

Environmental Storytelling Using Poetry Therapy Methods in Sustainability Education in the Context of Teacher Education^{*}

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Abstract

The issues of sustainable development are current in education. They deal with human, ecological, social, cultural and economic activities, and are multifaceted in nature. As a part of their multidisciplinary studies, class teacher students completed a study module on sustainability education, which approached the topic of climate change. Functional, creative methods were applied with the aim of identifying, addressing and unraveling conflicting emotions and underlying ideologies. Students kept a reflective learning diary throughout the four-stage module. The learning diaries examined relevant learning entities. A total of 24 diaries were analyzed using data-driven content analysis to examine the role of poetry therapy methods in sustainability education as a part of multidisciplinary studies. Teacher students recorded many and varied meanings of poetry therapy methods in their learning diaries. The pedagogical applications of creative learning methods were the strongest one. The deconstruction of emotional experiences of the issues of sustainability was raised using poetry therapy methods. It was associated with ability to reflect on one's inner world and to mirror the phenomena of the outside world and the experiences of peers.

Keywords: creative writing; empathized reading; multidisciplinary studies; poetry therapy; sustainability education; teacher education

Introduction

The issues of sustainable development are multidisciplinary, encompassing human ecological, social, cultural, and economic activities (Lahtinen & Löytty, 2022). These issues, along with the ethical dimensions of sustainability, present challenges for education. On a larger scale, within the context of teaching and learning, we encounter so-called “wicked problems” (Stradling et al., 1984)—complex dilemmas that educators face when dealing challenging topics with children and adolescents. Sustainability themes are often grounded in moral values and involve a wide range of perspectives. Sustainability issues are extremely current nowadays and resonate deeply with individuals, provoke debate and conflicting viewpoints within communities (Bianchi, 2020).

European teacher education policy is increasingly focused on shifting from awareness to action in sustainability education. The goal is to enhance interest in sustainability and to develop and share examples of successful national or regional initiatives (European Commission, 2023). Sustainability education, in turn, is grounded in the development of individual sustainability competencies, which

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encompass interconnected values and attitudes, knowledge and skills, as well as personal investment (e.g., wealth) and social opportunities, such as infrastructure (Bianchi, 2020). Education of environmental issues can be based on self-reflexive, environmentally-conscious via creative writing inspired by the natural world (see Galleymore, 2020). In addition, genre-based approach, like writing poetry, nonfiction, and fiction about the environment, has been applied in education (Prentiss & Wilkins, 2016).

This study explores the use of poetry therapy methods during the Environmental Storytelling study module in class teacher education. There is a need to incorporate creative and experiential learning methods to achieve the goals of education in complex themes such as sustainable development.

Sustainability education in multidisciplinary studies of teacher education

Traditional pedagogy is insufficient for sustainable education, as sustainable competencies encompass a broad range of knowledge, skills, attitudes, values, and will. Recent Finnish national core curricula (2014, 2016) outline transversal competencies, which are integral to the Finnish educational system from early childhood education through upper-secondary education, and even in adult and higher education. The purpose of transversal competencies is to support students in developing the ability to learn how to learn and to be active, lifelong learners (National Core Curriculum for Basic Education, 2014).

Class teacher students completed a study module on climate change as part of sustainability education titled *Environmental Storytelling*. This module was based on experiential learning (Kolb, 1984) and focused on teaching methods that support active engagement and make the content personally meaningful (Monroe et al., 2019). As a “wicked problem,” climate change requires the ability to make connections between challenges and to collaborate effectively, while the foundation of sustainability education lies both in the product (the substance, which is significant in contemporary society) and in the process (the issues are addressed and solved collaboratively) (Stradling et al., 1984).

Sustainability education encompasses both the learning of sustainability and social conditioning, meaning that children develop a sustainable approach to life (Bianchi, 2020). By applying experiential learning methods, including creative learning, these goals can be achieved. The emotional dimension, which includes issues of care, well-being, and self-knowledge, plays a crucial role when addressing values as part of sustainability competencies (Bianchi, 2020).

The potential of creative learning methods

The potential of poetry therapy methods in sustainability education lies in their ability to stimulate creative imagination. The shared stories in educational settings can raise students’ awareness, attitudes (including ethical considerations), communal understanding, and potentially lead to behavioral changes (Goodbody & Johns Putra, 2019; Lahtinen & Löytty, 2022). Roza and Guimarães’s (2022) integrative literature review on fiction reading and its relationship with the development of empathy shows that literary reading can foster the development of moral and social skills, particularly empathy. According to Blair (2005), cognitive empathy refers to the ability to see events and phenomena from another person’s perspective, while affective empathy is the ability to experience another’s emotional state (Blair, 2005). In an educational context, creative methods can

arouse emotional empathy (compassion) and enhance cognitive empathy (understanding others' perspectives), which require active engagement (Martingano et al., 2021).

The ability to interpret poetic language provides opportunities to enrich the portrayal of a certain subject, enabling it to be seen in multiple ways (Ihanus, 2019). Literature helps to make surrounding reality more comprehensible and at the same time, challenges readers' imaginations, as the simplified connections between the imaginary and the real are often not possible in fictional worlds (Davies et al., 2013). Creative learning methods has been shown to strengthen analogical and metaphorical thinking, which refers to non-conceptual thinking based on images and experiences (Hähkiöniemi et al., 2016).

The activities of poetry therapy are dialogical in nature. This study module employed the interactive poetry therapy model developed by Hynes and Hynes-Berry (2012). The model consists of four phases: 1) identifying an element or detail of the text that captures the reader's attention and evokes memories or inner images; 2) catharsis, where readers engage with their emotions; 3) insight, in which readers connect the emotions generated to their personal lives; and 4) integration, where readers recognize issues on a more intellectual level and may come to understand the underlying reasons behind their behaviors and attitudes. Although the phases of interactive poetry therapy are presented linearly, they can be adapted to suit the reader's needs and the nature of the process.

The emotional spectrum of climate change can range from catharsis to unpleasant emotions (Meretoja, 2018). The idea of using poetry therapy methods in sustainability education is to concretize abstract concepts in a way that is understandable through fiction, while also opening the possibility of rewriting narratives (Braid, 1996). In the context of sustainability, the ability to use, interpret, and reinterpret cultural stories through poetry therapy methods is valuable for perceiving the world and oneself as part of the environment (Felski, 2008; Meretoja, 2018).

Poetry therapy methods as pedagogical tools in the study model of Environmental storytelling

The study design of *Environmental Storytelling* was modular and consisted of four phases (*Figure 1*) aimed at modeling for teacher students how to pedagogically address and deal with climate change as a wicked problem. The overall goal was to promote empirical ecocriticism (Goodbody & Johns-Butra, 2019) both among the teacher students and within schools.

In the orientation phase, the focus was on the students' emotional experiences and feelings based on what they had read, heard, or seen. Activities such as empathetic reading and creative writing were used to release emotions, share experiences, develop a critical stance, and imagine possible worlds. The second, deepening phase included experiential learning activities such as VR experiences and creative writing based on media texts. The third phase, applying, involved the implementation of a classroom intervention, where the experimentally learned concepts were translated into pedagogical ideas. The final phase, critical reflection, incorporated dialogical creative methods for peer reflection.

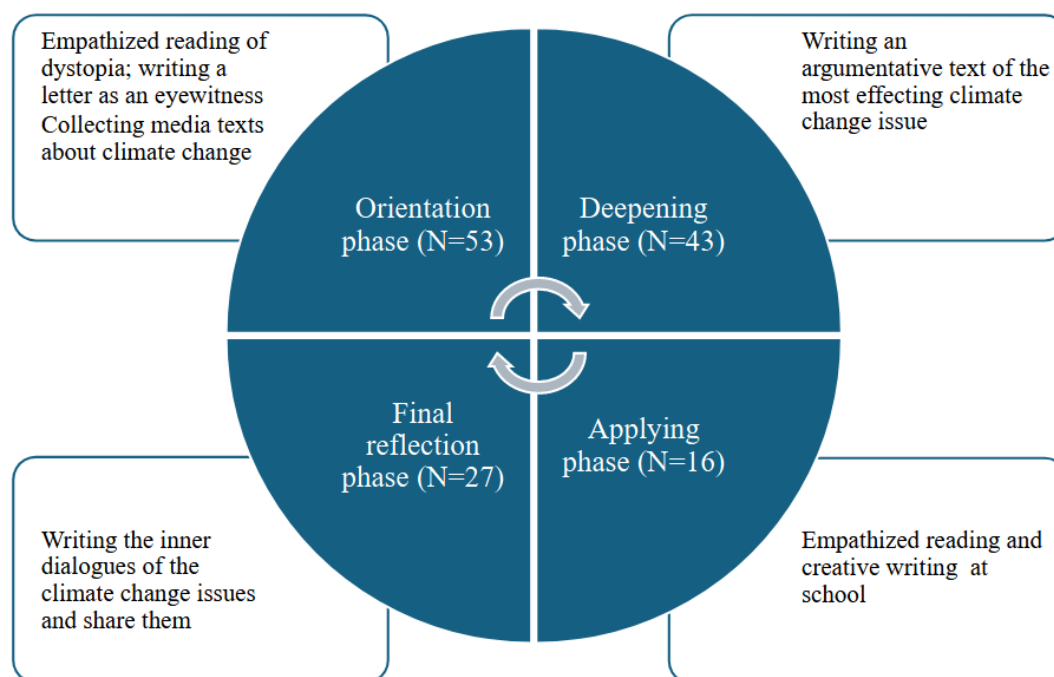


Figure 1. The division of the meanings of using poetry therapy methods

In summary, various poetry therapy methods were integrated into all phases of the course plan (Figure 1) to explore the role and significance of empathetic reading and creative writing. The poetry therapy activities were as follows: In the orientation phase, experiences and emotions as well as critical reading skills were activated with two exercises. A fragment of dystopia about climate catastrophe was read and an eyewitness's letter to the close relative was written under the story. In addition to this, media texts about climate change were collected in Thing Link and commented with emojis. In the deepening phase, argumentative texts of the most effecting climate change issues were produced through the immersion of media texts. Next empathized reading and creative writing were applied as a part of school implementations. In final reflection phase inner dialogues of climate change issues were written and read to reflect and summarize emotional experiences.

The design and research process

The aim of the study is to explore the meanings of empathized reading and creative writing with an emphasis on confronting and addressing environmental emotions and experiences (Hogan, 2011). The research question is: What meanings did class teacher students attribute to poetry therapy methods when studying sustainability issues?

The research context was a multidisciplinary teacher education program (5 credit points). The study module, *Environmental Storytelling*, integrates experiential learning (see Kolb, 1984), creative learning methods, and media education to address climate change-related issues. The goal was to design activities that would be meaningful to student teachers as part of their studies and inspire them to apply similar ideas in a school context.

Research data

The data consists of learning diaries from 24 teacher students across two different implementations of the study module (2022 and 2023). After each phase, written reflections from the participants were collected. In the learning diaries, the students were asked to reflect on their collaborative work, interaction, and emotions from the perspective of the teaching arrangements and activities. A total of 24 students (14 in 2022 and 10 in 2023) consented to having their reflections used as research data.

The data were analyzed using thematic content analysis (Guest, MacQueen & Namey, 2012). Initial coding was carried out by one researcher and cross-checked by another. Differences in interpretation were negotiated and resolved before grouping the data into categories with higher levels of abstraction. The data-based thematic content analysis was conducted in two phases:

1. Utterances related to poetry therapy methods were extracted from the diaries according to the course phases (total N = 139).
2. The utterances were categorized into six main themes based on thematic categorization (*Table 1*, A–F).

This study was conducted in accordance with the Finnish General Data Protection Regulation (GDPR), and according to the guidelines of the Finnish National Board on Research Integrity (TENK) ethical review is not required. Prior to collecting the data, we obtained the teacher students' informed consent regarding their participation in the study. This included obtaining written consent to use the data from diaries for research purposes and ensuring that the participants were fully informed about the study, the data being collected, how it would be used, and the fact that they could cease participation at any point. Furthermore, the teacher students could participate in the study even if they did not want to take part in the research. The data were analyzed holistically, focusing on the meanings the students attributed to the methods, rather than the individual meaning-making of each student.

Results: The division of the meanings of using poetry therapy methods

The utterances of the diaries concerning the use of the poetry therapy methods were totally 139. They were mentioned in all 4 phases according to the course plan (Figure 1): 1) orientation phase (N=53), 2) deepening phase (N=43), 3) applying phase at schools (N=16), 4) final reflection phase (N=27). The utterances of poetry therapy activities weren't evenly distributed in various phases. Namely the first two parts, the orientation phase and deepening phase, were those which had most meanings of poetry therapy methods. The utterances generally centered on the students' own emotions and experiences of concrete tasks.

As the story [a fragment of the dystopia] went on, I found the story to be truly touching. I understood that the passage was strongly related to our course topic climate change.

(orientation phase, 2022_17)

The emphasis of the orientation and deepening phases can be based on the novelty and freshness of the activities, like using empathized reading methods in emotional settings. Pedagogical thinking of poetry therapy methods at school in the applying phase and wider reflection of creative methods in pedagogical purposes in the final reflection phase were in minor role in the diaries.

How do to deal with climate change issues with students? What can you teach 1st and 2nd graders? What kind of working methods can be used? And how to teach in sensitive way? So above all, the course has challenged my previous understandings of teaching difficult themes and created new pathways and opportunities for teaching. (final reflection, 2023_10)

The meanings of the use of poetry therapy methods

There were six main meaning categories (A–F), that the class teacher students gave to the use of the poetry therapy methods in their diaries (*Table 1*). The meanings formulated a continuum: meanings A–C had school orientation and meanings E and F individual orientation. Meaning D was both school and individually oriented.

Main theme	Subthemes = meanings of PT use	Phase of study module
A General pedagogical value of poetry therapy methods) School oriented meaning	1) emotions' role in learning 1–3 2) expanding of learner's perspective 1 3) ideas and tools to innovate creative learning 2, 4 4) motivating and deepening learning in a remarkable way (creativity, perspectives, activity) 3, 4	1–4
B Literacy pedagogy School oriented meaning	New orientation to literacies; innovations of writing a letter (2), creative writing of inner dialogue (4)	1, 2, 4
C Values in education School oriented meaning	Responsibility and sensitivity in pedagogy; the teacher's pedagogical choices in terms of value	2
D Teacher's identity work and expertise Both school and individually oriented meaning	The personal relevance of the environmental crises (confront the own everyday practices and thinking modes)	1, 2
E Identifying own meanings and emotions of the issues of climate change Individually oriented meaning	To bring up personal meanings and emotions towards the issue & own writing	1, 4
F Convincing the value of the climate change issue concretely Individually oriented meaning	The concrete meanings of the issue in everyday life	1, 4

Table 1. The meanings of the use of poetry therapy methods

School oriented meanings

The meanings related to teaching and education covered three main themes: the notions of learning via poetry therapy methods, literacy pedagogical ideas and values in education. The teacher students considered the poetry therapy activities as learning tools – their chances and values. The school oriented meanings were mentioned in all of 4 phases of the study module.

The widest theme was the general pedagogical possibilities of creative methods, that mostly became visible in the reflections as concrete examples. Learning via poetry therapy methods was reflected in 4 different perspectives:

- 1 Emotions' role in learning (phases 1–3)
- 2 Possibility of expanding learner's perspective (phase 1)
- 3 Ideas and tools to innovate new kinds of creative learning (phases 2, 4)
- 4 The possibility of motivating and deepening learning in a remarkable way (creativity, activity, agency) (phases 3, 4)

For many children, climate change is quite an absurd theme, so at least immersive learning on this topic is one of the best possible ways to get students' understanding and awareness of the issue. For my own teaching I should definitely take more immersive learning. (final reflection phase, 2022_04)

Interestingly, poetry therapy activities around reading and writing literacy instruction were the theme, that the teacher students heavily commented. Some kind of new orientation to literacies were mentioned in the utterances related to 3 phases of the study module. The meaning of creative writing to oneself and the emotional side of writing as a general pointed out in the next quotation.

I found it exciting and a bit distressing to share my own text with others in small groups. Unlike, for example, own paintings, knitwear, etc. I feel that the texts I write are personal and I feel very vulnerable and self-critical when sharing my meanings with others. (orientation phase, 2023_10)

The activities that related writing a letter after empathized reading (phase 1) and writing inner dialogue (phase 4) were found extremely meaningful by the teacher students.

During the final meeting, we had an inner dialogue and relating to that, we talked about the ideas in small groups again. It was interesting to see how various dialogues had emerged on the issues. And how many points of view! Some had a conversation through confrontations, others divided the monologue into two parts, forming a dialogue about it. From this we continued to discuss the topic in general, but more in the role of a teacher. My own dilemma was, that how, as a teacher, to go through climate-related issues, attitudes and values with students without bringing up too much of my own opinion. (final reflection, 2022_14)

The concretization of the concept multiliteracies in the latest Finnish curricula (2014, 2016) might cause the meaningfulness of the combination of reading and creative writing, when the students had chances to test the poetry therapy methods themselves in the same sustainability context where they implemented them later at school.

The third theme of school-oriented meanings was teacher's ethics in the forms of pedagogical choices, that raised to consider in the diaries. The responsibility and sensitivity using creative methods like poetry therapy activities were seen complex but necessary issues in developing professional educators.

The personally-oriented meanings

In the area of personal orientation, the teacher students recognized their own stance and emotional experiences towards climate change. Further, via poetry therapy activities, teacher students felt, how their own attitudes and orientation towards climate issues became visible.

I realized that almost since 10 years I had been working on the same themes with my daughter. I have also been able to experience a change in getting information from different media. My two oldest children studied the newspapers. The two younger ones have never seen a newspaper at home. With older children, we listened to the radio hard. Younger people can hear the radio only in the car. TikToks and Snapchats have become familiar in our family. In the demo, I was amused of the examples, which sounded like they were taken from our family. (orientation phase, 2022_09)

The role of creative writing was stressed when identifying teacher students' own meanings and emotions in sustainability. Sharing the own texts and discussing about them the values of sustainability became clearer as well as the teacher's complex role in handling wicked problems, while the inner conflict between official pedagogical objectives and personal opinions came out. Bringing up the personal meanings and emotions towards the issue the value of sustainable education concretized in teacher students' minds.

Partly school-oriented, partly personally oriented were those meanings, where the teacher students recognized how markable the creative methods can be in teacher's identity work while enhancing expertise.

In the small groups, we also discussed what teaching about issues of climate change can awaken in a teacher. This dramatic exercise provided me with peer support and a sense of having to deal with difficult issues, although it is not always easy. (deepening phase, 2023_08)

They noticed to get personal relevance of the climate change issues by confronting their own views on everyday practices and ways of thinking about sustainability.

The teachers pondered the role of creative methods in developing teacher's expertise. The methods could help to view oneself as a teacher, as well as to analyze, what all does teacher's expertise mean.

Summary

The teacher students identified several meaningful functions of using poetry therapy methods in the study module on sustainability education. Most of these meanings emerged during the orientation and deepening phases, where students' own emotions and experiences were made visible and rewritten through concrete tasks of empathized reading and creative writing. These creative activities modeled the dialogical poetry therapy circle described by Hynes and Hynes-Berry (2012)

and were implemented in practical ways, including reading of dystopian literature, writing messages to a friend, and engaging in inner dialogue to summarize emotional experiences related to climate change issues.

Six key meanings were associated with the role of poetry therapy methods in the context of climate change as part of sustainability education. These meanings encompassed both school-oriented and personally oriented aspects. School-oriented meanings included the general pedagogical value of creative methods, the role of empathized reading and creative writing in literacy pedagogy, and the examination of core values in education. Personally oriented meanings focused on identifying personal connections to sustainability issues, as well as reinforcing the concrete value of sustainability. Both orientations reflected teacher identity development and the enhancement of professional expertise.

The possibilities for developing innovative pedagogy, acquiring new tools for literacy learning, identifying emotions, and clarifying values concretized the role of poetry therapy activities within the context of sustainability education.

Within the framework of the entire study module, the orientation and deepening phases appeared to be the most significant for the students' learning. These phases provided valuable resources for sustainability work, shaping both the emotional and functional foundations of sustainability education. Creative methods helped awaken the students' personal connections to sustainability. Notably, a creative writing task in the deepening phase—writing an argumentative message based on a media text collection in ThingLink—elicited a wide range of emotions both about the writing process itself and climate change (see Lahtinen & Löytty, 2022). Awakening personal meanings related to sustainability early in the course was a striking start for many students.

Creative activities offered participants opportunities to openly explore diverse opinions, the complexities of the issue, and to create alternative mental and pedagogical approaches to address them. Furthermore, methods that personalize and concretize issues were crucial in addressing wicked problems (Stradling et al., 1984). Through poetry therapy activities, the students' emotions and perspectives on sustainability became visible. These creative learning methods also prompted reflection on ethical questions, as well as broader considerations of the teacher's professional role. Emotional reactions to climate change had space to be shared and reflected upon through poetry therapy, providing an outlet for the full spectrum of emotions, from catharsis to discomfort (Hogan, 2011).

In sustainability education, the role of creative methods and their reflection at the beginning and end of the study module is central. These phases allow for the emergence and sharing of personal, inner meanings, which can then be reformulated into new narratives. This research highlights how using poetry therapy methods in innovative ways profoundly impacted teacher students' attitudes and emotional engagement.

Conclusion

Poetry therapy methods are highly effective pedagogical tools for helping teacher students understand the importance of addressing wicked problems—such as sustainability—both in schools and as future educators. These methods encourage teachers to approach these issues from multiple perspectives and in diverse ways. The teacher students in this study recognized the multifaceted pedagogical potential of poetry therapy. Creative methods provided them with a new orientation to

learning, both professionally and personally. In the context of Finnish literacy pedagogy, these methods can make reading and writing practices personally meaningful, which seems to be a rare goal in Finnish primary schools (Kauppinen & Aerila, 2018).

Empathized reading of fiction encourages readers to enrich the story or poem, allowing emotional experiences and alternative solutions to emerge. Consequently, analogical and metaphorical thinking is activated, stimulating the learner's mind holistically (Davies et al., 2013).

The creative learning methods encouraged teacher students to engage with climate change issues in the context of education. The students addressed key questions related to wicked problems in educational settings, particularly the complex networks of challenges and their own actions in relation to them. Since wicked problems are inherently sensitive, multifaceted, and complex, tools that can help release attitudes and experiences, and make emotions visible, are valuable. In the instruction of wicked problems, both personal and educational stance matters, which seems in the two orientations of meanings in the diaries. Teaching and learning about sustainability requires consideration of both the learners' and the teacher's practices, experiences, and emotions, as well as the pedagogical choices made.

Furthermore, poetry therapy methods can offer a response for learners with different orientations toward climate change. These activities are especially effective in revealing various strict emotional reactions among participants (see Hogan, 2011). Therefore, educational implementations must be carefully planned to ensure that participants can navigate and release intense emotions safely.

The effects of empathized reading and creative writing in the context of sustainability education, particularly in terms of value and practice changes, are complex to prove. According to Keen (2007) and Meretoja (2018), establishing a direct link between emotional reading and the development of values is challenging, as literacy actions do not always lead to ethical changes. However, the results of this research suggest that poetry therapy activities, as part of creative learning methods and in process-oriented use, can influence the values of sustainability education, in this research among student teachers.

In Finnish schools, the combined use of empathized reading and creative writing is still relatively uncommon in reading and writing literacy instruction (Kauppinen & Aerila, 2019). This may explain the significant number of meanings expressed in the first two phases of the study module. Teacher students applied fictional texts for the purpose of promoting well-being, an approach they found both fresh and inspiring.

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