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Promoting Life Cycle Thinking: a Training of Public Officers for Green Public Procurement

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Keywords: Education for Sustainable Consumption and Production; Training for Sustainability; Employee Engagement; Green Public Procurement; Life Cycle Thinking.

Abstract: Several European Union (EU) policy tools, like Green Public Procurement (GPP) or the EU Ecolabel, aim to reduce the impacts of products along the whole life cycle. Nevertheless, despite having existed for decades, we observed that their use is not yet widespread, also in institutions that have environmental protection as a mission.

This study aims at exploring the impact of an experimental training course (“Introduction to the Circular Economy and Life Cycle Thinking”) delivered to a group of public servants by looking at the group’s comprehension and value given to the importance and feasibility of activating more Sustainable Consumption and Production patterns, such as GPP. The course design was based on the research and practice framework provided by Education for Sustainable Consumption and Production (ESCP). This was drawn from an idea of transformative Education for Sustainability (ES), seen from a constructivist, critical and complex perspective. Particular attention was given both to the cognitive and emotional aspects of the learning process. Thus, the course was specifically tailored to the participants. The different training sessions were carried out in 2018 and involved a total of 95 public servants. Mainly qualitative methods (document analysis, observation, quantitative and qualitative questionnaires) were used for the research. The findings show that the learning activities, which designed, performed and evaluated in this study using ESCP principles, are valuable to draw the participants’ attention to many sustainability topics that they are rarely exposed to. Moreover, they demonstrate to contribute to inspire sustainable actions. Overall, further research and implementation of extended processes of this kind should benefit the innovation of professional training and accelerate the transition from a linear to a Circular Economy (CE).

Introduction

Public procurement in the European Union (EU) comprise over 14% of GDP (European Commission - EC, 2019). Therefore, Green Public Procurement (GPP) and other voluntary policy tools, such as the European Ecolabel, have a strong potential to promote Sustainable Consumption and Production (SCP) and a Circular Economy (CE). At the national level, most EU Member States have published GPP National Action Plans (EC, 2018), however, there are no systematic statistics in the Member States (EC, 2016) on the real GPP uptake.

In particular, as Sustainability professionals based in Italy and Spain, we noticed that, although these tools have existed for decades, up to 2017 they had barely spread when compared to the World’s environmental-socio-economic problems; even in institutions that have environmental protection as a mission.

On the other hand, from our experience as Education for Sustainability (ES) or Education for Sustainable Development (ESD) professionals, we observed that in Italy and Spain the training on sustainability issues, such as GPP, is almost totally focused on transferring information without taking into account participants’ background knowledge and interests, mainly administrative personnel. In short, more transformative methodologies characteristic of ES do not seem to be applied. However, to promote the change from a Linear to a Circular Economy, we must acknowledge that the irresponsible and hyperconsumeristic behaviours of our society are comparable to those of a sedentary person addicted to exceedingly abundant food, high in fat, sugar and salt. If information delivered within a few hours was sufficient to learn and find the strength to eat healthier, overweight people

would not exist today. Similarly, the influence of Life Cycle Assessment (LCA) may remain limited if it enters the decision-making with no anchoring in organisational culture and decision-makers personal world-views (Heiskanen, 2000). When combined, Education about and for Sustainability provide people also with the capacity to motivate, plan and manage change towards sustainability within their organisation (Tilbury, Crawley and Berry, 2005).

Indeed, there is international recognition that an improvement in the quality of education, in addition to quantity, is critical to advance in the Sustainable Development agenda (Ofei-Manu and Didham, 2018). *"We believe it is necessary to establish a thorough understanding, not the least among leaders, of the character, magnitude and urgency of the sustainability challenge as well as the self-benefit of competent proactivity for sustainability"* (Broman and Robèrt, 2017, pg. 18).

These reflections fed our interest in investigating the potential of ES, traditionally directed to children (Scalabrino and Oliva, 2013), in involving adults in more conscious and sustainable personal actions. As Tilbury (2011) affirms, many studies agree that educators associate ESD with active and participatory learning processes, despite the lack of empirical evidence that demonstrates the effectiveness of these methods in achieving the objectives of Sustainable Development. We focused our research on an Education for Sustainable Consumption and Production (ESCP) drawn from an idea of transformative (Mezirow, 1991; Sterling, 2011; Blake and Sterling, 2013; Sterling and Baines, 2002) ES, seen from a complex (García, 2002, Bonil, Junyen and Pujol, 2010, Bonil and Pujol, 2005), critical and constructivist (García, 2002, García, Rodríguez and Solís, 2008) perspective.

Context and research question

The opportunity to explore the contribution that this ES can make to professional training and to the transition towards a more sustainable economy arises from an acceleration of the formal commitments of several international institutions, starting in 2015. Among them, the Sustainable Development Goals of the UN's 2030 Agenda and the Paris Agreement to prevent dangerous climate change. At the European level, the Circular Economy Strategy, and at the Italian level, the obligation to include

Minimum Environmental Criteria in all public bodies' procurement procedures and various Regional Action Plans for GPP.

Finally, in this context of positive turning point for the Sustainable Development policies started over half a century ago, in 2018 we proposed to develop and study the one day workshop "Introduction to the Circular Economy and Life Cycle Thinking". In particular, our research scenario was one of the 19 Italian Regional Environmental Protection Agencies. These are organisations, which are in charge of the environmental monitoring and control (air, waste, marine and terrestrial waters, meteorology etc.) in their regional territory. The group of individuals studied was formed by the 95 participants in the eight editions of the eight hours course. Among them, public employees with administrative profiles and, in the vast majority of cases, environmental technicians or professionals with a degree in environmental and natural sciences, biology, geology, chemistry, physics, computer science and engineering.

As anticipated, it is complex to evaluate the effectiveness of a training activity designed to provide concepts, scientific data and ideas for reflection, to promote critical thinking and reasoning abilities in the context of "Wicked problems", to move emotions and stimulate individual and collective action. *"Additionally, the impact of... ESD... interventions may be a long-term engagement with issues and questioning assumptions, rather than immediate measurable results"* (O'Flaherty and Liddy, 2017, pg. 13).

Nevertheless, being aware of the complexity of reality, does not mean giving up trying to know it (Mayer, 1998). For all these reasons we chose the qualitative methodology, which explores social phenomena from the perspective of the actor, seeking to understand through descriptive data, such as the words and behaviours of the research participants (Scalabrino, 2017). In qualitative research, quality and in depth information is preferred to quantity. In this contest, there are questions to explore rather than initial hypotheses. In our case:

What is the impact of the course on the participants' perception of the importance and viability of Sustainable Consumption and Production?

The journey

The journey that led to the completion of eight editions of the course included different phases. As shown in Figure 1, some overlap in time, while in other cases different qualitative instruments were used to collect the information necessary for the design of the course, its continuous feedback and its final evaluation.

Context analysis, design and realisation

Given the interest in developing GPP in the organisation, we started an analysis of the global, national, regional and organisational context, that continued throughout the journey. From the preliminary analysis, a first introductory awareness course was organised. The aim was to foster a systemic vision of the interconnected problems of the World and the solutions, highlighting complex relations between topics that, at first, people usually see distant from each other. Further, to exercise critical thinking, move emotions and contribute to motivate more responsible decisions. The course was designed and carried out taking as reference the main components of ESCP, drawn from an idea of transformative

ES, from a complex, critical and constructivist perspective (Scalabrino, 2017).

In this framework, the trainer will make "a reasonable use of the different didactic methods, designing the educational process according to the desired objectives and following a coherent unifying thread... Will adapt the contents and methods to the participants, their previous knowledge and personal interests, and will feed back the design and implementation of the educational process based on the continuous evaluation of the results and the reactions of the apprentices during the process" (Scalabrino, 2017, pg. 69). In addition, some "organising issues" or "thematic containers, essential for a teaching-learning process for Sustainable Consumption and Production", are proposed (Scalabrino, 2017, pg. 67). The contents of the course, based on the training needs detected during the preliminary study, were organised around these "organising issues" (Figure 2).

The final version of the program included several thematic areas of intervention (Figure 2) that were approached with different flexible, dynamic and participatory teaching tools, capable of working both cognitive and affective aspects.

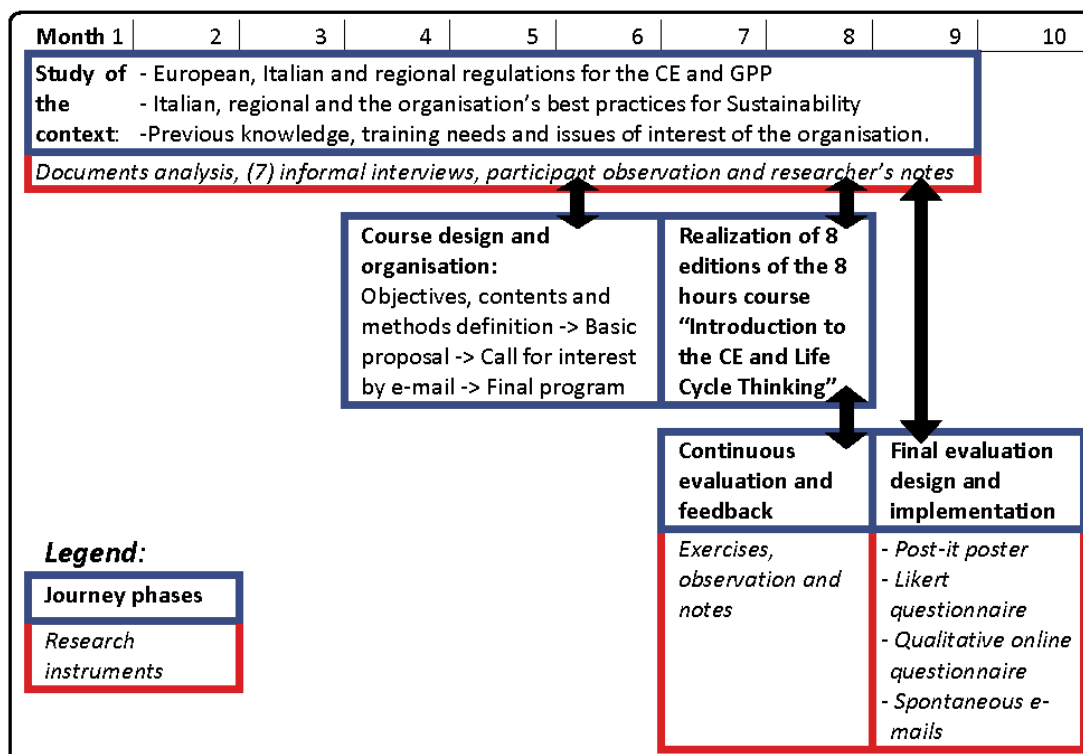


Figure 1. Diagram of the phases of the journey and the instruments used.

Complex, critical and constructivist perspective	Organising issues	Thematic areas of intervention of ECPS	Methods and tools of ES, ESD y ESC Active and cooperative learning, based on problem solving. Informal disposition of the classroom. Case studies, work groups and debate, images, videos, articles, sustainability indicators, humour, presentations, exercises and personal reflection...
	What	1. "Introduction to the Circular Economy and presentation of the course"	
	Towards what	2. "Business case studies: examples of innovative companies"	
	Why/How	3. "reasons for the transition to a more sustainable economy: environmental-socio-economic challenges and bases for Life Cycle Thinking"	
	With whom	4. "Main global and European policies for a more sustainable economy"	
	How	5. "The Public Administration: tools and implementation" 6. "Environmental criteria and eco-labels"	
	When	7. "The evolution to the future economy: schools of thought"	
	Who	8. "Considerations on change and transition"	

Figure 2. Thematic areas of intervention of the course, in the framework of Education for Sustainable Consumption and Production (ESCP) from a complex, critical and constructivist perspective.

In principle two editions of the course, of 8 hours each, were scheduled. Then, due to the wide demand, they became eight. Moreover, being the participation on a voluntary basis, we insisted in the involvement of key, for GPP, employees

The course evaluation and research instruments

Assessing the outcomes of a learning process, which occurs through personal reflection, reconstruction and social interaction and by which an individual assimilates information, ideas and values and thus acquires knowledge, know-how, skills and/or competences (Cedefop, 2008) is complex. Therefore, the following qualitative research tools were applied:

- The analysis of documents (poster of the main socio-economic-environmental concerns and spontaneous emails).
- The participant observation, reflected in the notes in which the educator compiled the information obtained through various evaluation activities integrated in the course.
- The Likert satisfaction questionnaire of the training department, completed by 67 participants at the end of the course.
- A questionnaire with open questions to explore the feelings at the end of the course, the main learnings and the proposals for the future. This was tested by three participants with experience in education and training. The final version, that permitted the optional name insertion, was sent as a Google form a week

after the last edition, to the people who participated in the whole course or almost (89 of the 95). This is because a course with an holistic approach, carried out with constructivist methodologies and with a common thread that links a sequence of activities and contents that is important it remains complete, is like a film in which each dialogue, corporal expression and scene are fundamental for the enjoyment and full understanding. Being a voluntary participation action, we did not insist on its completion and the respondents were 40.

Main findings

From the context analysis phase, considerable premises emerged:

- With regard to the level of integration of sustainability, there were no visible signs of greater consideration of the environment, taking into account the objectives of the organisation and in comparison with other private organisations committed to sustainability.
- During the course, many participants indicated that they did not have a clear and shared vision of the organisation's mission.
- The individual knowledge of the employees was very specific (on the control and status of some environmental aspect of the regional territory) and, in general, more global and systemic knowledge on the state of the world, life cycle thinking and sustainability instruments seemed to lack.

- The participants' main concerns were social (Figure 3).

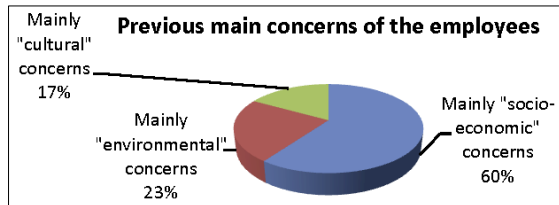


Figure 3. Participants' previous main concerns.

From the information gathered after the course, the following main results emerged:

- The quantitative analysis of the 67 Likert questionnaires indicated an almost full level of satisfaction with the course. However, of even more interest were the comments in the space for notes of the Likert questionnaire and in the spontaneous emails:
 - "Finally an interesting course"*
 - "The topics discussed are very interesting and involving, they should be deepened more"*
 - "...topics of extreme interest, ...all the staff was satisfied and enriched".*
- Many of the above informants highlighted the need for everyone, including managers, to participate in a course like this:
 - "It must be made mandatory for all, employees and managers. The management must start investing to reduce environmental impacts, since we are an organisation for the protection of the environment"*
 - "I try small actions to cause the least possible impact... Presentation/information that... goes straight to the heart, there should be other courses like this and... more circular economy actions in the place where we work"*
 - "I hope... it finds more and more spaces, in the organisation and outside".*

According to the 40 completed open questionnaires:

- The course seemed to have had a significant positive impact on the perception of the importance and viability of Sustainable Consumption and Production. For many informants it was interesting, enlightening and necessary (Figure 4c, d, e and f). Most of the aspects that were more appreciated were related to the educational tools (Figure 4e). To give some examples:
 - "The experience of the closing video was the icing, but the whole course was a tasty cake"*
 - "The course method allowed participation at the front line, the issues and their exposition: without personal judgment, the lecturer's capacity to support with communicative expressions of 'relief', the alternation of information and images that are emotionally difficult to sustain (for example, the image of the slaves)".*
- From the feelings declared at the end of the course, the degree of satisfaction and the desire to propose actions to continue the journey, the treatment of the most overwhelming issues (for example, the state of the world) with respect to the more motivating ones was quite balanced and the reaction of "discouragement" did not surpass the stimulus to personal action (Figure 4a).
- There was a wish in the group to activate good practices in the organisation and to deepen the topics covered by the course (Figure 5). It should be noted that a quarter of them spontaneously specified that they would expect that future training and information actions to update themselves on the topics of the course, should be, using their words: *"continuous", "not intermittent", "cyclically repeated", "periodic", "scheduled"...*

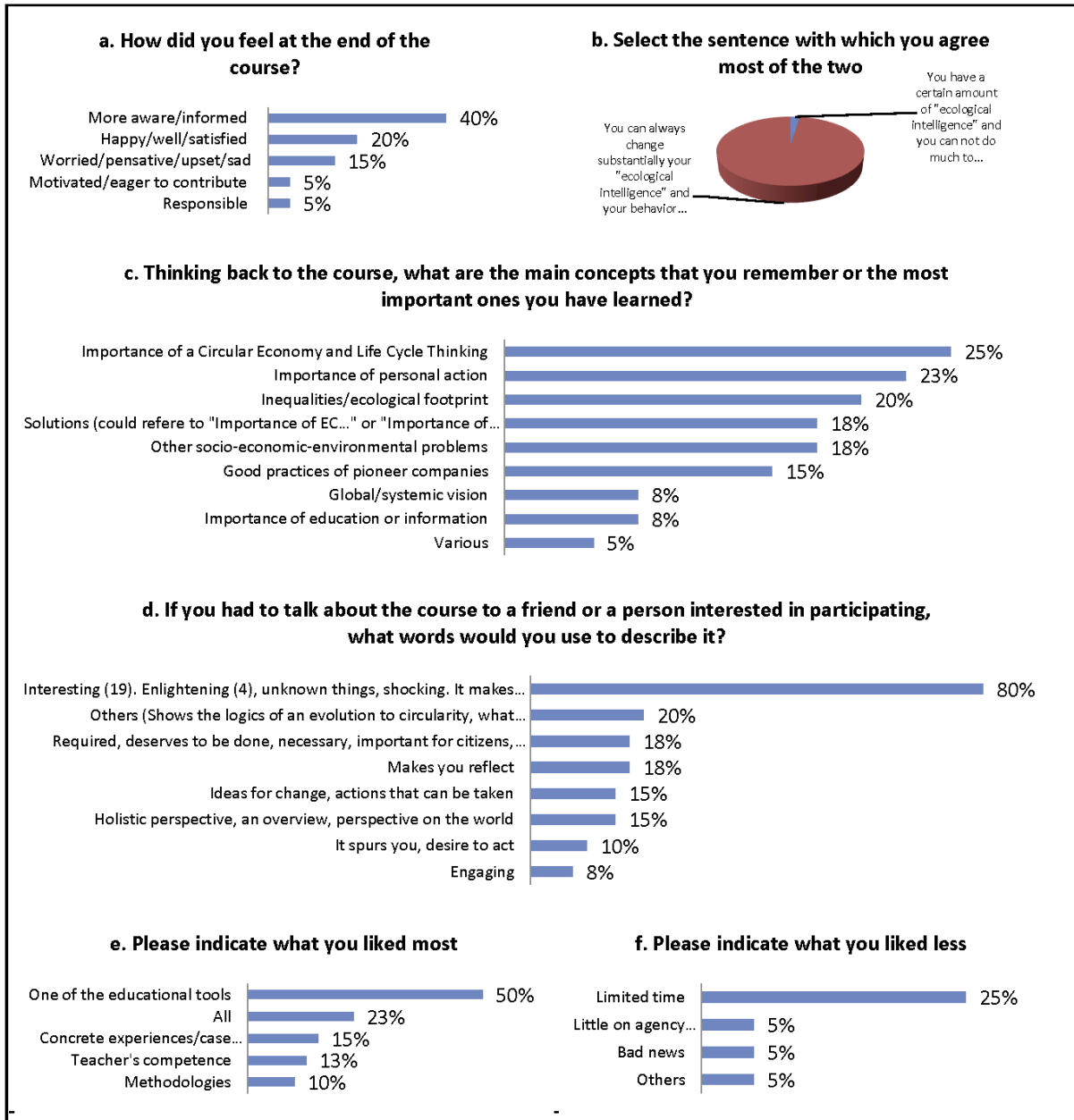


Figure 4. Main results of the qualitative questionnaire on the course "Introduction to a Circular Economy and Life Cycle Thinking". The histograms indicate the % of informants that use the keywords on the left.

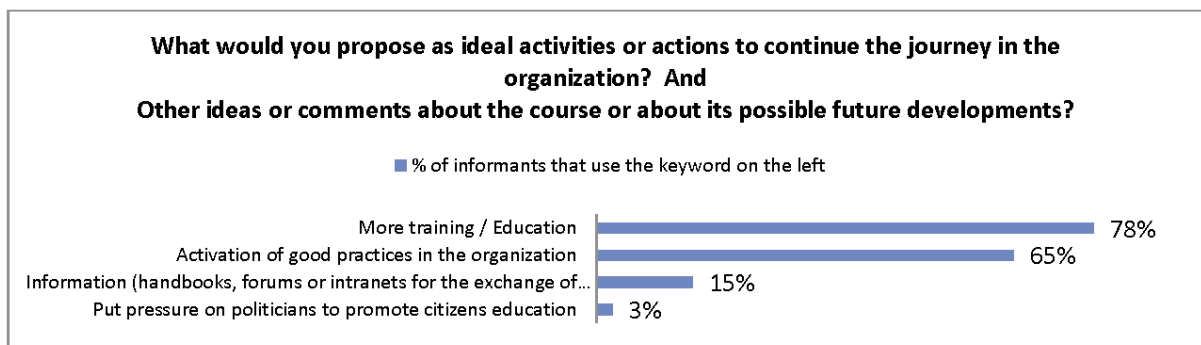


Figure 5. Proposals to continue the journey in the organisation.

Conclusions

“Sustainability is not a destination... but an ongoing learning process. Educators need to build the capacity... to address sustainability issues at a more systemic level, and to collaborate with multiple stakeholders for their resolution” (Tilbury, Adams and Keogh, 2005, pg. 27).

In general, further research and longer learning processes, as the one presented in this paper, could help to innovate professional training to accelerate the transition from a linear to a Circular Economy. Transformative (Mezirow, 1991; Sterling, 2011; Blake and Sterling, 2013; Sterling and Baines, 2002) ES approaches like the one studied, and not the transmissive ones, should be taken more into consideration in policy making, to support the implementation of sustainability policy tools.

In particular, for the organisation studied, which has institutional purposes of environmental protection, in principle there is an important potential for improvement in terms of sustainability integration.

Results suggest that a training approach from a transformative Education for Sustainable Consumption and Production, based on a complex, critical and constructivist perspective, could contribute to engage the employees of the organisations that decide to move towards sustainability (for example, by activating Green Public Procurement, mobility management or energy savings and efficiency), so to be more effective. For example, well-trained and motivated employees can contribute to the important task of monitoring green public contracts.

To accelerate the transition to a Circular Economy, this type of courses could be proposed as compulsory and perhaps with the incentive of training credits to meet the training needs that many people are unaware of or that, *a priori*, do not wish to fill. Training could also be supported by other measures, such as economic incentives, internal work groups or legislation.

“The essence of any organisation depends on the thought and interaction of its members” (Senge, 2005, pg. 50), as in a living organism, where the interest of the organs that compose it must coincide with that of the whole (Eguiguren and Barroso, 2011). Thus, to achieve greater sustainability, an organisation should share a clear mission and vision of the future that integrates sustainability (Doppelt, 2003). Indeed, during the different editions of

the course, many participants highlighted the need for all, included managers, to participate in a course like this.

The research had some limits that should be taken into account in the design of any course for sustainability in any organisation, as well as for future research.

For example, the course studied was short in time and not supported by other organisational change instruments. When courses of this kind are mandatory, even for management, it would be important to facilitate the participation of all the employees, as well as to investigate the inclusion of specific activities on personal values.

It would be of interest to further explore the attitudes towards learning and the degrees of satisfaction of employees who voluntarily attend non compulsory courses and the ones of employees that do not, to study how attitudes influence their attendance.

Moreover, as proposed by O’Flaherty and Liddy (2017), it would be important to present in more detail the values and beliefs of the researcher/educator. Further, to evaluate among the results, the participants’ development of a “bottom up activism for positive organisational change” in the longer term. In our opinion, it should be possible to go beyond the theoretical proposals of the participants to continue the journey, for example through detailed participant observation of employees’ actions in the longer term.

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