

# Transformative learning for future teachers: analyzing the impact of experiential workshops in Turin University (Italy).



UNIVERSITÀ  
DI TORINO

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## 1. AIMS OF THE STUDY

This large-scale study reports the results of a survey conducted during the academic years 2021/2022 and 2022/2023 between the participants to several workshops proposed within a training course for student teachers at the University of Torino (Italy); the aim was to understand if these outdoor learning experiences may have a transformative potential in the level of connection with nature perceived by the students, as well as in their willingness to apply the same teaching methodologies in their future profession.



Adventures and games in nature: the game on the ropes



NATURALMENTE: the flock's game



The shape of things: in the clay quarry

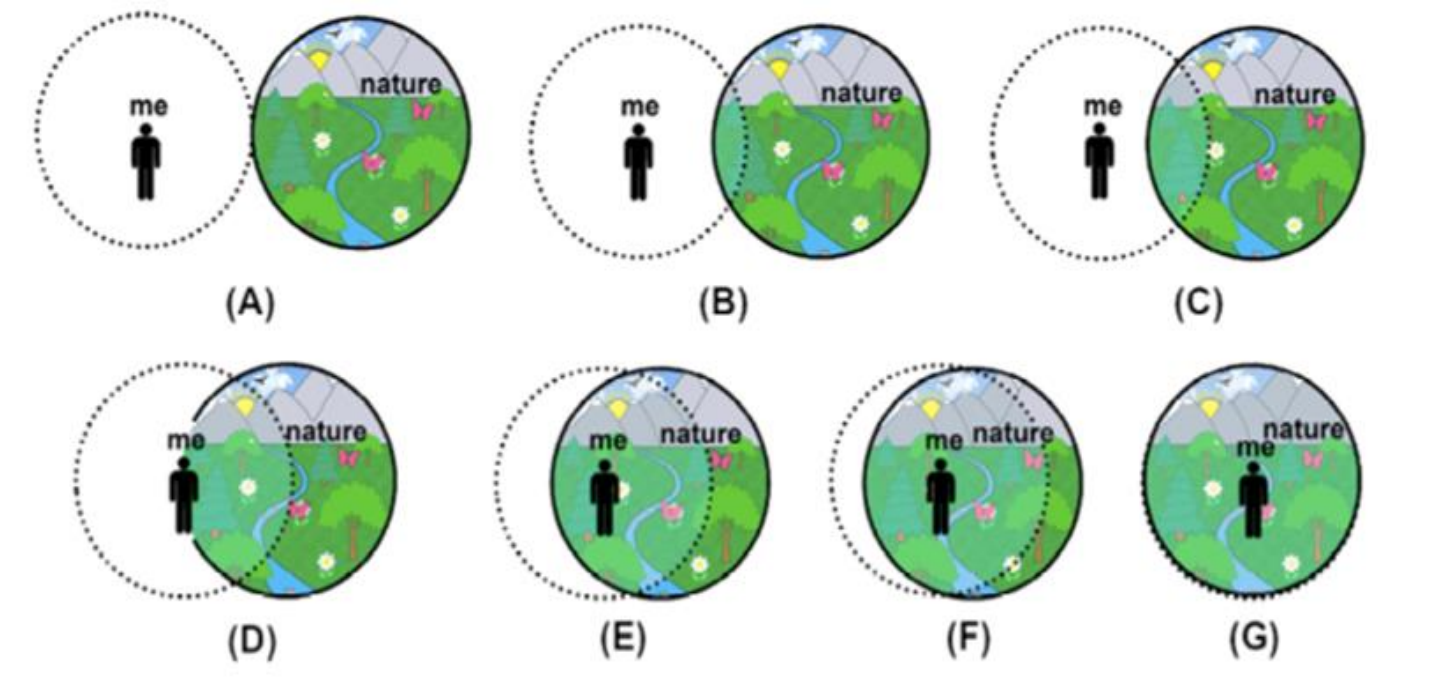
## 2. WORKSHOPS' DESIGN

Natural science teaching presents rich and multiple teaching potentials that can foster learning through activities that stimulate a sense of discovery and curiosity, linked to direct and attentive observation toward the environment, and arouse emotions from contact with the natural world. Our team has been working on the convergence of science education and sustainability education for 20 years, using outdoor methodologies and a transdisciplinary and transformative approach. Our experience has shown that educational workshops are an excellent opportunity to illustrate scientific methodologies of inquiry through guided, systematic and integrated observation; secondly, the workshop context can expand opportunities for inter- and transdisciplinary connections, because the various activities are conducted in co-teaching, mixing scientific, humanistic and artistic perspectives (Tonon, Perazzone, Caretto, 2017).

The various workshops are listed chronologically in Tab.1 (at right).

TITLE	N° OF STUDENTS	TYPOLGY	PERIOD
Un mondo di cose	47	Online with individual excursions	February 2022
La forma delle cose 1	27	In-presence teaching and group excursions	March 2022
La forma delle cose 2	15	In-presence teaching and group excursions	April 2022
Avventure e giochi in natura	26	In-presence teaching and group excursions	May 2022
La forma delle cose 3	25	In-presence teaching and group excursions	May 2022
Walking Pianalto	23	In-Presence Teaching Residential (2-day)	May 2022
NATURALMENTE	11	In-Presence Teaching Residential (3-day)	June 2022
ACADEMIC YEAR 2022/2023 (FIRST SEMESTER)			
Avventure e giochi in natura	27	In-presence teaching and group excursions	September/October 2022
La forma delle cose 1	26	In-presence teaching and group excursions	October 2022
La forma delle cose 2	27	In-presence teaching and group excursions	November 2022
TOTAL N° OF STUDENTS	254		

Tab. 1: list of the educational workshops considered for this study



The Illustrated Inclusion of Nature in Self scale (Klespies et al. 2021).

**nature relatedness scale – short form (nr-6)**

name: \_\_\_\_\_ date: \_\_\_\_\_

Instructions: For each of the following, please rate the extent to which you agree with each statement, using the scale from 1 to 5 as shown below. Please respond as you really feel, rather than how you think "most people" feel.

	strongly disagree	disagree	neutral agree	agree	strongly agree
1. My ideal vacation spot would be a remote, wilderness area	1	2	3	4	5
2. I always think about how my actions affect the environment	1	2	3	4	5
3. My connection to nature and the environment is a part of my spirituality	1	2	3	4	5
4. I take notice of wildlife whenever I am	1	2	3	4	5
5. My relationship to nature is an important part of who I am	1	2	3	4	5
6. I feel very connected to all living things and the earth	1	2	3	4	5

NR-6 score is calculated by averaging all 6 items (total score divided by 6) = \_\_\_\_\_

In 7 surveys involving about 1,000 people, average scores ranged from ~3.0 to 3.5, with 70% scoring between ~2.2 to 4.3.

Nisbet, E. and J. Zelenski (2013). "The NR-6: a new brief measure of nature relatedness." *Frontiers in Psychology* 4:1373.

The short form of Nature Relatedness Scale (NRS)

Dimensions	Item	Related research question
First dimension: stages of perspective transformation	1. Thinking about your educational experiences at this training, check off any statements that may apply: 2. Since you have been participating in this training, do you believe you have experienced a time when you realized that your values, beliefs, opinions or expectations had changed? 3. Briefly describe what happened 5. Thinking back to when you realized that your views or perspective had changed, what did your being in this training have to do with the experience of change?	(1) How (which stages) transformative learning experience shapes ECE teachers' perspectives of sustainability?
Second dimension: components of transformative learning	4. Which of the following influenced this change? (a) Was it a person who facilitated the change? (b) Was it a part of training content that facilitated the change? (c) Was it a significant change in your life that facilitated the change? 6(a) Would you characterize yourself as one who usually thinks back over previous decisions or past behaviour? 6(b) Would you say that you frequently reflect upon the meaning of your studies for yourself, personally? 7. Which of the following has been part of your experience at this training?	(2) What are the components of transformative learning that facilitate perspective transformation to sustainability of ECE teachers?
Third dimension: demographic characteristics	Sex, marital status, prior education, age Total year of professional experience Total number of participated in-service trainings taken in last 18 months	(1) and (2)

## 3. METHODOLOGIES

This study tried to answer to the following research questions:

- What is the average level of connection to nature perceived by the participants before the workshop?
- Did the workshop lead to a change in participant's perceived connection to nature?

Two user-friendly online questionnaires were prepared using Google forms.

### Inbound questionnaire

The main focus is on the connection to nature of the respondents. Referring to the current literature (Bragg et al., 2013; Tam, 2013; Larson et al., 2019; Richardson et al., 2019), we chose two of the most used tools, the Inclusion of Nature in Self scale (INS; Schultz, 2002) and the Nature Relatedness Scale (NRS) in its short form (Nisbet, Zelenski, 2013).

### Outbound questionnaire

We designed this questionnaire in order to allow us to analyze: 1) if the participants perceived a transformation after the workshop 2) if this transformation had an impact on their perceived connection to nature. For the first section we decided to use the Learning Activity Survey (LAS) (King, 1998) as the most appropriate for our purposes.



The shape of things: the collection of pebbles



The shape of things: clay geodiversity



The shape of things: make a Japanese dorodango



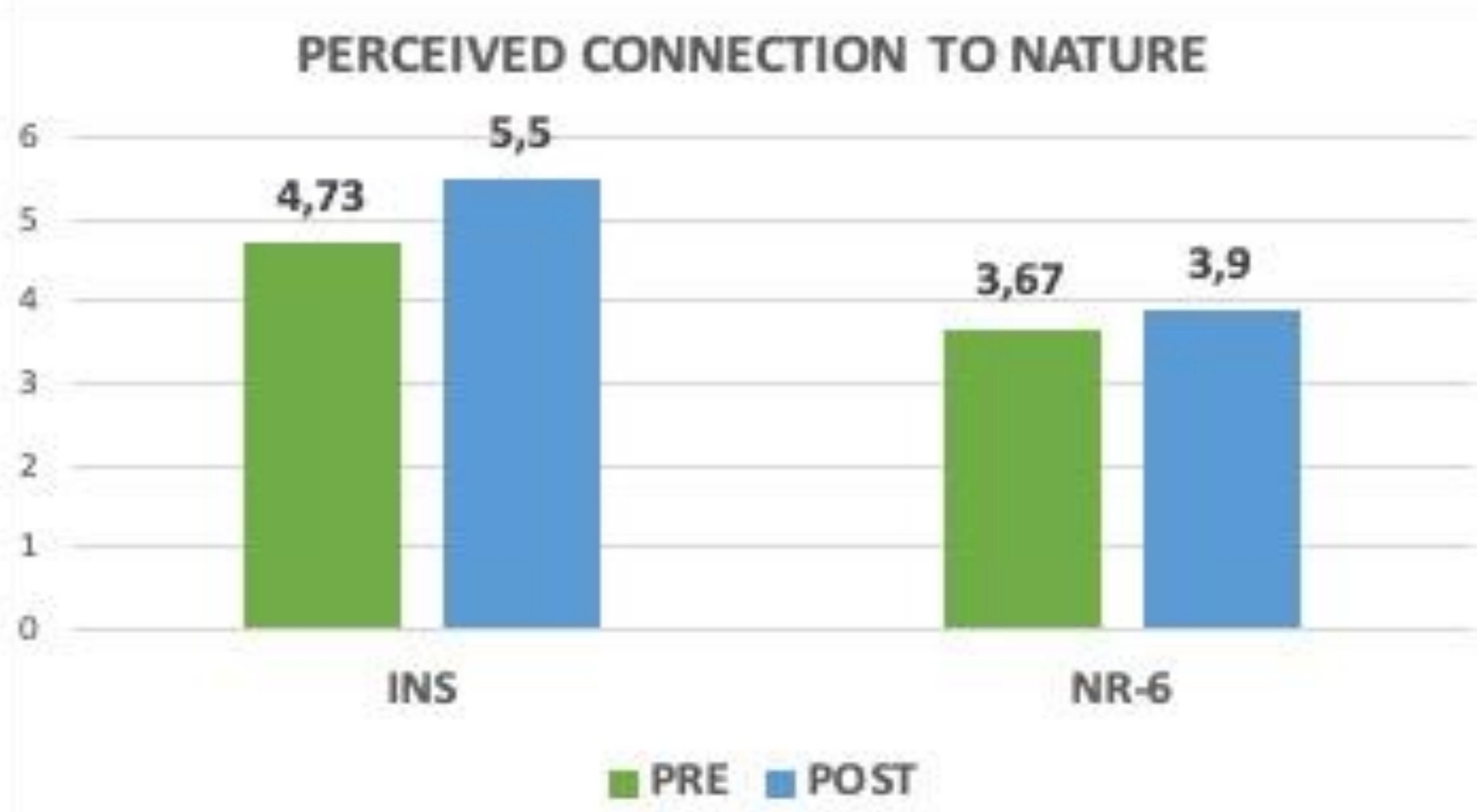
Walking Pianalto: in the hilly woods



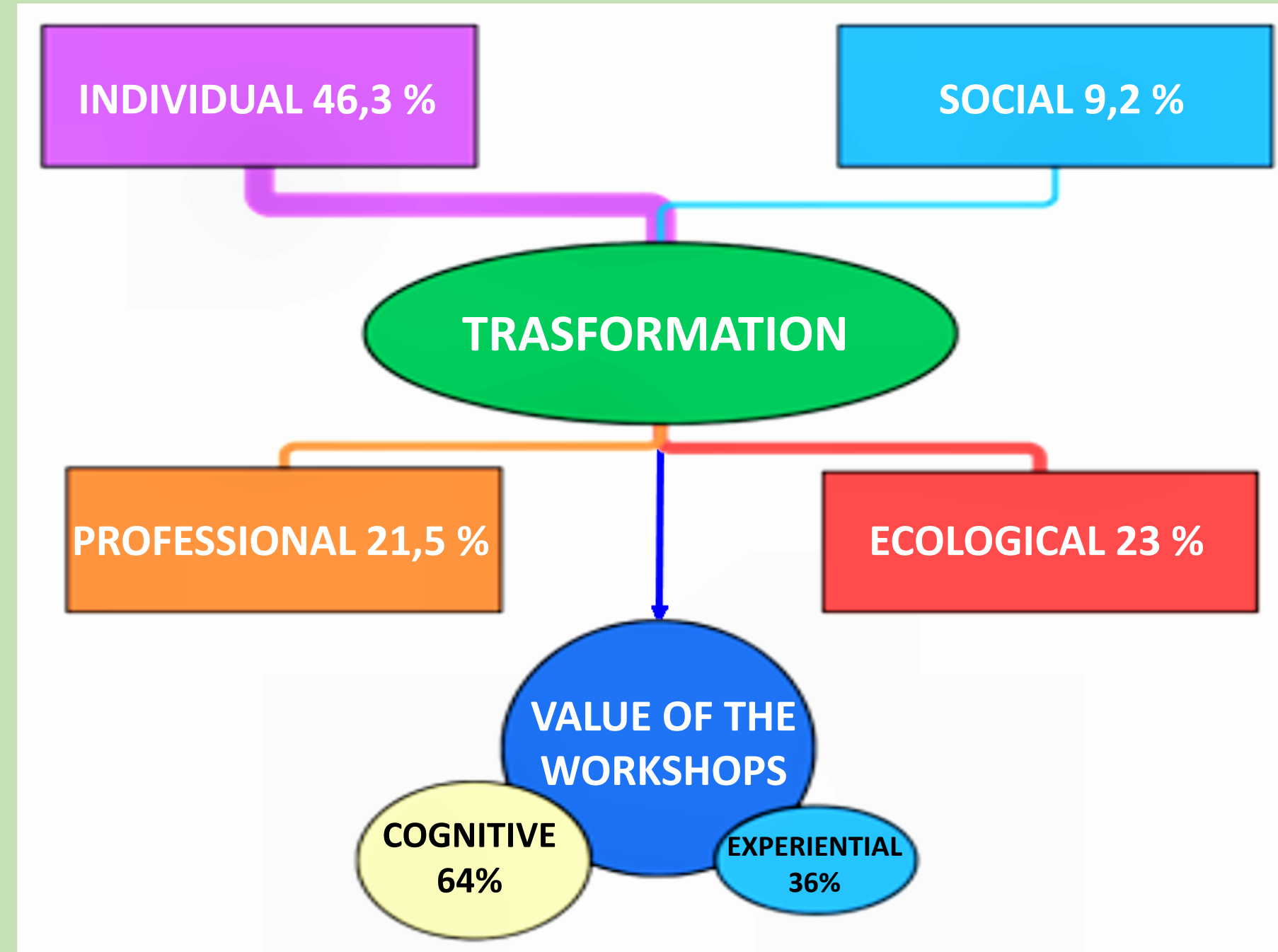
Walking Pianalto: on the Turin Hill

## 4. RESULTS

Results of the survey show that there has been a significant empowerment of the perceived connection to nature of the participants (Fig. 3 and 4); in terms of transformative impact, more than half of the respondents declared that the laboratories led to a change in their opinion, beliefs or behaviors. Nevertheless, for the majority the transformation was only on an individual scale. In designing future workshops, we suggest thus to put more emphasis on the collective dimension of learning, because individual transformation is only the first step in a change that should be a real social change, shared by the whole of humanity. Individualization of environmental responsibility, in fact, may limit educational opportunities in school; a collective responsibility in environmental education should rather be promoted (Aarnio-Linnanvuori, 2019).



The significant empowerment of the perceived connection to nature of the students



A graphical representation of the qualitative analysis.

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