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Teachers' perceptions and impressions of the forest and the city as a starting point for teaching biomimicry

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Education for sustainable future

- Collaboration across subject disciplines and learning environments
- Shifting perspectives – learning *about* nature to also learning *from* nature
- Developing teachers' knowledge of subject didactics to address environmental and climate challenges

Teaching and learning biomimicry are about seeing and valuing nature in a new way - not just content to teach and learn about but as a valuable and exciting source of inspiration for sustainable ideas to technological solutions and designs.



Biomimicry

- Biomimicry forms a bridge between knowledge of the ecological systems in the forest and how these systems can be imitated in the human-made technical systems in an urban environment for increased sustainability



Practice-based research

- Educational and pedagogical research of relevance to the school's development is focused on and problematized by researchers and teachers in collaboration (Nilholm, 2020).
- This project aiming at finding new paths in education for sustainable development through school subjects, technology, and biology.
- Eight teachers from the two primary schools in Gothenburg, and three researchers participated in the collage inquiry workshops.



The purpose with this study

- The ways in which primary teachers from two schools in Gothenburg, Sweden, **understand and experience** the forest and the urban environment as potential learning environments.
 - *What experiences and understanding of the two places, the urban area, and the forest, are in the foreground of teachers' reflections?*
 - *In what ways does the collage method make visible teachers' relationships with the urban environment and the forest?*



The collage method

- An art-based research method, collage inquiry (Butler-Kisber, 2018) .
- Collage inquiry sets out a specific ‘angle of arrival’ to engage the participants to reflect upon the forest and the urban environment (Allsop & Dillon, 2018)
- In creating the collages, the teachers’ relations to these places emerge when making selections of representations
- The collage method works as a tool to stimulate reflection and broaden perspectives and conversations about the forest and the urban environment.

Emergent findings

- The collage method makes visible not only teachers' experiences and understanding but their professional identity and personal/private identity in relation to the urban environment and the forest.
- Three themes that describes the character of the teachers' reflections that came into their foreground about their experiences of the forest and the urban environment and their understanding of these places:
 - Temporarily situated
 - Place dependent
 - Emotionally connected/attached

Place dependent

Anna: When I think of the city, I think of people. Lots of people gathered in one place. Everyone needs somewhere to live, employment, to get to different places by car, bus, tram, etc.[...] In the forest, there is calm, peace, nature, the soothing scents, the moisture after the rain, the sun shining through the trees, a cup of hot chocolate. Good clothes and shoes. Child playing, climbing, running, exploring. Mushrooms, berries, ghost walk, animals, insects. Light, darkness.





Emotionally connected/attached

- Eva: I listen to the forest outwardly, both for sounds that fill me with well-being but also for sounds that can warn me of danger. In the forest there is peace and quiet but also anxiety. Some of my biggest fears live in the woods – spiders, moose, and wild boar. In the city, I listen inwardly, do what I want to do, spend time with friends and family, go to the gym and exercise [...] But there is also anxiety in the city, anxiety about having an accident - maybe getting hit by a car -, anxiety about running into people who want you badly.

Discussion

- In what ways does the collage method make visible teachers' relationships with the urban environment and the forest?
 - The collage method - contributed to self-awareness and a sense of community. With the collage method, different interpretations and perspectives were made visible (Butler-Kisber, 2018).
- What experiences and understanding of the two places, the urban area, and the forest, are in the foreground of teachers' reflections?
 - The places are experienced both as each other's opposites but also as integrated



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Thank you
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