Defining herself as a teacher-educator, Dr. Crim draws from her practical experiences as a public education teacher with students who span a vibrant spectrum of learning. An alumnus of Trinity’s MAT program, she continually grows as an educator and feels so fortunate to work in an institution that focuses heavily on the student. As an educational researcher, she intertwines her research with her practice of teaching and, consequently, her teaching with her research.

Her teaching is guided by theory, centered on student learning, and steeped in reflection. Through the infusion of differentiation as a practical way to promote purposeful learning, she strives to provide opportunities for students to experience authenticity, autonomy, ownership in classes. Dr. Crim embraces the foundation of differentiation as the umbrella of her scholarship and the cornerstone of her teaching.

To download this handout go to: [www.winston-sa.org/symposium/](http://www.winston-sa.org/symposium/)
Please take about 3 minutes to complete the Draw-an-Environment Test

DAET Rubric Scoring

<table>
<thead>
<tr>
<th>Factor</th>
<th>Present</th>
<th>Interactions with Other Factors</th>
<th>Score: Interactions Made Explicit</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living</td>
<td>0 = factor not there</td>
<td>1 = factor present</td>
<td>2 = interacting with another factor</td>
<td>3 = systems approach</td>
</tr>
</tbody>
</table>
Draw An Environment Test

Living
Abiotic
Built
Humans

Did you include humans?

Data on DAET

Senior level, science methods course, 118 students
- 27% - included only 1 factor
- 26% - all 4 factors
- 2 responses represented a systems/interdependent approach
- 1 response scored 12 points
- >60% did not represent humans of any kind
- 31% represented humans, but only 9% showed any interaction

Desjean-Perrotta, Moseley, & Crim (2010)

Divorcing from Nature

- The majority of humans live in urban rather than rural environments (United Nations, 2015).
- In the US, approximately 80% live in urban areas (US Census Bureau, 2010).
- Growing numbers are spending up to 90% of their day indoors (Velux, 2018).
- We are gradually divorcing ourselves from natural environments.

30th Annual Learning Symposium 2
Which is why it's important to reconnect with our environments.
While the world around us can be damaging - it can also be restorative. If we integrate humans back into the environment - we can heal ourselves.

Percent of College Students with Mental Health Issues

Data Source: American College Health Association (2018)
Salutogenesis Research
Medical approach focusing on factors supporting health and well-being rather than disease (pathogenesis).

Restorative Environments
"In the 21st-Century, perhaps what matters is not the source of the stress but our ability to recover from it." (Williams, 2017).

Restorative
Sleep, vacations, movies/books, nature, etc.
The Effects of Natural Environments on Well-Being

Natural Environment
Preponderance of nature - living & non-living elements (e.g., plants, non-human animals, mountains) with minimal human impact

Urban Environment
Restricts nature while maximizing human impact via built structures and high population density

The gap between the natural setting, for which our physiological functions are adapted, and the highly urbanized and artificial setting that we inhabit is a contributing cause of the 'stress state' in modern people.

Chiba University (2016)

Health/Well-Being Benefits
- Reduced stress
- Improved sleep
- Improved mental health; reduced depression; reduced anxiety
- Greater happiness, life satisfaction
- Reduced aggression
- Reduced ADHD symptoms
- Increased prosocial behavior and social connectedness
- Lower blood pressure
- Improved postoperative recovery
- Reduced mortality
- Improved birth outcomes
- Improved cognitive and heart function
- Improved child development (cognition & motor)
- Improved pain control
- Reduced obesity
- Reduced diabetes
- Better eyesight
- Improved immune function
- Improved cancer survival

Review of Research (104 studies), Frumkin et al (2017)
Potential Mechanisms

- Physical Activity
- Recreation
- Social Contact
- Absence of Environmental “Bads” (e.g., air pollution, noise levels)
- Biophilia Theory/Stress Reduction Theory

**Biophilia Theory**

Innately emotional attachment of human beings to other living organisms.

Experiencing nature with all five senses, ideally within a forested setting.

**Stress-Reduction Theory**

- Focus on emotional and physical responses
- Natural environments help protect against stress, lowering anxiety and enhancing mood.
Attention Restoration Theory (cognitive)

Directed Attention (Voluntary; Executive Network)
- The ability to focus on a task that is necessary or important
- Active and purposeful
- Requires effort
- Uses large amounts of glucose by inhibiting (controlling distractions) and filtering (selecting) stimuli
- Vulnerable to fatigue
- Affects executive functioning

Indirect Attention (Involuntary; Default Network)
- Reflexive and often interesting
- Passive
- Requires little or no effort, inhibition, or filtering and thus, uses little glucose
- Not vulnerable to fatigue
- Allows directed attention to rest if sufficiently mentally encompassing and experienced in a sufficient "dose" (referring to length of time)

Issue
Confounding of Stress and Attention
since the physiological and psychological reactions to stress are often intertwined

Demanding Resource Stress
Impaired Performance
OR
Stress Distraction Resource Depletion
Synergistic rather than independent effect among mechanisms - Physical Activity, Recreation, Social Contact, Absence of Pollution and Noise, Stress, and Attention

Profile of Mood Inventory (3.2.19) Undergraduates

Bars represent the 95% confidence interval
n = 35
(17 respondents in urban condition and 18 in nature condition)

Paired sample t-test of the difference between pre/post treatment - urban condition
Difference = -1.76  t = -.51        p = .62

Paired sample t-test of the difference between pre/post treatment - nature condition
Difference = 7.44    t = 3.97        p = .000**

Mixed ANOVA
Condition * Time interaction      F = 5.62      p = .024*
Condition main effect                     F = 2.62       p = .115
Time main effect                 F = 2.14       p = .153
What makes ART work?

1. **Extent** – feeling immersed (small)
2. **Being away** – isolated physically or mentally escaping
3. **Fascination** – captures attention - sounds like water or visually with fractal patterns
4. **Compatibility** – match for what you are seeking – get away, quiet, small space with friends – fit the purpose

Getting kids outside!

- Classroom activities
  - Doesn’t have to be structured
  - Time supporting the brain isn’t wasted!
- Recharge times to sit and listen (not breaks)
- Slow walks - using senses - teach these
- Gardening
- Environmentally focused curriculum