Nature Nurtures Teacher Resilience at Trinity University

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About EdPrepLab

EdPrepLab, an initiative of the Learning Policy Institute and Bank Street Graduate School of Education, aims to strengthen educator preparation in the United States by building the collaborative capacity of preparation programs, school districts, and state policymakers. For more information about EdPrepLab, visit EdPrepLab.org.

About This Brief

This brief describes innovative strategies faculty are using to promote the outcome of teacher resilience through professional learning experiences focused on both understanding and experiencing the restorative power of natural environments.

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Introduction

Novice teachers face unique challenges to their well-being. They must learn to manage stress, as it impacts teacher health and well-being, burnout and attrition, and student social and academic outcomes.[1] They must learn to promote student social and emotional learning (SEL), including recognizing and responding to pre-k-12 students' mental health needs while dealing with the potential of secondary traumatic stress (the emotional duress of hearing and responding to students' traumatic experiences).[2] Simultaneously, many must learn to support their own mental health during the critical period of emerging adulthood (ages 18-25), a peak window for the onset of conditions such as mood, anxiety, psychosis, and substance use disorders.[3] This may be especially relevant for preparation programs like Trinity University that serve largely traditional-age student populations.

Trinity University in San Antonio, TX, offers a 5-year Master of Arts in Teaching (M.A.T.) degree leading to teacher certification. The program is embedded within well-established Professional Development School (PDS) partnerships that immerse candidates in yearlong clinical internships. The overarching goal of this apprenticeship model is to prepare preservice teachers for the multifaceted career of a 21st-century teacher in areas such as content, pedagogy, cultural responsiveness, development, and professional skills and dispositions. The latter category includes an emphasis on the vital attribute of resilience, the most frequent indicator of teacher well-being.[4] Rejecting the viewpoint of a deficit model, Trinity faculty have designed learning experiences that promote Christopher Day and Qing Gu's concept of "everyday

resilience."[5] More than the ability to manage challenges and survive, this includes "the capacity and capability to be sufficiently resilient to have the desire, determination and energy, as well as the knowledge and strong moral purpose which enable teachers to teach to their best."[6] The social ecological perspective resists the idea that resilience is a fixed, innate quality and suggests it is shaped by the social, cultural, and intellectual contexts of teachers' personal and professional environments.

Caroline Mansfield and her colleagues identified four factors within their evidence-based systemic model of teacher resilience: (1) personal resources, (2) contextual resources, (3) strategies, and (4) outcomes:

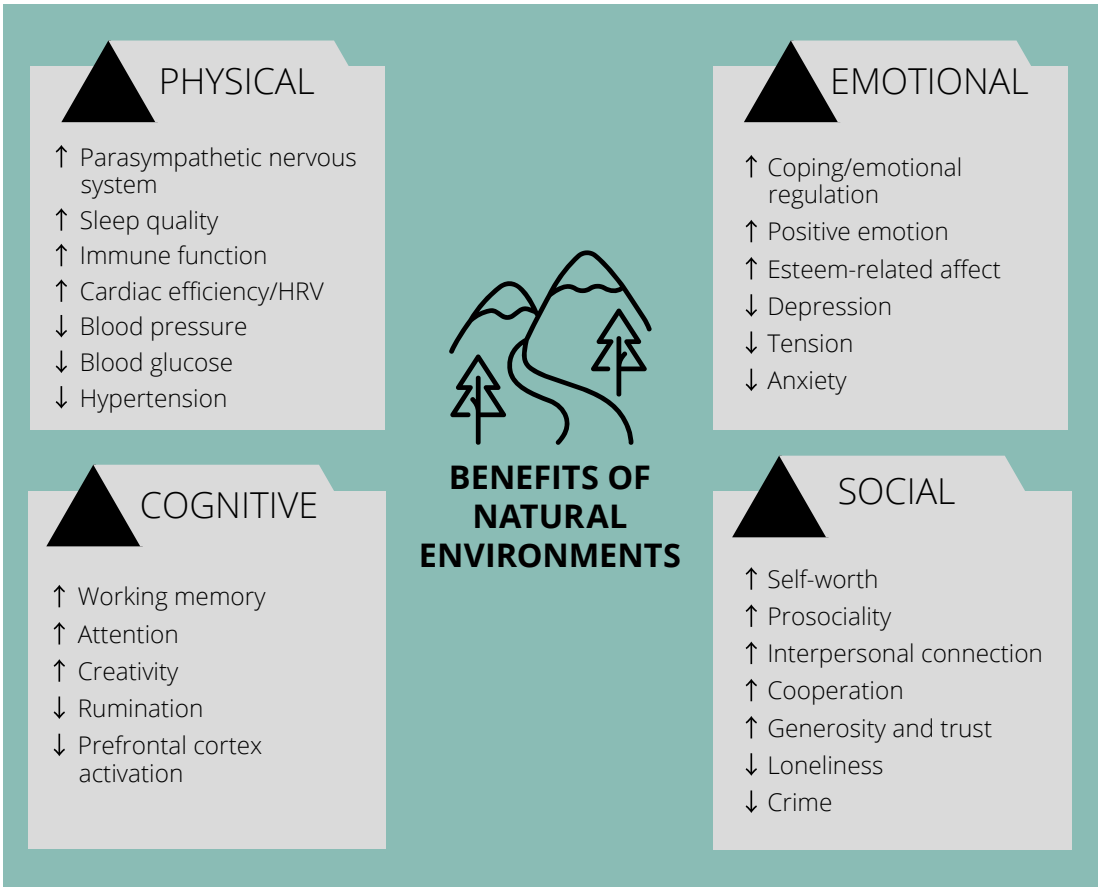
> Preservice teachers develop capacity for resilience through building **personal resources** (e.g., motivation, social and emotional competence), understanding ways to mobilise **contextual resources** (e.g., relationships, support networks), and developing a range of adaptive coping **strategies** (e.g., problem solving, time management, maintaining work-life balance) to manage challenges with a view maximising adaptive, resilient **outcomes** (e.g., commitment, job satisfaction, well-being, engagement).[7] [emphasis added]

These factors guide formal and informal programmatic development at Trinity throughout the 5-year course sequence. Examples include use of a Dispositional and Professional Skills Assessment as a self-assessment and as an evaluative tool to promote candidates' awareness and development of personal resources, as well as organizing candidates into cohorts that learn in supportive PDS environments with master teachers to provide essential contextual resources. This practice brief addresses innovative strategies faculty are using to promote the outcome of teacher resilience through professional learning experiences focused on both understanding and experiencing the restorative power of natural environments.

The Benefits of Natural Environments

A growing body of empirical research supports the benefits of natural settings on physical and mental health. Figure 1 highlights findings from more than 120 studies on the potential of nature as a restorative environment.[8] These include green spaces as varied as a forested wilderness to an urban park. Increasingly, evidence suggests a causal role of improved affect in the short term and includes decreases in areas such as stress, depression, and anxiety and increases in measures of well-being.[9]

Figure 1: Benefits of Natural Environments



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Four main theories help explain the potential mechanisms contributing to these outcomes:

1. **Biophilia Theory** suggests that humans are innately drawn to natural environments and living things, especially those that have helped maintain our survival throughout time.[10] This explains, for example, why waterfront property is desirable, as well as areas that support lush vegetation.

2. **Stress Reduction Theory** (STR) suggests that the ability to recover from stressful situations, both psychologically and physiologically, is enhanced through exposure to natural environments. These include spending time in or viewing urban green spaces, forests, water elements, and nature sounds, which produce a calming effect.

The foundations of the theory came from Roger Ulrich's well-known study of hospital patients, in which those who had window views of nature recovered faster and with fewer pain medications than those with views of the built environment.[11]

3. **Attention Restoration Theory** (ART) suggests that natural environments have the capacity to reduce mental fatigue, thus restoring and increasing attention. They do so by reducing direct attention (what we make ourselves focus on) and increasing indirect attention (what we involuntarily focus on). Rachel and Stephen Kaplan emphasize that there are four requirements for ART to be effective: (1) extent, which is the idea of feeling immersed in a whole other world; (2) being away, which means being physically isolated or mentally escaping a cognitive task or context; (3) fascination, meaning what captures your attention, particularly "soft" fascination, which is our effortless attention to aspects of the natural environment (e.g., the sounds of water, patterns in light, or texture of bark); and (4) compatibility, meaning the area is a match for what you are seeking (e.g., getting away to a quiet, safe, small space with friends) and fits the desired purpose.[12]

4. **Phytoncide Hypothesis** suggests that trees give off phytoncides that have antibacterial, anti-inflammatory, and antifungal qualities, which help plant life fight disease. When people breathe in these chemicals, or absorb them through the skin, our bodies respond by increasing white blood cells called natural killer (NK) cells. NK cells kill infected cells in our bodies. Thus, phytoncides help strengthen the immune system.[13]

While all of these theories have garnered support, most researchers suspect that these mechanisms work synergistically, in combination with conditions such as increased physical activity and socialization and decreased air and noise pollution.

Creating Professional Learning Experiences

In addition to ensuring students have a solid understanding of the research base, Trinity faculty design learning experiences through which students spend time outdoors to begin developing the practice of using nature to support their well-being. During these experiences, they are tasked with collecting personal data for later analysis. For this purpose, the natural environment is defined as a space with a preponderance of nature—living and nonliving elements (e.g., plants, nonhuman animals, mountains, water) with minimal human impact. Natural environments contrast with urban environments, which restrict nature while maximizing human impact via built structures and high population density.

Walking in Urban or Natural Settings

A number of studies compare the experience of walking in urban and natural environments. Trinity faculty replicate this by randomly assigning students to walk for 1 hour in either a natural or urban setting and collecting pre- and post-walk measures of mood using the Profile of Mood States (POMS). This experience is embedded within a development course that includes the study of outdoor education, Louv's "Nature-Deficit Disorder," and research on the specific benefits of nature on child development.

The nature context is a 511-acre natural area park with a river and ample tree cover; the urban context is a segment of downtown containing a bus station and few trees or green spaces. Walking routes are timed and mapped out in advance, and students are asked to walk in pairs and limit talking to what they are observing around them. The following week, faculty share students' individual and group data with them during a class discussion. Examples of findings include reductions in measures of tension-anxiety and anger-hostility after completing the nature walk, improvements that were significantly larger ($p < 0.05$) than the effects observed among the participants walking in the urban environments (see Figure 2 and Table 1).

The benefits of natural environments are not limited to large expanses of wilderness, such as those found in state and national parks. Urban parks and green spaces, especially those with trees, show similar advantages. This is important for children growing up in urban areas, who may not have access to rural and suburban spaces. For instance, Andrea Taylor and Frances Kuo found that students with attention-deficit/hyperactivity disorder (ADHD) concentrated significantly better after a 20-minute guided walk in an urban park than in either a downtown or residential area, with similar effect sizes to formulations of methylphenidate in extended-release Metadate CD and Concerta, prescription medications used to treat ADHD. Other studies found increases in academic performance on campuses with more trees and window views of nature.

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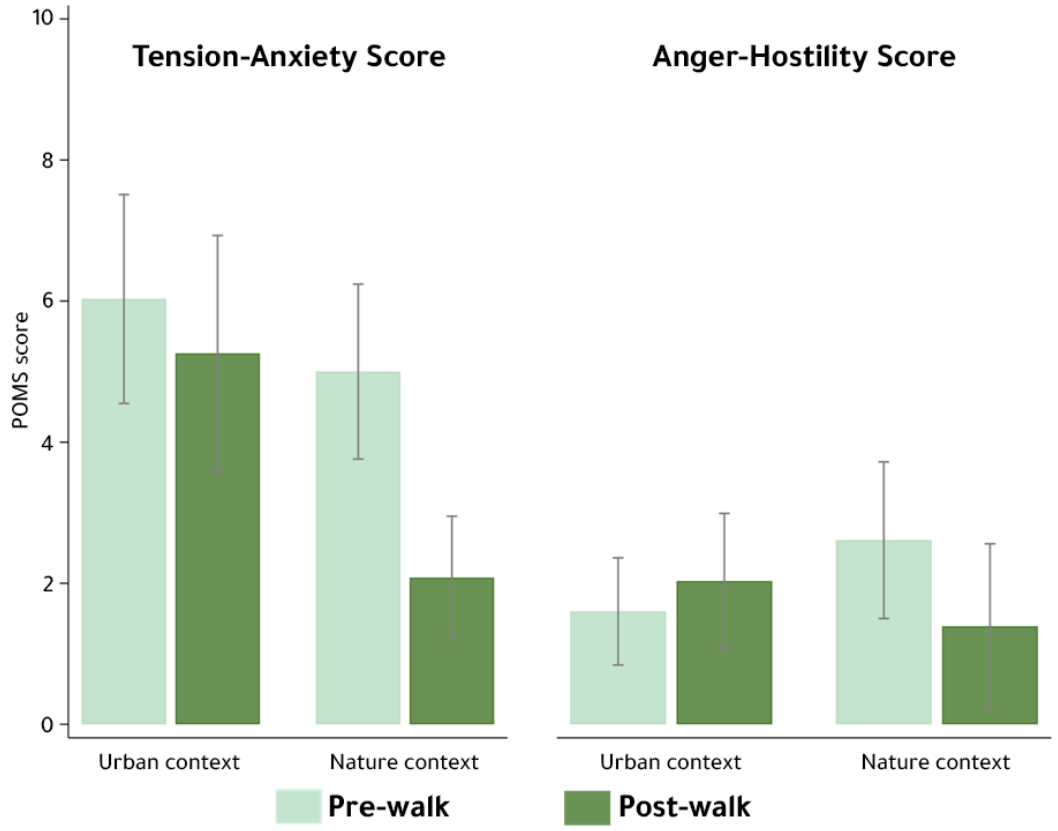
Figure 2: Results of Walking in Urban and Nature Contexts on Average Profile of Mood States (POMS) Mood Measures (*n* = 71)



Source: Trinity University. (2023).

Table 1: Comparison of Average Profile of Mood States (POMS) Mood Measures in Urban and Natural Contexts (*n* = 71)

Context	Tension-Anxiety Score			Anger-Hostility Score		
	Pre-walk	Post-walk	Difference	Pre-walk	Post-walk	Difference
Urban context	6.03	5.26	0.77	1.60	2.03	-0.43
Nature context	5.00	2.08	2.92	2.61	1.39	1.22
Context * time interaction	$F(1,141) = 6.01$ $p = 0.017$			$F(1,141) = 7.06$ $p = 0.010$		

Note: The "Context * time interaction" row shows the *F*-statistic and *p*-value from a mixed ANOVA test of this interaction.
Source: Trinity University. (2023).

Full-Day Park Experience

Trinity faculty immerse M.A.T. candidates completing the first semester of clinical teaching in a full-day outing at a state park about an hour outside the city. The 5,000-acre setting boasts abundant trees, trails, and a river with limestone falls that allow hiking and climbing. This experience introduces candidates to a park ideal for a day trip while supporting recent findings that health and well-being are associated with spending a minimum total of 120 minutes in nature each week, with 200-300 minutes showing peak exposure benefits.[14] At the park, Trinity faculty who are certified forest therapy guides lead candidates on a forest therapy walk (see Association of Nature and Forest Therapy). This practice, similar to Shinrin-yoku (the Japanese practice of forest bathing[15]), helps individuals slow down and connect with nature through the senses. Afterward, candidates pick up box lunches and are sent off to explore for the remainder of the afternoon alone or in self-selected small groups. Instructions include use of phones only for taking photos or keeping time, with discussions limited to topics that do not include the program, schools, or pre-k-12 students. Lack of a specific agenda for most of the day is intentional and allows candidates to experience the four elements of ART (extent, being away, fascination, and compatibility).

Candidates collect personal data by completing pre- and post-measures of rumination (rumination portion of the Reflection Rumination Questionnaire)[16] and mood (POMS) before leaving for the park and again before returning to campus. A few weeks later, findings are shared with candidates, compared to existing research, and discussed. Data from the full-day experience indicate that candidates' pre- and post-measure changes line up with much of the literature, including significant decreases in rumination and tension-anxiety, confusion-bewilderment, and depression, and increases in esteem-related affect and total mood. Follow-up surveys 4 months later indicate that candidates enjoy the experience and feel learning about the research gives them permission to spend time outdoors. At the same time, teaching and other demands of the program leave little time to do so.

A Dedicated Course

A new course aims to not only teach the benefits of nature but to provide space within the course for students to spend time outside to develop key practices and habits. "The Natural Environment and Well-Being" is a cross-listed undergraduate course that contributes to a minor in Teaching, a major and minor in Environmental Studies, and university common curriculum requirements. As such, it draws a diverse student population and an extensive waitlist (with a course cap of 30 students). The course is taught once a week in a 3-hour afternoon block plus one full-day trip. By design, students spend 50% of class outdoors in natural settings at state and city parks, botanical gardens, local green spaces, and outdoor education sites.

The course is divided into the following four units:

1. **History, Culture, and Tradition:** How did we venture so far from nature?
2. **Research, Theory, and Mechanisms:** Why is nature important for humans' well-being?
3. **Education:** How can schools connect children with nature and support healthy child development?
4. **Equity, Inclusion, and Reciprocity:** How can connecting with nature support individuals and their broader communities?

As with other learning experiences, students collect personal data for comparison to published research. For this class context, their comparisons include quantitative as well as qualitative data via sit spot journals; photo stories; forest therapy walk reflections; and measures of mood, rumination, resilience, and heart rate variability to better understand one's own physiological stress response. Initial data collection results are promising, including improvements in indicators of resilience. Much like helping children develop the habit of reading, the course intentionally provides the content, the time, and the context to practice nature-based restoration.

Having experienced the benefits themselves, students then learn how to translate that knowledge into educational contexts. This includes visiting nature-based schools and assessing outdoor spaces using criteria such as the Outdoor Learning Environment (OLE) Best Practice Indicators.[17] For the unit project, groups of students visit local elementary schools with STEM grants for developing outdoor learning spaces, helping them evaluate their current spaces and designing proposals based on the needs of individual campuses. For example, one school with a well-developed garden had difficulty getting teachers to go outside and use the area. Students in the course designed an outdoor teachers' lounge, with Adirondack chairs and flowering plants positioned under a large oak tree for shade, where teachers could not only relax but supervise children enjoying the garden as well as other outdoor elements. Another school had purchased items for an outdoor classroom but had not yet developed one. Students designed an outdoor classroom space using existing and repurposed materials to meet the school's academic and budgetary needs. One student noted, "The most important thing I learned from this course were practices to use with my future students to advocate and encourage them to spend time outside."

The course final asks students to identify and evaluate an existing or potential green space in an area of San Antonio within a 10-minute walk of an underserved population and then to suggest either improvements or developments for the space using knowledge and research from the course. This mirrors the goal of the Trust for Public Land, in partnership with the

National Recreation and Park Association and the Urban Land Institute, to have a park within a 10-minute walk of every individual in U.S. cities. San Antonio ranks 60th out of 100 cities, with 48% living within walking distance of a park. While residents in low-income neighborhoods have more access to parks than in most cities, differences in quality and accessibility remain. San Antonio Parks and Recreation supports the project by providing location-specific data and information on current park work and future development plans.

Conclusion

Identifying strategies to develop teacher resilience may be more important now than ever, given the threat that job-related stress poses to short- and long-term concerns of teacher quality and supply.[18] While schools have begun incorporating SEL curriculum and mental health services for students, these same supports are often not available to teachers. When such programs are available, teachers must too often engage with these on their own time, outside the school day.[19] The time to begin addressing these challenges is not once teachers face stress and impending burnout but as an ongoing and regular component of educator preparation curriculum.[20] Nature-based experiences are an inexpensive, evidence-based strategy all teachers can use to support not only their own well-being but also their students' well-being.

Endnotes

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