memory work is not linear. Less the unidirectional flow of tributaries, a more apt analogy may be Deleuze and Guattari's (1987) figuration of the rhizome – multidirectional tangled strands connecting nodes and branches. A discussion of this data is not a map or guide but rather an invitation to "get lost" (Lather, 2007) with the research group and see where you end up.

For instance, we established the category of "PEX's Impacts on Personal Well-being" but the conversation was rarely so straightforward. Within our discussion, this might have manifested as a contrast between the positive outcomes of time outdoors with the teachers'

relatively low bar for daily selfcare as evidenced by their responses to an icebreaker prompt around their selfcare that day: "I actually ate breakfast this morning" and "I don't think anything…But! I took a little walk down by the river with my dogs for about 2 or 3 min before I hopped on here, so…" The following examples provide a deeper look at this collective work in action and how our insights track with critical and feminist liberatory thought, especially the critical pedagogies of Paolo Freire (1970/2000) and bell hooks (1994).

Rhizomatic Discourse #1: Embodied Well-being

The first video we watched was Yetta's. One of the things we picked up on was first was that, rather than answer the prompt with a memory, she went into a full-blown public service announcement/lecture declaiming the benefits of PEX and outdoor learning for students and education – clearly well-trod and deeply held talking points. She was also scratching her head, playing with an earring, and adjusting her shirt - some of which can be observed in this muted clip: https://www.youtube.com/shorts/QAj29kIlUXY. As the group exchanged first-takes, we interpreted all this to mean she was relaxed and in her "comfort zone." She knows this information, doesn't have to think about what she's saying, almost in "auto-pilot." Then, it was her turn to share what it was like to watch herself (emphasis mine):

> *YW: I was a little annoyed with all the scratching and touching [...]But you're right. I was very comfortable [with the topic] at that moment. But I think, in the moment, I was shifting <u>because I had to use the bathroom, and I realized, like there was like a million things I needed to get done</u>. So, I just started fidgeting.*

This was not something she remembered until she rewatched the video. For all three co-researchers, the reflective/reflexive act of watching themselves brought rich discussion about how educators routinely deny themselves and their bodies – waiting to pee, getting in early,

staying late, working over the weekend, pushing personal projects, sacrificing their social lives, etc. hooks (1994) gave the same example, needing to use the restroom in the middle of class, to illustrate the way education, especially Western institutions, erase the body in commitment to the myth of the mind-body duality. This duality acts unevenly on the woman's body - a vessel expected, even suited, to step aside in service of student gains (Nias, 1999; Simmie, 2023). Further, there was a new awareness and gratitude for shifting the focus inward:

> *AH: A lot of times, we just don't have people even ask, "What makes you happy?", or "What brings you joy as a teacher?"*

We were left with a visceral understanding of how needed and liberating a NBL program like PEX can be when teachers have access to tools and pedagogies that see and connect to the whole being.

Rhizomatic Discourse #2: The Teacher's Narrative

Seeing the three videos side by side, we noticed patterns of self-sacrifice and passion that mimicked teachers' everyday state of being in their working lives. Despite their differences, all three videos had similar elements that morphed into a meta-, educators' version of the "Hero's Journey," the literary notion of the monomyth (Campbell, 1953). In it, common plot elements like a humble beginning, call to adventure, help from a mentor, etc. can be mapped against much of Western storytelling from Jane Eyre to Luke Skywalker. In the videos, every single one of the co-researchers talked about how great PEX was for their students before even approaching the prompt for themselves. Each video had evidence of fatigue after a long day and physical self-denial, more testimonies to the "legacy of repression and denial" of teachers' bodies and the demands on them (hooks, 1994, p. 191). Through all that, there was also infectious enthusiasm, pride, and love. They approached making the videos the same way they approached their

profession. It took watching it all back-to-back for us to recognize the pattern. Here's Evelyn naming it and calling everyone out for not focusing on themselves:

> *EW: After watching Yetta's [video] I was really cognizant of the "self-care" aspect, or "well-being" [focus] on us, and the first thing [Amy] said was "for my* ***students*** *well-being" and for [my video] too. You know, where teachers are the second thought. It's our kids first. That's why we do it.*

This reflexive, recursive process, going back over the same content with new context, *is* the memory work. This newly conferred self-awareness, akin to Friere's *conscientização* (1970/2000), is an emancipatory product of collective memory work that lays the groundwork for praxis and transformation. The pattern recognition shifted their concept of self-sacrifice within their profession. The fact that they experienced workplace hardships was nothing new. In fact, at one point they pushed back against the narrative of the "teacher mental health crisis" and negative portrayal of the profession:

> *AH: People are gonna like, reshare, and comment on the worst. Even things that are funny, they're still negative a lot. And I hate that that is portrayed so much. And I mean, there's a lot of good stuff, but I don't know. Do you all see that? Do you see that fit into your Instagram?*

Seeing the degree to which they had internalized the "Teacher's Narrative," even replicating it in a video, forced a re-examination of how they had to work to mitigate their own burnout and achieve professional sustainability through the "extra" like PEX. By answering Freire's (1970/2000) call to dialogue our way to liberation, we unearthed their latent recognition of crisis and how they had labored to keep it at bay. Ultimately, PEX was a self-administered prescription

contributing to what hooks (1994) describes as a “holistic model” of learning or teaching that allows teachers to “grow and [be] empowered by the process” alongside students (p. 21).

Rhizomatic Discourse #3: Identity Renewal

This emancipatory work dovetails with the idea of identity that flowed between the categories, “Personal Benefits” and “Professional Benefits.” All three teachers began their careers in environmental education and consider this background part of their personal and professional identities. They are not alone in this; educators' identities often intersect with their professional roles, further strengthening their perception of teaching as central to their identity (Simmie, 2023; Williams et al., 2012). They moved on to formal education where they sacrificed regular time outdoors and recognized, nature-based expertise for job stability and a higher wage. In the process, they left a first love, and part of themselves, behind.

Participating in PEX provided a pathway for them to live this part of themselves in an institutional environment that otherwise does not value nature connectedness—it is not on the standardized test. Not only could they bring their authentic selves to work, but they could be recognized and appreciated for it. In PEX, the teachers found the “freedom” Freire (1970/2000, p. 48) asserts they needed to “exist authentically” and cast aside the “internalized consciousness of the oppressor,” in this case, the rigid standards of the neo-liberal education system.

Beyond reviving atrophied identities, Yetta and Amy have taken on PEX and community science as new parts of their professional identities. Amy shared that she has five bird themed shirts in rotation for Bird Walk Fridays. She has earrings, socks, and other bird trinkets gifted by students because she’s the teacher that goes outside and does bird walks. Here’s Amy on becoming the “Birdwalk Teacher:”

AH: It gives me something to be known for by the kids. I've had kids that graduated high school and still come back and talk about our bird walks...it gives me something to be passionate about.

She has used her participation in PEX to carve her own niche, to "transform" (hooks, 1994). The recognition she gets for that, from students or grant committees, supports her well-being as both a human wanting to be seen and remembered and as a professional getting credit for putting in the extra miles. Taking responsibility for her own "self-actualization" and well-being is the exact kind of "engaged pedagogy" that hooks (1994, p. 15) offers will increase a educators' capacity to reach and empower students and further reinforces the notion that our well-beings are entangled with that of our students.

Rhizomatic Discourse #4: Tools for Transgression

Perhaps the most surprising insight, both to myself and Arboretum staff, was the degree to which all three educators universally viewed their participation in PEX as a pathway for subversion. In one way, taking their students outside felt like actively subverting testing-driven administrations that do not see or value the benefits of the outdoors. PEX, a program developed by the North Carolina Arboretum – itself an extension of the N.C. University System, was the kind of state-supported network that conferred "immediate buy-in" from principals who may be less inclined to indulge the "hair-brained scheme" of a single teacher.

AH: Can I pull this off? Is admin really gonna be fine with me doing this once a week? But if you can prove that it's great for your kids in all ways...

We all noted the language "pull this off," as if taking children outside were akin to a jewel heist or, more aptly, a prison break. There was also a sense of perverse joy in using the neo-liberal drive for performance (Ritzer, 2011) to sway administration approval:

YW: Then have the Arboretum do this great write up about [the PEX pilot]. Then the principals are like, "Yeah, that's ***our*** *program at* ***our*** *school!" So, anything that makes a school look good or a district look good. They're not going to turn away from, especially if it's successful.*

By explicitly leveraging PEX, these teachers have "transformed the objective reality" oppressing them in a move that proved emancipatory for both them and their students (Freire, 1970/2000, p. 49). Successfully navigating this obstacle may also contribute to self-actualization through identity transformation. The challenges teachers face—inadequate resources, demanding workloads, and societal pressures—can intensify the connection between their profession and identity (Cain et al., 2023). Using one challenge (metric/prestige-driven administration) to address another (lack of time outdoors), pushes their identity past a victim of circumstance toward self-liberator.

In a secondary subversion, they emancipate themselves from the expectation that they should always come second, or last. Educators are frequently required to set themselves aside to focus on students (Bullough & Hall-Kenyon, 2011; Gustafson, 1982; Serow, 1994) and, critically for the majority women and non-binary educators globally (OECD, 2021), in ways that mirror historic gendered oppression (Drudy, 2008; Simmie, 2023). They rejected this construction by asserting their own needs and desires in at least one aspect of their day-to-day:

EW: Yes, there's self-sacrifice…But what matters is, "Is it worth it to me?" And to be honest, it's also self-serving. Like Yetta said earlier, I want the next generation to care about nature and care about science because ***I*** *care about it. So, Project EXPLORE is self-serving. I get an excuse to go outside again, you know?*

This pushing the "boundaries of what is acceptable," (hooks, 1994, p. 12) both to school administrators and to society's expectations of teachers' emotional labor, is at the heart of hooks' call for pedagogical transgression. She calls teachers to center their own journey towards wholeness so they can be more present and receptive to students. Current conversation around teacher wellbeing is often tied to feelings of empowerment, professional fulfillment, and purpose (Nwoko et al., 2023). In this, and the previous dialogues, we see PEX emerge as a powerful tool for these women to construct well-being within the confines of an imperfect environment.

Conclusion

Beyond knowledge creation, the goals of PAR like CMW are the pursuit of knowledge that actively empowers the community of study to transform the status quo (Parry & Johnson, 2016). Echoing the call from Davies (1992) and others resisting traditional academic writing, the group wanted these insights shared in a way that can support the unrepresented teachers' collective in an accessible, actionable way. Inspired by the camaraderie of the focus group, the group elected to submit a recommendation to the Arboretum to develop an online platform for past and present teachers to connect, troubleshoot, and share experiences. I am happy to report they were already considering this and are using this feedback as a springboard to move forward with plans.

The principal artefact of the work, however, is a video that captures this important teacher's perspective both to reach other educators that may benefit, and to support the continued development of the program in this direction. Again, this presentation was elected by the co-researcher group as a format they deemed most accessible and *employable* in the work of putting liberatory tools in the hands of fellow teachers. Short enough to share easily online, host on a webpage, or watch on a coffee break, this testament to the teachers' experience preserves the

voices, gestures, and insights that fueled this research. Following the example of Lather and Smithies (1997, p. xiv), I will "get out of the way" and hold space for my research team whom I am so honored and grateful to have worked and learned with. In lieu of a typical conclusion with neat takeaways, limitations, and recommendations from a solo academic, I present the preliminary video here so my co-researchers may have the final word: https://youtu.be/1F0JrWpHzZA.

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