Change Project Approach for Reorienting University Teaching Towards the Implementation of Sustainability Principles

Oleksandra Khalaim, Tatjana Tambovceva, Lovísa Eiríksdóttir, and Shepherd Urenje

1 Introduction

The World Commission on Environment and Development proposed in 1987 a long-term strategy for achieving sustainable development by the year 2000 and beyond (World Commission on Environment and Development 1987). The report emphasized that attempts to address environment and sustainability problems require a holistic approach, which embraces the socio-ecological dimension in tandem with economy changes. Nowadays we can pose the question, why 33 years later the world is still talking the talk, and finding it almost impossible to walk the talk. Propelled by technological advances and global integration, the so-called economic growth experienced over the last century has been accompanied by increased pressures on socio-ecological resources. The list of the most pressing environmental, social and cultural issues has continued to grow including the supply of clean energy, availability of freshwater, ecological restoration, combating global climate change, increased human migration, increased urbanization and industrialization. Most recently, the

O. Khalaim (✉) · S. Urenje
Swedish International Centre of Education for Sustainable Development, Uppsala University—Campus Gotland, 621 67 Visby, Sweden
e-mail: oleksandra.khalaim@swedesd.uu.se

S. Urenje
e-mail: shepherd.urenje@swedesd.uu.se

T. Tambovceva
Faculty of Engineering Economics and Management, Riga Technical University, Kalnciema Street 6-213, 1048 Riga, Latvia
e-mail: tatjana.tambovceva@rtu.lv

L. Eiríksdóttir
Department of Business Studies, Uppsala University, Campus Gotland, 621 67 Visby, Sweden
e-mail: lovisa.eiriksdottir@fek.uu.se

seriousness of confronting COVID-19 has spawned a myriad of military metaphors including, the "greatest challenge since the Second World War", "working on the frontline", the virus is an "invisible enemy", and several other terms (Harris 2020). Never in the history of the planet has the world been united to deal with one common cause. It is therefore clear that global action is needed to create a more sustainable future. One problem that sticks out for higher education is in challenging the values of current growth trends and to decouple economic growth from environmental pressures and social justice.

The primary role of institutions of higher education is that of producing knowledge. It is therefore obvious that these institutions are a powerful means by which society can create a more sustainable future and this can happen when teaching, learning and research are reoriented to incorporate the concept of education for sustainable development to address many of the problems associated with human development. As we enter into the twenty-first Century, we are confronted with a supersonic rate of globalization resulting in snowballing challenges that demand a different educational approach, an approach that matches this complexity in order to meet the local and global challenges (Urenje 2019). According to UNESCO (2015b), a good quality education empowers people to change the way they think and act in relation to a sustainable future. When sustainable development issues are integrated into all aspects of teaching, learning and research, institutions of higher education have the potential of transforming society and developing students who are change agents. Since the current environment and sustainability challenges are linked to the way the current generation has been educated, our priorities should focus on reorienting our education system to help students think and behave in different ways that foster sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity. Higher education institutions are therefore charged with the task of equipping students with essential knowledge, skills, attitudes and values empowering them to participate in creating a sustainable future and this can be achieved through transformative learning approaches.

Society agrees that scientific and technological innovations are essential in order to help us break free from unsustainable trends. However, without changes in social norms, habits, practices, and structures technology alone is inadequate. In our response to the current and future "wicked problems" which are characterized by high levels of volatility, uncertainty, complexity, and ambiguity, we also need multifaceted cultural changes that are long lasting. Education research acknowledges that not much is known about how social transformations emerge from the learning process, or how it contributes to the development of transformative agency in community contexts (Lotz-Sisitka et al. 2015). Wals (2007, 2010) has argued for transformative social learning in which a communicative process includes learners (a) critically examining their own values, habits, and norms (deconstruction), (b) listening to what others have to say (confrontation), and (c) co-constructing new viewpoints, values, and action repertoires (reconstruction).

What do we mean by transformative learning? Despite increased technological developments and wealth, massive social injustices and inequalities persist and are

getting worse. When we engage in the discourses around our assumptions and expectations, i.e. our social world, community, and culture, as oppressive, unfair or unsustainable we can enter into a process of learning for social transformation. Transformative learning is therefore the process of examining, questioning, and revising those perspectives that we have otherwise taken for granted. Transformative learning also draws on the humanistic assumption that people have the ability to change deliberately their frames of reference and in this way have an inherent potential for personal growth and development (Ojala 2016).

The transformative learning perspective generally agrees with the common assumption of the education for sustainable development that openness and pluralism are necessary, i.e. learning processes that are collective, open-ended and reflexive are a vital part of sustainable development in which dominant ways of knowing can be challenged (Boström et al. 2018). Hampson and Rich-Tolsma (2015) summarized symptoms of transformative learning in three ways regarding the changing roles of learner, teacher and learning environment, i.e. the transformative learner, the transformative teacher and the transformative occasion. Firstly, the transformative learner; the student becomes transdisciplinary, a scientific investigator, a scholar and a practitioner all wrapped in one package. Secondly the transformative teacher; the educators serve the roles of mediator and companion; they become the enabler of the students' self-determination and social emancipation: teacher as catalyst for transformation. This includes facilitating emotional intelligence, and critical awareness. Thirdly, the transformative occasion; the learning environment becomes transformed into one in which the planetary, the complex, and the holistic are welcomed, encompassing multiple perspectives and states of awareness. The student encountering transformative learning is no longer a mere educational consumer, but rather a transdisciplinary scientist-scholar-practitioner deeply engaged in self-determination and the apt transformation of their world (Hampson and Rich-Tolsma 2015).

The challenge for higher education is to create an integrated and systemic response that addresses sustainability issues meaningfully, consistently and effectively. Four different responses to the challenge of sustainability have been identified by Sterling (2004):

(a) Denial (it's a hype that will go away)
(b) Bolt on (add a 'green aspect' to a curriculum or program)
(c) Built-in (important enough to integrate in all we do)
(d) Whole system re-design (we need to re-think the very foundations of what we currently do).

In most universities that we have worked with to address the sustainability challenge, initiatives are (b and c) of the 'bolt-on' and/or 'built in' variety. This has been due to a variety of reasons including policy limitations, incentive constraints and individuals lack a clear and consistent sustainability dimension among others (Wals and Benavot 2017). It is the last response that suggests a paradigm shift from "business as usual" (education as usual) and a transition towards doing better things differently (transformation) rather than doing what we do (business as usual) better (optimization). The ultimate goal for the Change Project Approach is (d), the 'whole institution'

approach in which the university makes concurrent changes to curriculum, extracurricular activities, staff development, human resources and infrastructure operations and processes (Mcmillin and Dyball 2009).

The aim of the research is to describe and analyze the change project approach (CPA) as an enabler (triggering/starting point) of transformative learning process in higher education. It initiates innovations towards implementation of Agenda 2030 and sustainable development in interdisciplinary university teaching, supported by case study analysis from three universities of Baltic region.

2 Change Project Approach (CPA) as a Response to Socio-Economic Challenges of Sustainable Development

The Change Project Approach introduces Sustainable Development Goals (SDGs) implementation into university teaching and learning, specifically SDG 4, which seeks to "*ensure inclusive and equitable quality education and promote life-long learning opportunities for all*" (UNESCO 2015a). The emphasis is placed on the relationship between Education for Sustainable Development (ESD) and educational quality (target 4.7 of SDG 4) that requires all governments to:

> By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development. (UNESCO 2015a)

The Change Project Approach is also expected to contribute to SDG 12—*ensure sustainable consumption and production patterns* and SDG 13—*take urgent action to combat climate change and its impacts.* The CPA engages participants in responding to the sustainability inadequacies in their current university curriculum. The emphasis is on how the institution can aligning their teaching and learning to SDGs and at the same time to build their ESD story of learning and change. We describe the Change Project as any project that brings about change in an institution's policy, strategy, curriculum, learning programs, learning environments, or institution-community relationships, with implications for ESD 'on the ground' (Lotz-Sisitka et al. 2015). The Change Project must be co-defined and should be collaboratively developed and implemented in a small community of practice with colleagues from the same or another department.

2.1 *Change Project Action Research Cycle and Stages*

The Change Project Approach (CPA) is an action learning intervention designed to stimulate transformative innovations towards sustainability in Higher Education. The intervention is contextually defined and implemented through a specific Change Project. We present the Change Project as a collectively developed initiative within the institution. The CPA stimulates and supports change processes beyond individuals, such that learning processes and the momentum of change remain in the institution even after the individuals move to other places. Each partner institution will be challenged to respond to their institutional demands in line with national and global sustainability trends. These methods and processes are applied in the iterative Action Research Cycles (Fig. 2). CPA Research Cycle presented at the Fig. 1 is an example of the processes taking place in cycle one. Similar actions will be repeated in cycles two and three as shown in Fig. 2.

The CPA begins with an assessment of current educational practices by in addressing twenty-first century challenges which help to align intended changes with national and institutional policies that relate to ESD and that change is within the resource capability (human and financial) of the institution. The following steps are suggested:

Step 1: Assessment of practice Question
How can current teaching and learning be transformed in order to respond to sustainability challenges of the twenty-first century?
Step 2: How is our Institution/Department meeting these demands?
What is working well?
What is not working so well?
Step 3: Change Project ideas
What is possible (probable/desirable) to change?
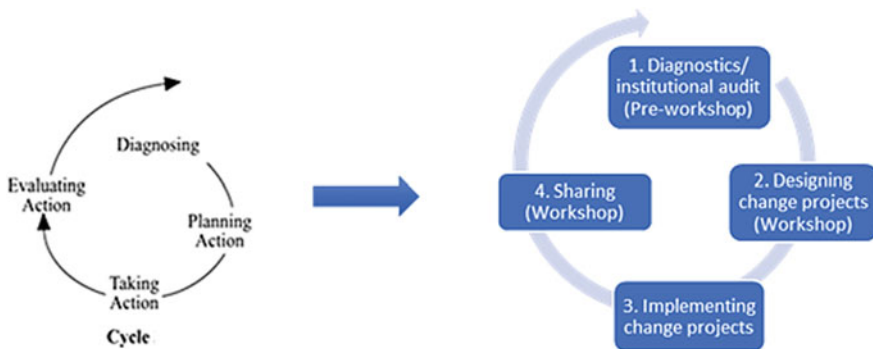Develop a vision for change—what kind of a future do we want?

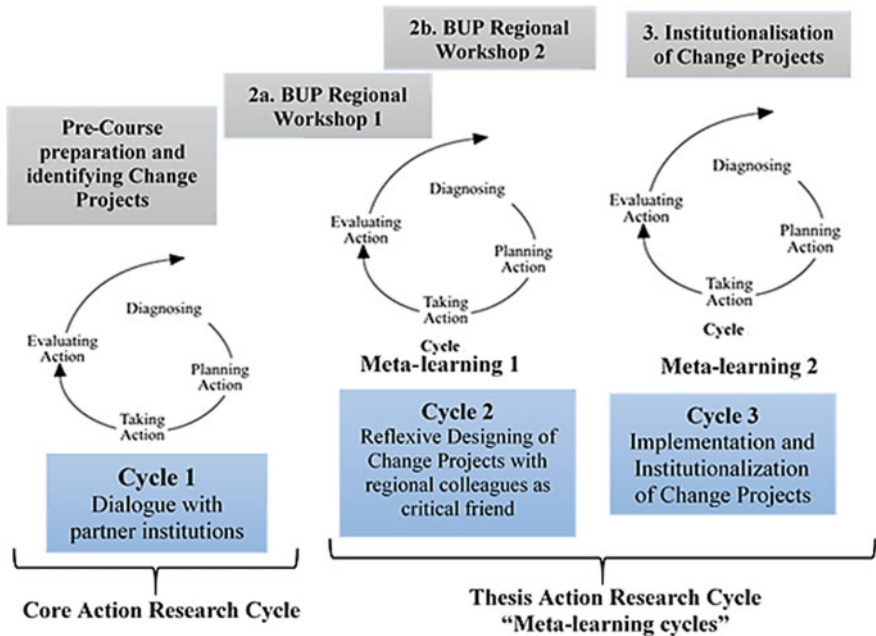**Fig. 1** Change project action research cycle (Rumjaun and Urenje 2017)

Fig. 2 Core and meta learning cycles adapted from Coghlan and Brannick (2001) (Rumjaun and Urenje 2017)

We chose Action Research because the methodology is the best way for prac-
titioners to integrate their innovative actions while at the same time developing an
understanding of the effectiveness of this implementation in an iterative manner.
It is possible for university teachers to closely examine their role as change agents
and decision-makers through their own problematisation of the teaching and learning
processes within their work contexts, and through their own reflexive practice (Alsop
et al. 2007; Hong and Lawrence 2011). As a way of enabling university teachers to
interrogate their current practice, we have used a four-step cycle (see Fig. 2).

According to Coghlan and Brannick (2001), Action Research projects often use
two cycles: a "Core Action Research Cycle", which refers to the aims or content of
the research project and a "thesis action research cycle" or "Meta Learning Cycle"
which relates to how the project itself is implementing. In our case, the core was
transforming university education practice in a way that develops essential compe-
tences for sustainability and the first step was institutional dialogue and a pre-course
assignment. The Meta Learning Cycle foresees the development and implementation
of transformative learning in the form of change projects. A third cycle is emerging
within the Meta Learning Cycle, which is the implementation and scaling (institution-
alization) of their change project ideas (Rumjaun and Urenje 2017). CPA facilitators
should be in direct contact with participating institutions in cycles one and two. After
the second and final Regional Workshop in Cycle 2(b), CPA facilitators are no longer

in direct control of the innovations, but continue supporting institutional collaboration remotely. In Cycle 3, the change continues to be strengthened with engagement of leadership and colleagues to form an institutional team for change. A second round of dialogue and critical reflection is suggested within the institution involving participants, colleagues and other interested parties to deliberate and present how the Change Project is being situated in the institution to be shared in the form of a poster, video or document. Generally, participants are encouraged to publish their project work and achievements.

3 Materials and Methods

3.1 *Materials: Description of Cases*

In this paper, we analyze three CPA cases of the Baltic region countries. Case coordinators directly participating in this paper (Lovísa Eiríksdóttir and Tatjana Tambovceva) provided the description of their cases from Uppsala University and Riga Technical University. The CPA case from Sumy State University is reflected and analyzed based on its description derived from Kostyuchenko and Smolennikov (2018). Additional information on further case progress was obtained in a personal interview with CPA case leader Nadiya Kostyuchenko in January 2020 by Oleksandra Khalaim.

CPA case study 1 "Active learning techniques for education for sustainable development"
Nadiya Kostyuchenko, Sumy State University, Oleg Balatskyi Academic and Research Institute of Finance, Economics and Management, Faculty of Teacher Training, Ukraine.

Sumy State University (SSU) has been functioning in Sumy city in the North-East of Ukraine since 1948. It hosts about 14,000 students who are pursuing bachelor and master degrees in 55 majors and 23 fields of knowledge, with about 1750 foreign students representing 50 countries worldwide. According to the worldwide Internet ranking Webometrics, SSU takes the third place among Ukrainian universities, and is placed in TOP-300 universities worldwide by the societal and economic impact According to the University Impact Rankings by Times Higher Education (SSU 2020).

The aim of the Sumy University change project was to develop a teacher-training program, "Active learning techniques for education for sustainable development" that focuses on active learning techniques with sustainable development issues inclusion as a key aspect of the content. The general purpose of the change project was to promote education for sustainable development through teacher training, addressing teachers from Sumy State University and other Ukrainian educational institutions.

The expected outcomes of the change project were focused mainly on sustainable development issues: dissemination of the idea in teachers' pedagogical practice through active learning techniques as well as increasing the awareness of both teachers and students.

The change project foreseen four realization stages (Kostyuchenko and Smolennikov 2018):

1. Organizing a new teacher-training program in active learning techniques.
2. Establishing a creative educational space "IdeaLab" as a venue for the change project.
3. Framing the change project through participation in Baltic University Program teachers' course.
4. Carrying out a workshop on Sustainable Development Goals for university teachers.

CPA case study 2 "From Control to Care"
Lovísa Eiríksdóttir, Dep. of Business Studies, Uppsala University, Campus Gotland, Sweden.

Uppsala University (2020) is the oldest university in the Nordic region, founded in 1477. It is ranked among the top 100 universities in the world with more than 40,000 students and 5000 researchers and teachers conducting world-leading research. The university is quite conventional and has not been known for its sustainability efforts, but still has several initiatives around the issues such as;

(1) *CEMUS*, a student-led centre for environment and development studies,
(2) *SWEDESD*, an international centre of Education for Sustainable Development, and
(3) *Zennström professorship*, a 10-year series of international visiting professors that are in the forefront of climate change leadership research (UU official website).

At Uppsala University, The Department of Business Studies was formally launched in 1958, but carries a tradition of Business Studies at the University dating back to the eighteenth century. It is one of the biggest departments at the university, with about 3500 students every year and 150 employees (UU official website). The university has a small campus on the island of Gotland. At Campus Gotland, the department has a small unit, facilitating one bachelor program and one master program, where the master level is focused on sustainability.

The master program, called *Sustainable Management*, started in 2013 and has constantly been in development for sustainable development since then, with Liberal Arts approach towards teaching and learning. However, the program is a part of a bigger and more traditional department that remains within the scope of disciplinary boundaries where management, organization, finance, marketing and international business are the main subjects. This means that even if the program on Campus Gotland focuses on sustainability it has remained a program of management and organization.

Getting the opportunity to discuss more deeply what ESD really entails, like in the process of the Change Project course, one can go beyond his/hers discipline and use sustainability as a lens instead of his/her own discipline, take a look with a lens from outside the field and see what needs to be *changed* instead of *managed* with the 'status quo' theories and methods. Consequently, the first introductory course of the master program, called *Managing Sustainability*, makes one wonder whether we should actually be *managing* sustainability or whether we should rather imagine how it could be *managed* according to the global challenges humanity faces today.

This change project focuses on implementing a new and altered perspective around sustainability issues to the introductory course in the master program of Sustainable Management at Campus Gotland, where you look at sustainability as a 'frame of mind' instead of as a 'management problem' like any other. The first tasks were to:

1. Change name: The name is important where it sets the standard of expectation. The name went from *Managing Sustainability* to *Business, Society and Nature: Reflective Inquiry*. Instead of assuming that sustainability is something that can be managed we include nature and society as equal to the business mind, where all are interconnected in relation to wicked world problems. Reflectivity and inquiry also give a hint to a different ontological view and perspective towards sustainability issues that are more open for imagination and change.
2. Course description: The description became more emphatic in a way that words like managing and control were taken away and words like care, creativity and critical were put instead. Wicked issues were also introduced to depart from a more open and complex perspective.
3. Sharing: The thought process and changes made were shared with teachers at the program and the management team at the department, such as chair professors and others to explain the importance of change.
4. Future tasks: In this new framing, the course will be held for the first time in 2020. The focus will be on seminars and discussions using different kind of perspectives including classical business theories, historical roots of the concept of sustainability and ethical considerations, where all areas will have room for reflection and critical discussion.

So far, the process of change has gone rather smoothly. Uppsala University is a traditional academic and collegial institution where the bottom up approach is very strong. It was challenging however to get new concepts in the description such as; (a) *wicked problems*, taken from the discipline of environmental studies and the field of education for sustainable development or (b) *care*, taken from the discipline of philosophy, where the management wondered about, both their academic legitimacy and their relevance to the subject. Nonetheless, explaining and emphasizing the importance of including new vocabulary to the field for an actual implementation

of change and interdisciplinary perspectives seemed to be accepted as a legitimate argument to move forward.

CPA case study 3 "New course development"

Tatjana Tambovceva, Faculty of Engineering Economics and Management Riga Technical University, Latvia.

Riga Technical University (RTU) is a modern internationally recognized university, the only polytechnic one in Latvia and the largest one in the country; it educates and trains almost 15 thousand students at nine faculties. RTU is focused on becoming a third-generation university that not only provides high quality education, but also conducts advanced research and ensures innovation and technology transfer. Evaluating the performance of RTU in the implementation of the United Nations (UN) Sustainable Development Goal 17, RTU is ranked 101–200 in the highest-ranked group of universities in the ranking «The Times Higher Education Impact Rankings 2020». RTU efforts to achieve the goal of «Climate Action» are highly valued—RTU is recognized as the 14th best in the world in this field. RTU has shared 34th place reaching the goal «Affordable and Clean Energy», shared 45th place in implementing activities of goal «Decent Work and Economic Growth», and 70th place in fulfilling the intentions of goal «Industry Innovations and Infrastructure» (RTU 2020). Many study programs in RTU include different study courses connected with sustainable development issues. Some programs do not provide a full sustainability-related course, but mostly cover specific topics of particular study programme. In overall, RTU has a good basis for development of ESD at the university, because of ESD delivery is being realized both in forms of its integration into existing courses/programs or university common core requirements and development new sustainability courses/programs. The Faculty of Engineering Economics and Management (FEEM) is the biggest faculty at RTU with approximately 4000 students (RTU 2020).

Despite the fact that separate questions and topics connected to SD have been included in many study programs and courses, the purpose of the project was to develop a study course covering different SD questions for bachelor study programs at FEEM, for enhancing a systemic approach and broader vision of future economists. Specific tasks were to:

- Audit of existing courses at Faculty of Engineering Economics and Management.
- To review/improve curricula/to create new course on SD covering different SD questions for bachelor study programs at Faculty of Economics and Management.
- To improve teaching tools and materials.
- To use project-based learning activities for students.
- To use problem-based cases from real life.
- To use cross and multi-disciplinary cases.
- To use new technology and interactive methods in educational activities.

The project is addressing the following SDGs: SDG 4 (ensure inclusive and quality education for all and promote lifelong learning); SDG 8 (promote inclusive and sustainable economic growth, employment and decent work for all); and SDG 12 (ensure sustainable consumption and production patterns).

The course "*Eco-economics*" was developed in cooperation with my colleagues as an academic course of free choice for six ECTS credits under the bachelor study program "Economics". The goal of the course is to prepare a competent specialist who understands the impact of external and internal environment on economic processes in the national economy.

The insight into opportunities and prerequisites for the successful synergy of economic processes and problems of maintenance of natural resources and distribution of financial resources are given to students within the framework of the study course. Students have the opportunity to analyze specific situations faced by EU member states' companies, which aims to promote understanding of the importance of environmental protection. Global environmental problems and their prevention are emphasized as well as application of international quality standards in eco-economics.

The project helped to improve curricula and to include modern and necessary topic in the study program, as a result to have more competitive study programs. To build new society according to all SDGs we have to educate our students and give them the newest information and use the most modern methods for education. The study course is developed and is currently being taught once within the academic year. Since the semester is not over yet, it is impossible to generalize the results, but it is evident that the course can help developing a systematic and integrated vision of environmental problems among students and can potentially help them find solutions.

3.2 Methods: Case Study Analysis and Value Creation Conceptual Framework

In order to reflect on change project approach as a key component of transformative learning process in higher education towards sustainable development in interdisciplinary university teaching, we used a basic case study analysis method (Yin 1994) applied to the three cases from universities of Baltic region described above.

The value created by change projects was identified based on the framework provided by Wenger et al. (2011). The value creation methodology foresees five estimation cycles. First cycle estimates a productivity of certain community or network activity (for instance a community meeting or a project). The second cycle highlights a resource: an idea, a piece of advice, a document, a procedure, a model, or a relationship that came out of the activity described in cycle 1. The third cycle is an explanation of how this resource was applied in the practice of the storyteller and with what effects. A practical effect can be linked to an outcome at the cycle 4 (such as a measure of performance in the organization or for a person). Finally, a reflection

on the definition of success and new considerations to frame the expectations of value creation are involved at the last fifth cycle (Wenger et al. 2011).

Based on the method, we developed a table with estimation of value created by three change projects (CPA cases) with further comparative analysis of the results (see Annex).

4 Results and Discussion on CPA Case Study Analysis

At the initial stage, we have formulated a number of starting discussion questions, serving as key points in the process the results interpretation:

- How did the CPA cases influence teachers on individual level, and the working environment on departmental/university level?
- Does the CPA induce changes by its own (as an external idea), or it serves primarily as a catalyst/platform/framework for changes, based on personal intension of a teacher to change the system? In other words, does it shape the way we are changing things?
- Do we need "grassroots-induced" changes in university ESD? What are institutional enablers and hindrances for CPA cases realization in universities of Baltic region?

The value creation stories and comparative analysis of change projects allowed reflecting on each case following the discussion questions.

The change project from Sumy State University is a good case highlighting the importance of small bottom-up initiated actions designed according to CPA that resulted in a significant system change in the quality education on the university level in a long-time perspective. The starting barriers for the initiative described by CPA case leader Nadiya Kostyuchenko in a personal interview included primarily non-willingness of experienced university teachers, professors and senior lecturers, to explore and practice the methods of active learning. "Why should I play these games at an obligatory teacher-training?"—that was a typical question during the first training sessions under a new program [interview with Nadiya Kostyuchenko 2020]. The first resistance was on adopting an interactive learning environment. Since the very idea of an open space equipped with flexible furniture and necessity to be part of constantly changing group models (from working in pairs to mini group discussions etc.) was not regarded as "business as usual" for many teachers, it provoked some opposition at the first stage. That is why the overall group of teachers was split in two independently working groups: a smaller one expressed their interest to be involved in teacher training under the new program, and a bigger one decided to follow the original program (designed in a format of "passive listening"). The new program became popular in three years of running through many university departments. Currently, the active learning techniques promoted by it were approved by the whole university along with a new design of classrooms that enables using these methods in teaching.

The second barrier in new program implementation was related to engaging trainers for the new program. Unexpectedly, those teachers who were practicing active learning techniques in their teaching finally were refusing to transfer their knowledge to other colleagues. The main reason was as well in a general lack of university community justification of these methods, especially from experienced elderly professors and some senior lecturers. Thus, the big value of the CPA case here was in conversion this "out-of-box" practices to a completely new "business as usual" paradigm, based on sustainability principles.

The main aim of ***the change project of Uppsala university*** was to enable a more open, interdisciplinary and attentive dialogue and methods for the students to be able to experience the world from many different perspectives, that is not only instrumental but also thought provoking. Teachers in higher education are not only for 'producing' people for the status-quo society but should also facilitate different thought processes that create agents of change for the common good. This cannot be done by solely implementing a standard or initiative like the SDGs where the students pick one box of seventeen to work with. In the business context the SDGs have begun to dominate the whole narrative and often ignore the fact that the goals are full of contradictions and ambiguity that needs to be discussed and put in context with various perspectives. Thus, a conscious focus on critical thinking and an open dialogue, that often is taken for granted in higher education, is a fundamental factor for ESD and cannot be replaced with a standard or a model. Going from the question of 'how can we control the situation' to 'how can we take care of the situation' is a crucial move towards a deeper implementation of ESD and starts the conversation with open-ended questions about the future—where the educators and the students meet in the process of learning and creating good judgement. This process is not solely about knowing but about deciding what knowledge deserves salvation, because questions of ESD are not only scientific, they are moral. Moral questions and answers cannot be transmitted from one person to another, but they need to be discussed in a space and developed within a human being, where everybody's voice and human conviction is heard. The course focuses on transformation for the new rather than transmitting the old. To enable this, it was important to introduce new concepts into the business vocabulary, that is oftentimes very instrumental and solution oriented. Concepts such as (1) 'wicked problems' that cannot be solved but tamed. 'Increasingly, these are the problems strategists face—and for which they are ill equipped' (Camillus 2008, p. 1) because of the solution and control-oriented ways the business field tends to look at the world. When writing the concept into the course description, the faculty wondered what the word meant and if it was of any relevance to the context. This started a conversation about the meaning and relevance for the concept of wicked issues that has become increasingly important in the vocabulary of ESD.

(2) Care and heart work were also placed there, and got questions of relevance from the management team at the business department in Uppsala. The intention with integrating this vocabulary into the description is to illustrate that ESD in business education is not solely about learning how to 'tackle' the sustainability challenges we face and gain knowledge about models to 'deal' with it. It is more about realizing your own values around the challenges and discover what one personally thinks is worthwhile taking care of in the future, as well as taking part in discovering what knowledge and practices it is that deserves salvation.

The CPA gives teachers a platform to start this thinking process by themselves and with other teachers. It gives courage and support to change things one did not dare to rethink before. The CPA course forces teachers to 'stop and think' for realization on what is meaningful and important to enable their responsibility and role towards their students and society. Moreover, it gives change and creativity the legitimacy it deserves.

The change project of Riga Technical University made it possible for the CPA coordinator and her colleagues to rethink the goals of education and the organization of a training course in a specific program. The project allowed revising seriously the ideas and approaches in teaching, as well as enabled understanding of what knowledge, practical skills, value attitudes and behavioral habits will allow students to become direct participants in the process of sustainable development. Interactive and student-centered practice-transforming teaching methods were used to encourage students' independent work, critical thinking, individual and collective projects, and a problem-oriented inter- and transdisciplinary approach to cognition. It can help to promote the formation of students' skills in making informed decisions and reasonable measures in order to ensure economic viability, the preservation of the environment, and a fair basis for the existence of society for present and future generations.

Thus, the analysis of three cases shows that despite the common methodological background of Change Project Approach applied to shape and design the projects, they appeared to be quite different regarding the ideas, aims, and ways of realization. At the same time, all three cases served the general idea of spreading and enforcing sustainability actions at the university/department level, spreading ESD principles and values. The key common outcomes of all cases were related to (1) scale effect (ability to apply the project at other departments/universities), (2) renewed values (rethinking on basic sustainability and ESD principles), and (3) converting the project results to a new "business-as-usual" practice.

5   Conclusions

The CPA cases presented in this paper illustrate that small individual actions are powerful enough to initiate system changes at the university level. The CPA design allows shifting the way of perceiving sustainability related problems that occur in universities and come "out-of-box" in solving them. With CPA methodology we can re-estimate the basic sustainability principles taken for granted from the times of Brundtland Report (World Commission on Environment and Development 1987) and convert the idea of "control" through SDGs to "care" with the help of sustainability redefining. Here coordinators of change projects act as "agents of change", creating new trends and alternative solutions that empower the sustainability vision for the rest of the university community.

What does CPA provide for ESD in higher education? Firstly, it encourages the participants to introduce changes—namely that are defined by themselves as the most relevant and urgent for a given academic community, not top-bottom imposed from university administration. Secondly, CPA raises effectively the awareness on quality education both for teaching and administrative staff of a university, by redefining it under sustainability vision. Furthermore, it provides a smoothly functioning way of a constant rethinking and reevaluation of CPA participants' own work and self-evaluation of themselves as reflective practitioners.

Importantly, CPA methodology designs an additional time and common platform for reflections for participating teachers. Under the conditions of constant routine working burden, the majority of university teachers as a rule cannot barely afford involving personal energy and additional efforts in the organization of a reflection and re-evaluation process related to the quality education. In these circumstances, CPA framework could serve as a good solution for such process design. It unites the participants for short working sessions and thus provides a possibility of common co-designing of change project cases. This approach brings out the reflective practitioner in university teachers, an opportunity to be reflexive in re-thinking and re-evaluation of our practice to meet the current demands of dealing with complexity.

Annex: Change Project Value Creation Stories

Typical cycles	Latvia, RTU	Ukraine, SSU	Sweden, UU
Cycle 1: Immediate value **Activity**: Describe a meaningful activity you participated in and your experience of it (e.g., a conversation, a working session, a project, etc.)	Participation in the international "BUP Teachers Course on ESD in Higher Education" in 2018. All course participants performed tasks and received evaluations remotely on various aspects of sustainable development using Moodle system. During 2 off-line seminars in Kaunas and Riga, there was an opportunity to gain new knowledge and share experiences with colleagues and like-minded people from different BUP universities. The participants used various methods, such as games, group work, case studies, etc., which made the learning process interesting and exciting	Participation in the international "BUP Teachers Course on ESD in Higher Education" in 2018. In parallel under coordination of CPA case leader Nadiya Kostyuchenko, a new teacher-training program in active learning techniques was developed and the creative educational space IdeaLab was established with the financial support of home university	Participation in a CPA course at Uppsala University (UU), Campus Gotland in 2019 gave rise and empowerment to act on a necessary ontological and epistemological shift in an introductory course at the master programme Sustainable Management, given by the Department of Business Studies at UU. First step was a change in the course description that was inspired by a critical discussion and literature provided in the CPA course. New course description gave room for a more open, personal and interdisciplinary dialogue The changes already made have raised awareness and started a conversation at the business department around ESD and the meaning for the context

(continued)

(continued)

Typical cycles	Latvia, RTU	Ukraine, SSU	Sweden, UU
Cycle 2: Potential value **Output**: Describe a specific resource this activity produced for you (e.g., an idea or a document) and why you thought it might be useful	The course was not only interesting and fascinating, but also informative. As a result, SWOT analysis was carried out and a draft of changes was developed. A feedback was received from colleagues and moderators of the course, which allowed rethinking many points that did not occur before and improving the draft of the study program. New colleagues and friends appeared, with whom we continue to work on various project applications and articles	The BUP course provided new view on solving the traditional problems of university quality teaching and inspired to design specifically the change project. Both new teacher-training program and the creative educational space IdeaLab formed a promising basis for systemic change in teaching methods towards more innovative ones for university teachers under periodical series of obligatory teacher-trainings for all university teaching staff	The CPA course gave room for a deep discussion on the meaning of ESD and how it connects to critical thinking. This has resulted in an attempt to consciously implement critical thinking in the introductory course in the business program and intentions to have a more personal dialogue with students on existential questions that will furthermore create a better room for creative methods and vision for the future
Cycle 3: Applied value **Application**: Tell how you used this resource in your practice and what it enabled that would not have happened otherwise	The course was created in collaboration with colleagues in our department in the Faculty of Engineering Economics and Management at Riga Technical University. We worked as a team, discussed topics that need to be included in the syllabus, developed case studies and assignments	Teachers engaged in the new training program in a new learning space shared their experience of new innovative teaching methods. It appeared that there was an essential number of them already using "non-traditional" teaching methods, but they did not have opportunity to share the experience and felt themselves being not legitimated to use such "out-of-box" approach The newly designed learning space IdeaLab provided more physical space for group work, active gaming techniques, flexibility of switching the type of group work arrangement (mini groups vs one big group vs pair work)	The change project realization is still in progress

(continued)

Typical cycles	Latvia, RTU	Ukraine, SSU	Sweden, UU
Cycle 4: Realized value **Outcome**: a. **Personal**: Explain how it affected your success (e.g., being a better professional, job satisfaction) b. **Organizational**: Has your participation contributed to the success of your organization	It is doubtful if the change project somehow particularly influenced personal success or career development, but it allowed improving cooperation with university colleagues and creating a new modern course that meets the changing conditions and priorities of sustainable development A series of new open-access publications were released based on the change project results (Khalaim and Tambovceva 2018; Tambovceva et al. 2019; Tambovceva and Titko 2020)	The new teacher-training program allowed university teachers to "legitimate" and enrich their individual teaching experience of active learning techniques, as well as find connections with other colleagues using same innovative approach. The new approach successfully replaced an old one with one time per five years traditional obligatory teacher-trainings with passive listening about innovations in pedagogy. A series of new open-access publications were released based on the change project results (Kostyuchenko 2017a, b), Kostyuchenko and Smolennikov 2016, 2018)	
Cycle 5: Reframing value **New definition of success**: Sometimes, such a story changes your understanding of what success is. If it happened this time, then include this here	The university colleagues appreciated the importance of the subject and the achievement of the goals of sustainable development. It essentially improved the understanding of what matters first of all, which topics should be considered and discussed As a result, it was decided to exclude from the study program two old subjects and replace them with a newly developed one	Scale effect. The active learning techniques were included in other university study programs in addition to the teacher-training program after its successful three-years running Renewed values. The creative learning space approach has been supported at the university level and is being introduced in many other university classrooms New business-as-usual. The innovative teaching methods are not treated by teachers as something suspiciously non-traditional and thus not worth replicating and positively recognized by colleagues for now	The change project realization is still in progress

Methodological framework adapted from Wenger et al. (2011)

References

Alsop S, Dippoa D, Zandvliet DB (2007) Teacher education as or for social and ecological transformation: place-based reflections on local and global participatory methods and collaborative practices. J Educ Teach 33(2):207–223

Boström M, Andersson E, Berg M, Gustafsson K, Gustavsson E, Hysing E, Lidskog R, Löfmarck Ojala M, Olsson J, Singleton BE, Svenberg Uggla Y, Öhman J (2018) Conditions for transformative learning for sustainable development: a theoretical review and approach. Sustainability 10(12):4479. https://doi.org/10.3390/su10124479

Camillus JC (2008) Strategy as a wicked problem. Harvard Bus Rev 86(5):98

Coghlan D, Brannick T (2001) Doing action research in your own organization. Sage Publications, London, 133 p. ISBN 0761968873

Hampson GP, Rich-Tolsma M (2015) Transformative learning for climate change engagement: regenerating perspectives, principles, and practice. Integr Rev 11(3):171–190

Harris S (2020) Coronavirus: if we are in a war against COVID-19 then we need to know where the enemy is. The Conversation. https://theconversation.com/coronavirus-if-we-are-in-a-war-against-covid-19-then-we-need-to-know-where-the-enemy-is-135274. Accessed 25 May 2020

Hong CE, Lawrence SA (2011) Action research in teacher education: classroom inquiry, reflection, and data-driven decision making. J Inq Action Educ 4(2):1–17

Khalaim O, Tambovceva T (2018) ESD implementation in universities of Central and Eastern Europe: common barriers, challenges, and solutions for Kyiv and Riga. Stud Perieget J 3(23):77–92

Kostyuchenko N (2017a) IdeaLab as a place for creativity in Sumy State University, Ukraine. Learn Teach Mag 2:16–17

Kostyuchenko N (2017b) Teacher training in active learning techniques as a pace for changes at Sumy State University. Learn Teach Mag 4:19–21

Kostyuchenko N, Smolennikov D (2016) Active teaching methods in education for sustainability as applied in good practices of local communities. Stud Perieget 1(15):145–158

Kostyuchenko N, Smolennikov D (2018) Education for sustainable development through teacher training. Stud Perieget 3(23):11–31

Lotz-Sisitka H, Wals AEJ, Kronlid D, McGarry D (2015) Transformative, transgressive social learning: rethinking higher education pedagogy in times of systemic global dysfunction. Curr Opin Environ Sustain 16:73–80. https://doi.org/10.1016/j.cosust.2015.07.018

Mcmillin J, Dyball R (2009) Developing a whole-of-university approach to education for sustainability: linking curriculum, research and sustainable campus operations. J Educ Sustain Dev 3:55–64

Ojala M (2016) Facing anxiety in climate change education: from therapeutic practice to hopeful transgressive learning. Can J Environ Educ 21:41–56

RTU (2020) Riga Technical University. An official web site: https://www.rtu.lv/. Accessed 02 May 2020

Rumjaun AB, Urenje S (2017) Transforming teacher education for the 21st century: developing relevant competences for a changing. World J Mod Educ Rev 7(7):488–511

Sterling S (2004) The ecological and environmental dimensions of the holistic curriculum. In: Encyclopedia of life support systems (Theme 6.6.1 'Education for Sustainability'). EOLSS Publishers, UNESCO. http://www.eolss.net/Sample-Chapters/C11/E6-61-04-03.pdf. Accessed 25 May 2020

SSU (2020) Sumy State University. An official web site: https://sumdu.edu.ua/int/en/about-sumdu.html. Accessed 23 Apr 2020

Tambovceva T, Tereshina M, Samarina V (2019) Green innovations in regional economy. In: 18th international scientific conference engineering for rural development proceedings, Latvia, Jelgava, 22–24 May 2019. Latvia University of Life Sciences and Technologies, Jelgava, pp 1832–1839. https://doi.org/10.22616/ERDev2019.18.N357

Tambovceva T, Titko J (2020) Consumer perception of sharing economy: pilot survey in Latvia. Int J Econ Policy Emerg Econ (IJEPEE) 13(1):72–84. https://doi.org/10.1504/IJEPEE.2020.106681

UNESCO (2015a) Education 2030. Incheon declaration and framework for action: towards inclusive and equitable quality education and lifelong learning for all. Paris, 86 p. https://unesdoc.unesco.org/ark:/48223/pf0000245656. Accessed 25 May 2020

UNESCO (2015b) Rethinking education. Towards a global common good? http://unesdoc.unesco.org/images/0023/002325/232555e.Pdf. Accessed 10 Mar 2020

Uppsala University (2020) Department of Business Studies. An official web site: https://www.fek.uu.se/about-us/. Accessed 20 Apr 2020

Urenje S (2019) Confronting the climate change crisis by inspiring teachers to facilitate education for social transformation; lessons from the 'Sustainability Starts with Teachers' initiative. High Educ Res (in press)

Wals AEJ, Benavot A (2017) Can we meet the sustainability challenges? The role of education and lifelong learning. Eur J Educ 52:404–413. https://doi.org/10.1111/ejed.12250

Wals AEJ (2007) Learning in a changing world and changing in a learning world: reflexively fumbling towards sustainability. South Afr J Environ Educ 22:35–45

Wals AEJ (2010) Mirroring, gestaltswitching and transformative learning: stepping stones for developing sustainability competence. Int J Sustain High Educ 29:380–390

Wenger E, Trayner B, de Laat M (2011) Promoting and assessing value creation in communities and networks: a conceptual framework. Rapport 18, Ruud de Moor Centrum, Open University of the Netherlands, 60 p. ISBN: 978-90-358-1808-8

World Commission on Environment and Development (1987) Our common future. Oxford University Press, New York, p 300

Yin RK (1994) Case study research: design and methods, 2nd edn. Sage, Thousand Oaks, p 171

Oleksandra Khalaim, Ph.D. is graduated in Economics (2006), master's degree in Economics (2007), master's degree in Environmental Sciences (2010), and Ph.D. in Ecology and Environmental Sciences (2017). Post Doctorial Research at Uppsala University (2020). Her current research interests include education for sustainable development, climate change education and transformative learning methods in higher education, climate change adaptation and management of urban green areas.

Tatjana Tambovceva, Dr.oec. Professor at the Riga Technical University (Latvia). She has more than 25 years' experience in lecturing both at the undergraduate and graduate levels. Her research interests focus on sustainable development, circular economy, education for sustainable development, change of consumer behavior; corporate social responsibility; green production and consumption; project management and use of ICT in many areas. She is a member and an expert in a number of international Societies, Councils and Foundations. She is also the Managing Editor of the Scientific Journal "Economics and Business".

Lovísa Eiríksdóttir has a bachelor degree in Economics (2012) from university of Iceland, master's degree in Applied Ethics (2014) from University of Iceland, and a master's degree in Sustainable Management (2016) from Uppsala University. Now Lovísa is a Ph.D. student in the Department of Business Studies at Uppsala University, doing research on Sustainable Development in Business Schools, through the faculty of thought and judgement of business educators. Current research interests is Hannah Arendt's theorizing around thinking and responsibility, story-telling, narratives and higher education for sustainable development.

Shepherd Urenje, Ed.D received his doctoral degree in Development Education at the University College of London, Institute of Education (2012) and graduated with a master's degree in Environmental Education from Rhodes University (2004). He is an alumnus of the University of Zimbabwe (1983) where he graduated with a Bachelor in Education. He has worked as a teacher of environmental science and development education in Zimbabwe, a Regional Programme Manager

for Education and Training at SADC, and Principal Examiner of Environmental Science in the UK. Currently Dr Shepherd Urenje is an ESD Programme Specialist at the Swedish International Centre of Education for Sustainable Development at Uppsala University (SWEDESD). His work supports ESD in Higher Education within and among countries in Scandinavia, Africa and Asia in responding to the twenty-first century sustainability challenges.