

Weaving Well-Being Into Educator Preparation

Laura Allen, Courtney Crim, Benjamin Sosnaud, Ellen Barnett, and Jonathan King, Trinity University; Joy Rushing, Learning Policy Institute

About EdPrepLab

EdPrepLab, an initiative of the Learning Policy Institute and Bank Street Graduate School of Education, aims to strengthen educator preparation by supporting learning and sharing research and practices among programs, school districts, and policymakers. EdPrepLab supports programs and informs policies that incorporate the science of learning and development to enable deeper learning and equity, working to expand these approaches nationally and internationally.

About This Brief

This brief describes the development, implementation, and impact of a course designed by faculty members at Trinity University who sought to utilize the benefits of natural environments and science of learning and development principles to support preservice teachers' well-being.

Acknowledgments

EdPrepLab is supported by the Carnegie Corporation of New York, Ibis Group, Skyline Foundation, W. Clement & Jessie V. Stone Foundation, and Yidan Prize Foundation. Additional core operating support for the Learning Policy Institute is provided by the Heising-Simons Foundation, William and Flora Hewlett Foundation, Raikes Foundation, Sandler Foundation, and MacKenzie Scott. The ideas voiced in this brief are those of the authors and not those of funders.

Introduction

Advances in the science of learning and development (SoLD), as well as postpandemic shifts in the needs of students and teachers, have significantly informed the understanding of teaching and learning in the 21st century.¹ SoLD research has shed light on the importance of experiences and relationships to the neuroplastic brain; the impact of trauma; and the interdependence of the social, emotional, and cognitive facets of learning. Moreover, skill sets needed by today's learners—such as analyzing and applying knowledge in novel situations—are no longer supplementary but essential, requiring metacognition, executive functioning, resourcefulness, and resilience.²

This new knowledge calls for changes in the design of teaching and learning environments. These design changes should include the structure of educator preparation programs that address the cognitive demands of beginning teachers and the social and emotional needs that support well-being. *Well-being* is defined as a positive state of physical, emotional, and psychological health supporting productive functioning and flourishing.³ Teacher well-being contributes to the recruitment and retention of high-quality teachers and directly and indirectly affects student outcomes, including standardized test scores, grades, behavior, school satisfaction, and social and emotional functioning.⁴ By learning these strategies themselves, teachers will be able to model and impart them to their students. For these reasons, addressing teacher well-being is no longer optional but a necessary element of high-quality preservice and in-service educator development.

The challenge lies in finding ways to embed well-being strategies and practices into educator preparation programs. Questions that can guide program leaders in embedding well-being into the curriculum include the following:

- What are evidence-based, inexpensive, and accessible strategies for supporting teacher well-being?
- Where might well-being fit within an already brimming curriculum?
- What structures provide the time and space for novices to develop these skills throughout the teacher preparation sequence?

Over the past 5 years, faculty at Trinity University have addressed these questions by embedding professional learning experiences across the programmatic sequence that tap the restorative power of natural environments to promote teacher resilience and well-being.⁵ A growing body of empirical evidence supports the benefits of spending time in natural environments for a range of physical, cognitive, social, and emotional health outcomes.⁶ Green spaces also support the development of neural networks, offer spaces for calming, and promote healing from trauma.⁷ Unlike other approaches to well-being, time in nature is simple, accessible, and cost-effective. Despite such benefits, nature is often underutilized as a pathway to well-being.⁸ This brief describes the development, implementation, and impact of a course at Trinity University, Natural Environment and Well-Being, that was designed to benefit educator candidates, as well as to model for them how to support their students' well-being.

Natural Environment and Well-Being: Course Design

Anchored by well-established professional development schools, Trinity University in San Antonio, TX, provides three [award-winning graduate programs in education](#), such as a 5-year Master of Arts in Teaching (MAT) degree leading to teacher certification, as well as selected undergraduate coursework, including a minor in Education. Trinity University's teacher preparation program is recognized as one of seven premier teacher preparation programs in the nation.⁹ This 1-year graduate program is completed over 3 semesters in which students take 12 credit hours each semester while completing a full-year internship under the guidance of a mentor teacher in one of Trinity's professional development schools.

Trinity's 3-credit course Natural Environment and Well-Being is an option for the education minor that also counts for a Bachelor of Arts in Environmental Studies and two general education requirements. The course draws on ecology, psychology, urban studies, history, sociology, and education. The interdisciplinarity is intentional; this course provides required

general education credits for all undergraduates and thus supports the well-being needs of not only future teachers but also the broader student population. By doing so, the course functions as a unique recruitment tool for the MAT program, attracting students who might not have taken an education class otherwise. Moreover, the course has no prerequisites, allowing preservice teachers early access to knowledge and practices related to well-being.

Units are designed around four essential questions, as shown in the following table.

Table 1: Course Titles and Sample Resources

Unit title	Resources
How Did We Venture So Far From Nature?	<ul style="list-style-type: none"> • <i>A Life on Our Planet</i> (Attenborough) • <i>Healing Trees: A Pocket Guide to Forest Bathing</i> (Page) • The History of Urbanization
Why Is Nature Important for Human Well-Being?	<ul style="list-style-type: none"> • Selected Research • <i>The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative</i> (Williams) • Making Spaces of Awe and Restoration (Williams)
How Can Schools Connect Children With Nature and Support Healthy Development?	<ul style="list-style-type: none"> • Outdoor Learning Environments—OLE! Texas • <i>Last Child in the Woods</i> (Louv) • Selected Research
How Can Connecting With Nature Support People and Their Broader Communities?	<ul style="list-style-type: none"> • <i>Black Faces, White Spaces</i> (Finney) • 10-Minute Walk • Five Ways to Make the Outdoors More Inclusive

Source: Trinity University. (2022).

The course combines theory, research, and practice. The theoretical base includes the knowledge of physical, emotional, and cognitive benefits of natural environments and potential mechanisms contributing to these effects. This theoretical base is reinforced by an understanding of psychological factors that promote a culture of whole-child development. A research assignment empowers students to collect data on their own well-being before and after a daylong field trip and compare their experiences with the literature. This process allows students to authentically engage with course content through shared research and reflection. Practical experience is incorporated as students go out to natural spaces for 50%

of the class time to develop nature-based practices (e.g., exploration, forest therapy walks,¹⁰ sit-spots, hiking). Locations include four urban parks, a state park with a river, a botanical garden, a nature preschool, and outdoor spaces on the university campus.

The class meets one afternoon per week for a 3-hour block and includes one full-day field trip during the semester. This setup provides a wealth of experiential learning opportunities in which students practice the social and emotional skills that contribute to their own healthy development and align with the five SoLD Design Principles for preparing educators:

1. Curriculum rooted in a deep understanding of learners, learning, and development
2. Development of skills, habits, and mindsets of an equitable educator
3. Rich, experiential learning opportunities
4. Pedagogical alignment and modeling
5. Supportive developmental relationships in communities of practice

Designing Learning Experiences

The Natural Environment and Well-Being course includes four major learning experiences, both traditional and nontraditional, each designed with an authentic experiential component. Two semester-long assignments (sit-spots and photo stories) help students develop practices to realize the restorative benefits of natural environments, practices that teacher candidates can also use with PreK-12 students. For these purposes, *nature* describes a space with a preponderance of living and nonliving elements, such as plants, water, and nonhuman animals, with minimal human impact. *Urban* describes a space that restricts nature while maximizing the built environment. A hybrid setting combines qualities of natural and urban spaces, such as a green space on a university campus.

Sit-Spots

Students select a natural space to visit every week for 30 minutes, where they sit silently and observe. Technology is only allowed for timekeeping and taking a photo of the spot. Afterward, students record a brief reflection and upload their image (see [Sit-Spot Reflection](#)). This practice teaches students to slow down and notice nature to promote recovery from mental fatigue, a concept based on elements of Attention Restoration Theory (ART) and forest therapy.¹¹ This activity can be challenging because many students associate “doing nothing” with wasting time and being unproductive. To help students adjust to this activity, the instructor has students complete a sit-spot during the first class meeting in a green

space on campus and then debrief as a group afterward. Short reflective debriefings are also periodically built into the course. Permitted modifications of the assignment include completing some sit-spots in hybrid spaces when time or access does not allow travel to a natural setting and partnering with a peer for sit-spots to alleviate safety concerns, with each student sitting in view of the other while completing the sit-spots individually.

Sit-Spot Reflection

This week, I have really needed a sit-spot because of the increasing stress from all of my tests and essays due. I went only planning to be out there for 30 minutes but extended my sit-spot because the sun began to set, and the color of the sky was a beautiful purple, which I haven't seen in a sunset recently. During this sit-spot, I had to force myself to relax my shoulders and breathe in deeply due to all the stress I have built up. I focused on my senses, especially smell and sight. The scent in the air was almost sweet today, but I am not sure what the source of this scent was. Furthermore, the photo I took at my sit-spot today is very similar to one that I took one of the first weeks of sit-spots. Reflecting on that first sit-spot, I have had so much growth in what I get out of a sit-spot. I don't have to direct myself to focus on senses the way I did at the beginning. It is much more natural and automatic now. Also, despite having so much due this week, I did not think about my assignments and tests during my sit-spot.

Source: Student enrolled in the Natural Environment and Well-Being course. Used with permission.

Photo Stories

Throughout the semester, students take a series of four original photos of nature that weave together a visual aesthetic component with traditional linguistic support to demonstrate their growing connection to the natural world (see [Figure 1](#)). This project is done using a free graphic design tool such as Canva or Adobe Express. Each photo is paired with a brief author statement that includes (a) a message about one's personal growth this semester, (b) a description about how this growth connects to course content, and (c) an explanation of how the growth and the connection to the content are both visually represented in the piece. Photo stories are due every 3 weeks and shared during class in small groups. At the end of the semester, students present a photo story synthesis using a gallery walk format. For the synthesis, students display their four images on poster board and write a summative statement that identifies emerging themes and critical takeaways about personal growth and connections with the natural world. Nature photo stories are another strategy teacher candidates can use with their own students to promote well-being and social and emotional learning.

Figure 1: Photo Story Images



Source: Students enrolled in the Natural Environment and Well-Being course. Used with permission.

Data Collection, Analysis, and Reflective Paper

While studying the research base, students collect their own data to compare with what they find in the literature. Data collection takes place during a full-day field trip to a state park, where students complete pre- and post-trip surveys that measure outcomes such as mood, resilience, rumination, and heart rate variability. Aggregated results ($n = 30$) are discussed in class; students are also given access to their individual results. Each student then writes a reflective paper that compares the research base with group and individual findings and addresses potential causal mechanisms.

Green Space Design

This project allows students to apply course knowledge and experiences to educational contexts. In the community, student groups partner with local Title I elementary schools that have small science, technology, engineering, and mathematics (STEM) grants for developing outdoor learning spaces. Using the Outdoor Learning Environment (OLE) Best Practice Indicators and the elements of ART, groups design natural spaces that fit the needs and budgets of each school, such as outdoor classrooms, gardens, and teachers' lounges.¹²

Designing outdoor learning spaces for local elementary schools allows students to impact the community. This collaborative venture provides plans and ideas for schools and gives students the opportunity to apply their knowledge in authentic contexts that can often be challenging

and messy. Designs for an outdoor school garden created in fall 2022 were implemented the following spring by a high school student completing an Eagle Scout project. Once the garden was finished, the school invited the student designers to the ribbon-cutting ceremony to see how their vision had become a reality.

At the university, groups use these design principles to identify and design campus green spaces to entice peers outside. Examples range from simple additions such as installing electrical outlets by Adirondack chairs and hammocks to large-scale designs of outdoor classrooms. The student perspective is key, as students have firsthand insights into what outdoor areas are most likely to be used by their peers (e.g., spaces near residence halls rather than academic buildings). Designs are shared with university facilities and help inform changes and improvements made to campus green spaces in the coming years.

Implementing Learning Experiences

Over the past 3 years, faculty have found the following aspects of course implementation to be beneficial:

1. **Scheduling:** The course is taught in a 3-hour block to allow travel time to and from outdoor green spaces. For example, round-trip transportation to a local park might require 1 hour, which leaves 2 hours for the visit itself. The full-day field trip is scheduled on a weekday in October and lasts from 8 a.m. to 5 p.m.
2. **Instructors:** The course is team-taught by two education faculty and one or more teaching assistants (TAs). Ideally, at least one faculty member should have knowledge of forest bathing or forest therapy. TAs organize transportation to off-campus settings and introduce learning experiences such as sit-spot and photo stories by showing their own work from a previous semester.
3. **Research support:** Essential support is also provided by additional faculty who design studies and analyze data both during and after the course. In lieu of this element, one instructor needs a basic understanding of statistics (e.g., t-test) for the Data Collection, Analysis, and Reflective Paper portion of the course.
4. **Urban vs. wilderness settings:** While it may be desirable to visit one or more wilderness settings (e.g., a state or national park), doing so is not essential. Research has found that similar benefits can be achieved by using local green spaces and urban parks. In urban settings, faculty look for local parks that are larger so they can ideally avoid extra noise; parks that are heavily treed; parks with a water feature (e.g., river or lake); and parks within a 30-minute drive of campus.

5. **Safety:** On the first day of class, students complete medical information forms and risk agreements, then faculty and TAs bring copies of medical forms on the field trips. Prior to trips, TAs locate the closest hospitals in case of accidents or emergencies. While they are off campus, students are asked to walk in pairs or remain within eyesight of others in the group. They are also given lanyard whistles to wear so they can signal for help if necessary.
6. **Intentional enrollment:** The enrollment cap is set at 30 students. To help ensure a diverse class (in terms of gender, ethnicity, year, and major/minor), 15 seats are opened at registration and 15 are held back. Faculty send a survey asking for the aforementioned demographic information to waitlisted students; the remaining 15 students are selected from this group. This process creates a rich learning environment and provides early access to the course for preservice teachers, as some class seats are held specifically for them.
7. **Budget:** The course requires a budget of between \$1,000 and \$1,500. At Trinity University, funding is provided via department budgets; however, students could be assessed a lab fee to cover costs. Expenses include transportation and entrance fees (e.g., for the botanical garden), in addition to first aid kits, bug spray, and lunch on the full-day field trip.
8. **Communication tool:** At the beginning of the semester, faculty create a class group using the GroupMe messaging app to facilitate communication during field trips.

Examining Course Impact

Many preservice teachers enter the field during emerging adulthood (ages 18-25), the developmental stage between adolescence and full-fledged adulthood when individuals become more autonomous during tertiary education but are not yet financially, socially, and/or psychologically independent. The stage is characterized by identity exploration, self-focus, instability, feelings of being “in-between,” and possibilities and optimism.¹³ Thus, the primary objectives of the course focus on the individual and an exploration of identity and self within the natural world. At the same time, students form a community of practice, learning together through shared experiences, research, and reflection. These insights can impact the individual, campus, and community.

Individual Impact

Qualitative analysis of sit-spot journals found that course-embedded sit-spot practices in nature can immerse college students in restorative environments that support their mental health and well-being while demonstrating elements of ART. Moreover, a decrease in distractions and improved affect over time suggest that the benefits of sit-spots may increase with practice. Overall, students valued and benefited from the sit-spot practice when they completed it in natural environments, but the sit-spot was found to be less effective in hybrid and urban settings.

Quantitative data from the daylong field trip provide firsthand evidence of the effects of spending time in natural environments (Table 2). The Profile of Mood States–Short Form (POMS), which is frequently used in research on nature restoration, measures total mood disturbance and can be broken down into seven subscales.¹⁴ Pre-post comparisons—before and after spending a day in a natural wilderness setting—indicate substantive and statistically significant reductions in all POMS measures of negative mood states and increases in the positive measures of Vigor-Activity and Esteem-Related Affect.

Table 2: Profile of Mood States Pre-Post Full-Day Field Trip

POMS measure	Comparison	Mean	Paired-sample two-tailed <i>t</i> -test (<i>p</i> value)
Total Mood Disturbance	Pre	117.04	5.09 (<i>p</i> = 0.000)
	Post	89.89	
Tension-Anxiety	Pre	11.00	9.05 (<i>p</i> = 0.000)
	Post	3.24	
Depression	Pre	4.90	4.76 (<i>p</i> = 0.000)
	Post	2.00	
Anger-Hostility	Pre	3.68	5.23 (<i>p</i> = 0.000)
	Post	0.71	
Fatigue	Pre	10.14	3.74 (<i>p</i> = 0.001)
	Post	6.82	
Confusion-Bewilderment	Pre	6.14	5.09 (<i>p</i> = 0.000)
	Post	2.79	
Vigor-Activity (positive)	Pre	6.48	-3.98 (<i>p</i> = 0.000)
	Post	10.00	
Esteem-Related Affect (positive)	Pre	13.68	-4.09 (<i>p</i> = 0.000)
	Post	16.64	

Source: Course data analyzed by faculty at Trinity University in fall 2022, with *n* = 28.

Perhaps the best indicator of the individual impact of the course comes from student feedback. While some students found nature more restorative than others, most indicated positive changes in their well-being strategies. End-of-course 2021-22 evaluations included the following comments:

- “This is the class I have wanted for so long but didn’t know it! It opened my eyes to a lot of helpful restorative practices, and I got to learn why nature makes me feel so much better.”

- “This has been one of my favorite classes at Trinity—being able to, in the classroom, learn about the benefits of nature, then experiencing those benefits firsthand ... Most classes have the potential to make mental health worse (due to stress over assignments, exams, etc.), but this class did the opposite—[it] really improved my mental health. I always looked forward to this class every week.”
- “The most important things I learned from this course were practices to use with my future students to advocate and encourage them to spend time outside.”

Campus Impact

In addition to studying the course’s impact on individual students, faculty were interested in examining the impact at the campus level. To assess the impact on the campus, faculty compared students in the course with a sample of similar Trinity students who were not taking the course at four points across the semester on measures of rumination and social, emotional, and psychological well-being. A quasi-experimental research design (Difference-in-Difference) was used to examine causal relationships because randomization is not possible. Control variables included gender identity, race/ethnicity, class year (e.g., sophomore, junior, senior), total enrolled credit hours for the semester, and amount of exercise. Initial analyses found statistically significant reductions in rumination and improvements in the psychological component of well-being across the semester for students in the course when compared with students not enrolled in the course in fall 2022. Faculty plan to continue this research in future semesters, in addition to conducting follow-up studies on the long-term effects of the course on well-being practices.

Conclusion

Teaching is stressful, with postpandemic rates of anxiety and burnout higher in this field than in all other professions.¹⁵ New teachers also experience higher levels of burnout than experienced ones, and female teachers experience higher levels of burnout than their male colleagues.¹⁶ For many novice teachers, professional stress is compounded by the developmental challenges of their emerging adulthood, which includes a peak window for the onset of mental health disorders such as anxiety.¹⁷ Although teacher educators cannot control the myriad stressors that beginning teachers face, preparation programs can teach strategies that can help novices learn to support their own well-being. At the same time, providing immersive well-being experiences for preservice teachers models the very types of strategies educators can use with their own students to promote social and emotional learning.

This pedagogical alignment supports new knowledge around SoLD, allowing preservice teachers to learn “*about* whole-child pedagogy by learning *with and through* such pedagogy.”¹⁸

About the Authors

Laura Allen is a Professor in the Department of Education at Trinity University. Her research focuses on the effects of natural environments on college students' well-being. In 2021, she completed her Forest Therapy Guide certification through the Association of Nature and Forest Therapy Guides. She received her PhD in Curriculum and Instruction with an emphasis in adolescent development from the University of Arkansas.

Courtney Crim is an Associate Professor at Trinity University. Her research focuses on the effects of natural environments on college students' well-being. She completed her Forest Therapy Guide certification in 2021 through the Association of Nature and Forest Therapy Guides. She holds an EdD in Curriculum and Instruction with an emphasis in special populations from the University of Houston and an MAT and BA in History and Humanities from Trinity University.

Benjamin Sosnaud is an Associate Professor of Sociology in the Department of Sociology and Anthropology at Trinity University. His research explores the relationship between social context and health outcomes, with a particular focus on inequalities in health and well-being. He earned a PhD in Sociology from Harvard University and a BA in Sociology and Political Science from Duke University.

Ellen Barnett is an Associate Professor of Science Education at Trinity University. Her research interests include preservice science teacher education and college students' mental health and well-being. Barnett earned a PhD in Learning, Teaching, and Curriculum with a science education emphasis from the University of Missouri, and she holds an MEd in Science Education and a BS in Pre-Professional Zoology from Northwestern Missouri State University.

Jonathan King is a Professor in the Department of Biology at Trinity University, where his research leads undergraduates in researching cell processes related to health and disease. King earned his PhD in Cellular and Molecular Biology at City University of New York. He holds an MA in Ecology and Evolutionary Biology from Queens College.

Joy Rushing is a Researcher with the Learning Policy Institute, contributing to the Educator Quality and EdPrepLab teams. Rushing earned her PhD in Educational Leadership from Auburn University, an MAT in Middle School Education from Clemson University, and a BA in English Literature from the University of South Florida. Rushing also holds multiple professional educator, instructional leader, and principal certifications and has co-authored book chapters on green leadership, well-being, and sustainable schools.

Endnotes

- 1 Baker, C. N., Peele, H., Daniels, M., Saybe, M., Whalen, K., Overstreet, S., & New Orleans Trauma-Informed Schools Learning Collaborative. (2021). [The experience of COVID-19 and its impact on teachers' mental health, coping, and teaching](#). *School Psychology Review*, 50(4), 491-504; Darling-Hammond, L., Hyler, M. E., & Wojcikiewicz, S. (Forthcoming). *Design principles for teacher preparation: Grounded in the science of learning and development*. Learning Policy Institute.
- 2 National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. National Academies Press.
- 3 Benevene, P., De Stasio, S., & Fiorilli, C. (2020). [Editorial: Well-being of school teachers in their work environment](#). *Frontiers in Psychology*, 11.
- 4 Arens, A. K., & Morin, A. J. S. (2016). Relations between teachers' emotional exhaustion and students' educational outcomes. *Journal of Educational Psychology*, 108(6), 800-813.
- 5 Allen, L., Crim, C., Sosnaud, B., Barnett, E., King, J., & Hyler, M. E. (2023). [Nature nurtures teacher resilience at Trinity University](#) [Brief]. EdPrepLab.
- 6 Bratman, G. N., Anderson, C. B., Berman, M. G., Cochran, B., de Vries, S., ... Daily, G. C. (2019). [Nature and mental health: An ecosystem service perspective](#). *Science Advances*, 5(7), eaax0903.
- 7 Darling-Hammond, L. Hyler, M. E. & Wojcikiewicz, S. (Forthcoming). *Design principles for teacher preparation: Grounded in the science of learning and development*. Learning Policy Institute.
- 8 Passmore, H.-A., Yang, Y., & Sabine, S. (2022). [An extended replication study of the well-being intervention, the Noticing Nature Intervention \(NNI\)](#). *Journal of Happiness Studies*, 23, 2663-2683.
- 9 Trinity University. [Master of Arts in Teaching](#).
- 10 Course instructors are certified by the Association of Nature & Forest Therapy as forest therapy guides.
- 11 Course instructors are certified by the Association of Nature & Forest Therapy as forest therapy guides.
- 12 Cosco, N., & Moore, R. (2014). (Eds.). *The outdoor learning environment toolkit*. Natural Learning Initiative, North Carolina State University; Kaplan, S. (1995). [The restorative benefits of nature: Toward an integrative framework](#). *Green Psychology*, 15(3), 169-182.
- 13 Arnett, J. J. (2014). *Emerging adulthood: The winding road from the late teens to the twenties*. Oxford University Press.
- 14 Grove, J. R., & Prapavessis, H. (1992). Preliminary evidence for the reliability and validity of an abbreviated Profile of Mood States. *International Journal of Sport Psychology*, 23(2), 93-109.
- 15 Kush, J. M., Badillo-Goicoechea, E., Musci, R. J., & Stuart, E. A. (2022). [Teachers' mental health during the COVID-19 pandemic](#). *Educational Researcher*, 51(9), 593-597.
- 16 Marken, S., & Agrawal, S. (2022, June 13). [K-12 workers have highest burnout rate in U.S.](#) *Gallup*.
- 17 de Girolamo, G., Dagani, J., Purcell, R., Cocchi, A., & McGorry, P. D. (2012). [Age of onset of mental disorders and use of mental health services: Needs, opportunities and obstacles](#). *Epidemiology and Psychiatric Sciences*, 21(1), 47-57.
- 18 Darling-Hammond, L. Hyler, M. E. & Wojcikiewicz, S. (Forthcoming). *Design principles for teacher preparation: Grounded in the science of learning and development*. Learning Policy Institute.