Can theory-U be a valid model to design a university course for transdisciplinary SDGs education? A retrospective view on the "Value Creator" course in the Bachelor of Business Administration at Windesheim Honours College.

Giulia Sonetti, assistant professor, Politecnico di Torino (corresponding author)
Giulia.sonetti@polito.it
Interuniversity Department of Regional & Urban Studies and Planning
Politecnico di Torino and Università di Torino, +393480575395
Viale Mattioli, 39 10125, Turin (Italy)

María García Alvarez, professor, Windsheim University of Applied Sciences, 8017 CA Zwolle, the Netherlands
Liesbeth Rijsdijk, professor, Windsheim University of Applied Sciences, 8017 CA Zwolle, the Netherlands

Abstract

Sustainability, human rights, global health, social responsibility, circular economy, global warming, poverty and education themes are firmly connected, with complex and still unknown trade-offs. Capacity building for students enrolled in business programs at higher education institutions requires appropriate pedagogy combining theory and practice, project and change management, business and research with the UN Global Sustainable Development Goals (SDG). One of the approaches for teaching how to embrace complexity, change and transdisciplinarity is the Theory U as propounded by Otto Scharmer (2018). This revolutionary theory urges the leader to suspend superficiality, judgmental attitudes, and preconceptions. It proposes practical tools to enhance deep and empathic listening with an open mind, open heart, and open will to 'presence' the emerging future even as it occurs. This paper reviews a critical aspect of leadership education —that of responsible change-makers - and applies it to key canons of Otto Scharmer's Theory U. The venture takes the Value Creator course in the "Global Project and Change Management" Bachelor of Business Administration (Windesheim Honours College, NL) as a case study to look retrospectively into its design and student's impact about SDGs literacy. The paper analyses the course programme through the lens of the Theory U phases and methods, considering real projects with companies and organizations from the first year onwards, the international internship and professional career counselling and the coaching by fellow students and teachers on how to lead a project team and how to put innovative ideas into practice. During the Value Creator semester, students are expected to link their ideas and value to the SDGs. This course design is overlapped onto the Theory U, which entails travelling along the stages from 'downloading' to 'co-creating', and from 'seeing' to 'prototyping', and that is claimed to be effective in guiding a new pedagogy for SDGs and Sustainability. Conclusions give hints on how to ensure a long-term contribution of academia to sustainable futures, including how to fill the "knowing-doing gap" starting from ourselves and how we live, and then reaching higher education institutions and the current leaders of tomorrow.

1. Higher Education Institutions and a pedagogy for SDGs

The world is becoming more complex and educational institutions need to adjust to the demands of this new phase of our society (Sonetti et al., 2019). In this age of globalization, rapid and disruptive changes and technological developments, society and organizations are increasingly facing events and challenges which are more and more

"wicked" in nature (Dentoni and Bitzer, 2015). Global warming, different human rights issues, the world economic crisis, an increasing gap between rich and poor, food security and depletion of resources to name a few. These challenges are difficult, if not impossible, to solve with a win-win situation, and for each solution, due to interdependencies, other questions and problems arise (Trencher et al., 2013). Within the new UN Global Sustainable Development Goals (SDGs) framework, wicked issues like sustainability, human rights, global health, social responsibility, circular economy, global warming, poverty and education themes are represented as strongly connected. Still unknown trade-offs and local issue make SDGs hard to be addressed or evaluated at the abstract and global level (Spangenberg, 2017).

Within this frame, Higher Education Institutions must play their part in re-tuning teaching objectives, pedagogies, and knowledge transmission (Segalàs and Tejedor, 2015; Tejedor et al., 2019).
While the classical university was based on the unity of research and teaching, and the modern university has been based on the integration of research, teaching, and practical application, the current historical moment invites us to reconceive the 21st-century university as a unity of research, education, and the praxis of transforming society and self (Ferrer-Balas et al., 2010; Mulder et al., 2015). The ongoing contribution of universities to societal transformation remains unclear. This is because the traditional output of universities — knowledge — is not the missing piece to catalyzing social change (Donaldson et al., 2016; Eisler et al., 2016).

The difficulties in implementing the Paris Agreement and the SDGs worldwide are indeed not caused by a knowledge gap. The problem is lack of political will and a knowing-doing gap: a disconnect between our collective consciousness and our collective action. This gap leads us to collectively create results that nobody wants: massive environmental destruction, societies breaking apart, and social media-induced mass separation from our more in-depth sources of the self. To address these profound challenges, we need new platforms and new capacities that upgrade our mental and social operating system from ego-system awareness to eco-system awareness (Scharmer, 2018). To this aim, new active learning methodologies should be introduced and applied (Stevenson et al., 2017). Education in such a time then becomes a multifaceted and complex phenomenon. Therefore, constant knowledge sharing and continuous reflection on needs, challenges, and interventions from practitioners, educators, and industry representatives seem necessary (Ferreira et al., 2019; Kelly, 2017).

However, this transition is still tricky, since departments and administrative units still operate in silos and still produce specialized, rather than a generalized range of students (Disterheft et al., 2014; Lozano et al., 2014b). The educational ministry-led agenda does not allow a flexible and adaptable model to feed in new contents or methods (Lozano et al., 2014a; Ramos et al., 2015). Researchers and administrators lack tools to identify which interactions are the most important to tackle, and evidence to show how particular interventions and policies help or hinder progress towards the goals (Ferrer-Balas et al., 2009; Segalàs et al., 2009; Sonetti et al., 2016).

Missional motivation has been regarded as one of the factors triggering the co-creation of sustainability awareness, forming multi-actor partnerships and implementing solutions for localized issues (Kenney et al., 2005; Ramos et al., 2015). The need for many academic institutions now is to reflect on the opportunities for sustainability education.

The sheer complexity and specialization of science today means that attitudes of openness and collaboration are not an excellent complement, but rather a critical factor for success (Trencher et al., 2013). The forthcoming EU research FP9 follows the mission oriented-approach, also recalled by the UN sustainable development goals' logic. This will result in universities requesting more inter, multi and transdisciplinary work on specific societal challenges, looking at how students may receive a meaningful combination of different perspectives/backgrounds/ learning objectives and disciplines able to build capacity for sustainability and complexity decision making (Caniglia et al., 2017).

Such integrative pedagogy for sustainability faces several key challenges. First, environmental sciences and engineering tend to dominate, with less attention paid to social science and studies of human development. Second, there are methodological challenges in integrating diverse disciplinary perspectives and approaches in applied research endeavours. Third, transdisciplinary research must integrate more authentically and comprehensively critical theoretical perspectives. A mature strategy of the 21st century should address contemporary challenges in modern ways built on the finest traditions of centuries of critical scholarship (Tejedor et al., 2018).

There are many changes that must occur within higher education, especially business curricula, to make the discipline more relevant, useful, and equitable for the current era and educate the decision-maker in the financial and economic area of tomorrow (Bina et al., 2017; Hugé et al., 2016). One way in which business education can evolve is by implementing the Sustainability Education (SE) model (Haider et al., 2018). This means incorporating interdisciplinary topics into science courses through research-based projects, learning communities, experiential learning, and interconnected issues of local and global sustainability, with the goal of developing higher-order cognitive skills. This could create students better prepared to tackle modern problems analytically. One of the approaches for teaching how to embrace complexity, change and transdisciplinarity is the "Theory U", propounded by Otto Scharmer at MIT (Scharmer, 2018). This theory urges the leader of today and tomorrow to suspend superficiality, judgmental attitudes, and preconceptions and propose practical tools to enhance deep and empathic listening with an open mind, open heart, and open will to 'presence' the emerging future even as it occurs.

To this extent, localized and contextualized experiences shaped by specific academic cultures and education systems may be useful to understand how to foster the change and gain visibility across similarly interested institutions and peers. This is why this article reviews a critical aspect of leadership education —that of responsible change-makers – and retrace canons of Otto Scharmer's Theory U along with a concrete case study, the Windesheim Honours College (WHC) in the Netherlands. The WHC developed an innovative educational concept which is called "Value Creators Programme", and it is offered as an honours bachelor programme (BBA) in the Global Project and Change Management course (Alvarez and Rijsdijk, 2017).

After a short introduction (par.1) about the need of curricula update facing the complexity of contemporary societal challenges, a paragraph (par.2) introduces the fundamentals of theory-U and another theoretical background on which the course design relies. Then, the Windesheim Honours College (WHC)' honours bachelor programme (BBA) in Global Project and Change Management is explained in terms of structure and contents (par.3). Results and Conclusions (par.4) describe the outcomes of the prototype year of the

BBA, drawing methodologies and criteria on how to ensure a long-term contribution of academia to sustainable futures.

2. Theory-U for a change in sustainability education

The Value Creators Programme (VCP) grounds its pedagogical structure in the concepts based in connectivism theory (knowledge distribution across a network of connections) (Siemens, 2017), five minds for the future (Discipline about knowing and gaining expertise in certain areas, Synthesize for sizing down complexity, Creativity for divergent thinking, Respect for understanding and engage with the other, Ethical to understand ourselves and values in relation to the world) (Gardner, 2008), communities of practice (sharing and learning in a knowledge community) (Handley et al., 2006; Wenger, 2010), the Reggio Emilia approach (seeing place as the third teacher, with the learner and the educator being the first two) (Edwards et al., 1998), and the Design thinking E-Model Process (explore, engage, elaborate, evaluate) (Eisenkraft, 2003; Loucks-Horsley et al., 2009). Linking all these, the Theory-U appears as a holistic model targeting leadership as a process of inner knowing and social innovation (Scharmer, 2018).

Theory-U was developed by Otto Scharmer and originally based on a process known as the U-process or U-procedure (also called 'bathtub' and 'U Way') designed by Friedrich Glasl and Dirk Lemson of the NPI (Netherlands Pedagogical Institute) in 1968 (Adelekan et al., 2018; Page, 2017; Ravetz, 2017) and presented systematically from the 1980s. It has been a valuable tool in organization development and social development since that time (Senge, 2014).

The U-procedure was used extensively in projects in at least USA, Brazil, Europe and England, South Africa and New Zealand by members and associates of the NPI (Westberg and Waldenström, 2017) and subsequently by members of the Association for Social Development (Buchele and Scherer, 1998).

The first method developed by Glasl and Lemon involved a social process involving a few or many co-workers, managers and/or policymakers proceeding from diagnosis of the present state of the organization plans for the future. They described a process in a U formation consisting of three levels (technical and instrumental subsystem, social subsystem and cultural subsystem) and seven stages beginning with the observation of organizational phenomena, workflows, resources etc., and concluding with specific decisions about desired future processes and phenomena. The method draws on the Goethean techniques described by Rudolf Steiner, transforming observations into intuitions and judgements about the present state of the organization and decisions about the future (Steiner, 1988).

Otto Scharmer took the basic principles of this process and extended and enriched it into a significant theory of learning and management, which he calls Theory U. The principles of Theory U can help political leaders, civil servants, and managers breakthrough past unproductive patterns of behaviour that prevent them from empathizing with their clients' perspectives and often lock them into ineffective patterns of decision making.

The U-Process operates on the belief that we can gain insight into our most intractable problems, large and small, by cultivating specific capacities and the right conditions. These capacities and conditions are not new or unique; however, in recent times, they have been marginalized in the hyperrational West. The U-Process is an attempt to re-

legitimize these capacities, to complement our rationality with non-rational ways of knowing.

The seven stages of a U-process consist of a downloading (1-3) and uploading (5-7) paths along these seven stages:

1. (Factual/phenomenal level, technical and instrumental subsystem) Observing phenomena about how do processes and workflows function, finding instruments and resources;

2. (Imaginative level, social subsystem) Forming a picture of how the organization works, understanding the social subsystem and how services, roles and management are distributed;

3. ("Inspirational" level; cultural subsystem) Following the implicit/actual values, rules and policies that shape the organization, it is about understanding how and why things happen.

4. (Presencing - Blind spot, connection to the source). It is a moment of pause in which we should ask ourselves: "Who is my Self? What is my Work?"

5. (Crystalizing - this maps onto 3.) Following values and guidelines we wish for the future, it is about understanding our vision and intention;

6. (Prototyping - this maps onto 2.) Linking hand, heart and head, understanding how should the organization of the future be visioned?

7. (Performing - this maps onto 1.) Acting in an instant, this phase is an embodiment on how can processes be developed in future.

To create the conditions for regeneration to happen, the U-Process outlines a first "block" of three "phases" that involve seven "capacities." Each of these phases—sensing, presencing, and realizing—consists of the creation of a specific environment in support of a particular type of learning. So, for example, sometimes we require stimulation, which might involve travelling and taking in large amounts of sensory information such as new sights, sounds, and smells. At other times, we require a quiet and reflective space to make sense of our inner thoughts and feelings. The natural areas are necessary for these two activities are very different. The U-Process involves creating three such spaces in three overlapping phases, as outlined in the following diagram.

Learners and change-makers must cultivate these different capacities and ways of knowing. While action learning shifts the outer place of learning from the classroom to the real world, whole-person learning shifts the central area of learning from the head to the heart, and from the centre to the hand. Activating these different bits of intelligence requires a deepening of the learning process by cultivating curiosity (open mind), compassion (open heart), and courage (open will). Figure 1 shows how these principles work together in a deepened learning cycle that goes through the stages of co-sensing, stillness, and co-creating and that overlap with the 4-E model, the Reggio Emilia Fourth Teacher approach and the 5 minds concept inside the Value Creators programme at the Windesheim Honours College, that will be explained more in detail in the following paragraph.
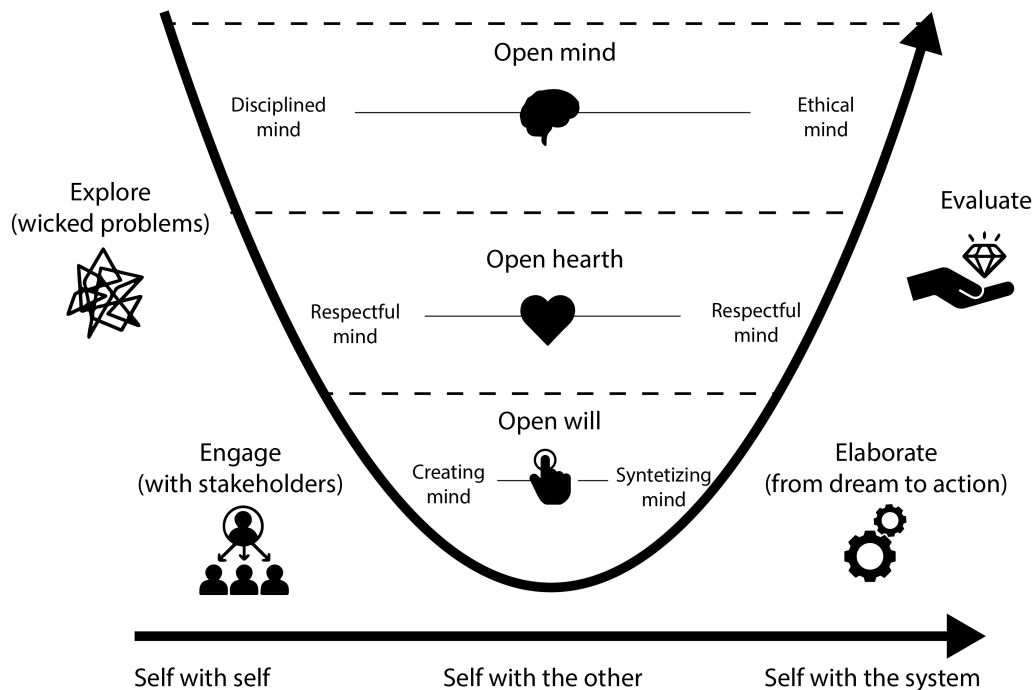
Figure 1 – Theory-U working together in a deepened learning cycle that goes through the stages of co-sensing, stillness, and co-creating. These overlap with the 4-E model, the Reggio Emilia Fourth Teacher approach and the 5 minds concept inside the Value Creators programme at the Windesheim Honours College.

3. The Value Creators programme at the Windesheim Honours College

The Windsheim University of Applied Sciences is based in Zwolle and Almere, and it is a Dutch university for higher education and applied research, enrolling over 20,000 students and 2,000 faculty and staff members. Fifty bachelor programmes are offered in the areas of Bussines, Media & Law; Journalism and Communication; Health and Social Work; Engineering and ICT; Education; Sport and Therapy; plus over 180 postgraduate programmes, associate degrees, master programmes and professional courses.

The Windesheim Honours College was founded in 2009 and is an International Bachelor Global Project and Change Management, focusing on Global Challenges, Social change and Universal Responsibility. It is an intensive program (1 subject per day) conducted by an international faculty and staff and enrolling 80 students per year. The global experiential and transformative learning is meant to be part of personal and professional development that balance hard and soft skills, and it is based on community engagement, SDGs and Earth Charter frameworks.

The Value Creators Programme (VCP) at the Windesheim Honours College is based on the following educational concepts:
- Bounded freedom (key in personal development)
- One size does not fit all (flexible curriculum)
- Intensive and meaningful learning (transformative learning)

- 21st- century skills with a focus in character qualities (leadership, ethics, curiosity, adaptability, resilience and social awareness)
- Global consciousness (the overview effect)
- Strong career counseling (self=self / self=others/ self= environment).

The VCP always departs from a complicated question[1], as envisaged in the first stage of the U-process (exploring). Building on the mission and the linkages to a concrete societal pressure, VCP's pedagogy design have come to see the cultivation of generative social fields, of relationships among learners, educators, parents, community members, and nature, as a powerful gateway to the deeper sources of knowing ("the fourth teacher"). Therefore, VCP creates an environment which facilitates the transition from knowledge as a goal to knowledge as a tool, by taking away the class schedules and operating with education on demand. Professional networks and students collaborate and co-create to find solutions to wicked problems as in the second stage of the U-process at the imaginative level. Within a system of stakeholders, each actor explores its role as change-maker and benefits of research, practice and innovation create value in our society. Students work and learn in an inter/trans-disciplinary learning environment by engaging with local, regional and international communities, Professional networks of practitioners, Policymakers, Private sector companies and organizations and Academics that nurture the inspirational level (stage three of the U process).

Through different workshops that VCP provides and that students can create on-demand, their tailor-made toolbox can be used to operate outside, discovering and engaging with professional networks. VCP offers four fields of expertise: Social Entrepreneurship, Civil Society, Global Health and Urban Dynamics, in alignment with EU agendas, SDGs framework as well as local and regional plans. VCP allows and invites students to explore the knowledge related to those topics which are embedded in different networks outside the campus. For that, the physical places of universities are also shared with policymakers, entrepreneurs and other organizations in a collaborative working hub in the city of Zwolle.

Students can team up with other fellow students from different disciplines. Together they start identifying networks which can play an essential role in activating change and creating value. In order to help students navigate through the process of addressing complex issues, the E-Model have been found very useful as a micro-U process guiding students in the 4th stage of the U. Inspired by traditional forms of design thinking and incorporating elements of different theories mentioned before, this model is a simple method to help students and other stakeholders to focus, to identify the most critical stakeholders and ingredients to take action and create social change and value. The E-model consists of four steps:

• Step 1. Explore: VCP invite students (and other users of the model) to explore the wicked challenge they are addressing. Exploring the context, possible causes and

---

[1] Examples of these local challenges are: 'Designated neighbourhoods: Urban Resilience in the Aftermath of Natural Disasters' - Improving Natural Disaster Recovery through Community Empowerment; 'Creating Intergenerational Spaces in Urban Settings' - Strengthening care networks for ageing citizens in Asturias, Spain; 'Towards a University 4.0' Developing criteria for the HubUniversity and universities of the future' - Mapping of best practices.

possible solutions helps gain expertise in the topic. This is the time for brainstorming and shaping the right questions and discussing together the Big Dream.

• Step 2. Engage: Mapping the networks and identifying stakeholders who can be critical players in solving the complexity that is being addressed are the tasks that students are called to solve at that phase.

• Step 3. Elaborate: In this phase, students have to shape the ideas and be more specific on the role of each network and stakeholder in addressing the wicked challenge and defining the activities that each stakeholder should undertake. It is about going from Dream to Action. The elaboration of values and guidelines for an ultimate solution (stage 5th) and the vision of how the organizational aspects of this solution should be designed (stage 6th of theory-U) are mapped onto this step.

• Step 4. Evaluate: This is the final phase of the model. The participants define which value will be created for whom and how it will be evaluated, going through the 7th and last stage of the U-process. Students at VCP are in control of 25% of their grade. To do this, professors plan three individual meetings per year with them. In the first meeting, students are invited to reflection using the framework of the 5 Minds for the Future.

Based on this, they have to create their learning objectives linked to the 5 Minds Model and the VCP's learning objectives. Then they need to think about two goals they want to achieve during their Value Creators journey at personal, professional and community level. In the second meeting, issues they are experiencing, extra tools they may need to achieve their goals, etcetera are discussed. In the last session, students need to assess their learning journey and present the evidence to sustain the grade they are claiming in front of a professional jury, consisting of lecturers, professors and work field representatives. Other assessments tools look over the following areas:

- Knowledge: workshops/MOOCs/conferences
- Development: Personal and professional (development of the 5 Minds for the future) Portfolio
- Process: 4E-Model cycle visualization in a report
- Product: value created and evaluation from networks.

All these steps unfold along three years in a 30 ECs course, and they are implemented for 17-18 weeks during the Autumn and the Spring semester.
The first two years of the VCP (fig.2) curriculum provides students with the skills and tools necessary to become a competent project managers. During this time, students also study topics that highlight change management as a tool to create a more sustainable and fairer world. In the last two years, leadership practice and coaching within international real projects constitute a 30 credits module, that sum up to a Value Creator module (30 credits) in which students gain knowledge about the 5 minds for the future in the framework of wicked challenges / SDGs. In this Value Creators module students gain practical experience in creating value and initiating change: the primary focus is to create societal value and address complex issues, to find solutions and new approaches that contribute to the Sustainable Development Goals. The final Bachelor level internship and Capstone is a thesis in an academic / business / NGOs / public administration bodies of individual choice of students, that later are called to define and assess the value created.

Autumn			Spring	
Introduction to Project Management 5 credits		PD 1 3 credits	Project Management for Success 5 credits	PD 2 3 credits
Introduction to Research 5 credits			Qualitative Research 5 credits	
Professional Writing 3 credits	Business Ethics 3 credits		Rhetoric for Persuasive Communication 3 credits	Professional Presentation & Pitching 3 credits
Organisational Behaviour 5 credits			International Business 5 credit	
History of Globalisation 3 credits	Critical and Creative Thinking 3 credit		Managerial Accounting 3 credits	Financial Analysis 3 credits
Project Management for Change 5 credits		PD 3 3 credits	Project Teams & Leadership 5 credits	PD 4 3 credits
Quantitative Research 5 credits			Trends and Scenario Analysis 5 credits	
Good Governance 3 credits	Global Challenges 3 credits		Marketing 3 credits	Social Marketing 3 credits
Sustainable Business 5 credits			Managing Diversity 5 credits	
Economics 3 credits	Environmental Economics 3 credits		Non-Profit Management 3 credits	Visual problem Appraisal 3 credits

Figure 2 - The first two years of the VCP (fig.2) curriculum. Modules provide students with the skills and tools necessary to become a competent project managers, to address complexity and try to find solutions and new approaches that contribute to the Sustainable Development Goals.

4. Results and Conclusions

The Value Creators Programme (VCP) was piloted in 2016-2017; during the whole year, professors and course coordinators have worked closely together with students exchanging information on how to improve the concept. Students experienced the Value Creators as one of the most insightful learning moments of their whole life as students. However, extreme bounded freedom has been difficult for some students who feel more comfortable inside structures that facilitate their time management. It is crucial that students get proper training in previous years on how to take ownership of their learning journey. Professors at VCP have developed four high-quality SPOOCs (Small Private Owned Online Courses) to contribute to the disciplined mind of students and allowing them to speak the language of other professionals in the field of expertise they have chosen. Next, to the mandatory workshops, these SPOOCs mainly focus on complexity, networks and self-assessment knowledge. Four additional credits of free choice can consist of conferences, mindfulness courses, theatre training, seminars, etc. if demonstrated to be valuable tools to achieve a successful U-journey. Providing some structure does help to lead the students through this quite open and organic process of the Value Creators semester.

One example of student output could be of particular value for this article since it suggests a new Well-being Education Assessment Tool for Universities, narrowed down

into four pillars: Health, Sustainability, Education/Curriculum and Organizational Culture (fig. 3). This reflects the expectations that students now may have about a new kind of university: a well-rounded higher education institution that should facilitate its community (including staff members and teachers) not only as employees and students but as humans who have a desire to grow. That entails not only quality education but also attention to personal and professional development. A true professional knows that learning is a life-long journey of being well in this world and knowledge is just the beginning of it. A university able to create the generative field for this community develop a specific skillset and character, which enables students and staff to be more resilient, aware of themselves, others, and their environment, and generally more capable. This will eventually allow them to live a generally more happy and wholesome life and pass this on to the people around them.

Pillars of Well-being Education			
Health	**Sustainability**	**Curriculum**	**Organisational Culture**
This pillar is mainly concerned with the physical and mental health of members of your Institution. Valuable life-long learning experience can only be facilitated if your personal circumstances are addressed well. Thus, we aim for a healthy environment, for example by promoting the need for personal and individual counselling and a cafeteria with healthy and flexible diet options.	This pillar is mainly concerned with the sustainable development goals (SDGs) and the Educational Institutions capacity to successfully adapt and carry itself out with respect to the foreseeable global challenges we are facing today. This may be regarding the campus infrastructure, development and adoption of new technologies, anticipated standards of future Educational and organisational capacity to facilitate students of different needs helping them become the professionals of tomorrow.	This pillar includes everything that is related to the acquisition, integration, application, and making sense of knowledge and wisdom. It is concerned with offering flexible courses and programs as well as ensuring accessible Education for everyone who shows intrinsic desire and potential. It also addresses students' engagement and ability to bridge theoretical context with hands-on activities that cultivate positive results not only for a student him or herself but for society as a whole.	This pillar is concerned with the organisations internal structure, questions accepted the culture of communication, establishment, and conduct of rules and regulations. It calls for strategic motion towards inclusiveness in decision-making processes addresses the concept and benefits of "bottom-up" managerial practices. Next to that, gender and ethnic inclusion, anti-bullying and cultural support can be seen as a part of this pillar.

Figure 3 - An example VCP' students output: a new Well-being Education Assessment Tool for Universities, narrowed down into four pillars: Health, Sustainability, Education/Curriculum and Organizational Culture. Source: www.wellbeing-university.net/

The Value Creators have been a learning process for lecturers as well. They needed to take a step back from their role as lecturers and need to become coaches who guide the learning process and reflection of the students. The programme has also been designed and checked by a private consultant over the AISHE, the "Assessment Instrument for Sustainability in Higher Education". It was developed and validated in the Netherlands in 2000-2001 by DHO, the Dutch Foundation for Sustainable Higher Education. With the help of AISHE results, universities or their departments can be awarded the 'Certificate of Sustainable Higher Education', which is a star system with a modular structure (Identity, Education, Research, Operations, and Societal Outreach). Each module consists of six indicators that all are assessed making use of a five-point scale derived from the EFQM approach to quality management, indicating the level of organizational development (Activity oriented, process-oriented, system-oriented, Chain oriented, society oriented).

Moreover, the VCP has been self-assessed using the Earth Charter Ethics-Based Assessment Framework (EC-Assess)[2]. EC-Assess is an integrated ethical assessment tool that can be used by individuals or groups who want to evaluate and improve both their level of declared commitment and their level of performance in pursuit of a more just, sustainable, and peaceful world along the 17 SDGs as envisaged in the scheme of

---

[2] earthcharter.org/content/attachments/1/ECI_AssessmentTool_v4.pdf

fig.4. EC-Assess is based on the ethical framework of the Earth Charter. Using a subset of the Earth Charter's sixteen Principles and sixty-one Supporting Principles, evaluators of VCP identify which Supporting Principles are material (significant, meaningful, relevant) to the subject of the assessment. They then evaluate (1) the extent to which each Supporting Principle is espoused publicly, and (2) the extent to which actual planning and performance reflect the implementation of that Supporting Principle in practice. The results allow the evaluator to identify areas where either the declared embrace of a Principle is strong or weak, and where the actual practice of a specific Principle is strong or weak. The results highlight particularly those areas where declared commitment to a Principle, and the methods of that initiative or organization, are not in sync with one another.
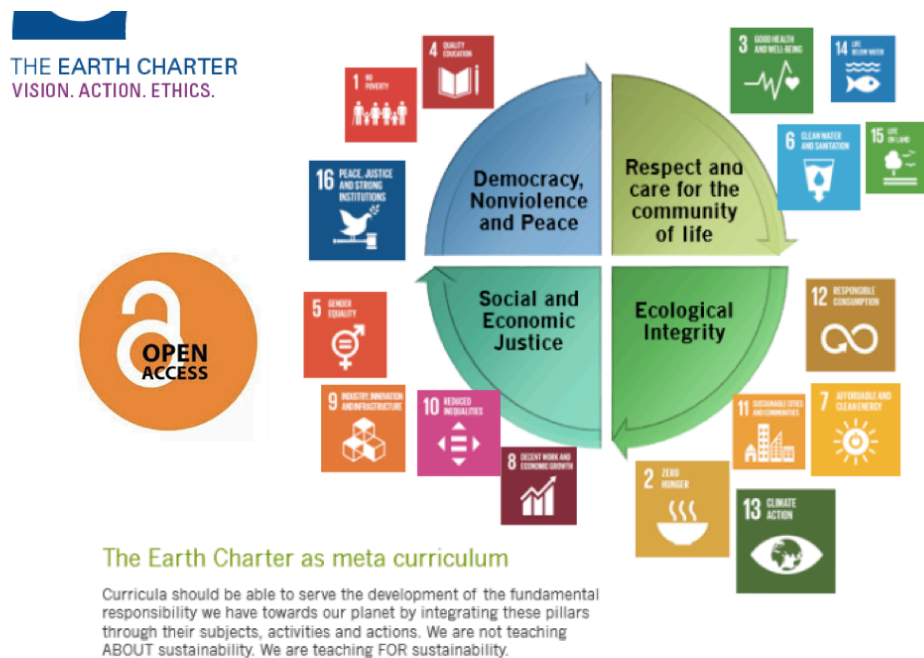

Figure 4 – The earth charter assessment tool is an integrated ethical assessment framework that can be used by individuals or groups who want to evaluate and improve both their level of declared commitment and their level of performance in pursuit of a more just, sustainable, and peaceful world along the 17 SDGs.

The next step for the VCP could be to develop an online learning community, which allows us to take the collaboration process of creating value and learning into a virtual setting with no time or space constraints. This will facilitate the process of connecting to international networks and other university courses willing to experiment with a new type of pedagogy. This way, cells of Value Creators can operate in different countries and work on complex issues from different disciplines, localities and perspectives.

While new concepts of education are seen necessary and urgent to address the demands from the work field regarding young professionals who are focused on quality and value, they do require commitment and investment of time and money from the educational institutions to develop effective methods. One size does not fit all, and this also applies to innovative concepts. In the case of the VCP, the idea matches the progression of bounded freedom, experiential learning and self-reflection embedded in previous years of our curriculum. It is, therefore, a building block, also preparing them for their final bachelor year.

VCP has contributed to expanding bounded freedom in an already flexible curriculum focused on addressing the individuality of each student, and particularly addressing complexity and networks. It is an organic concept, meaning it is expected to grow and develop depending on the students, systems and topics that will be on the Value Creators setting every year. It is a concept that not only allows those dynamics but consciously aims to create environments that are not static. This may take an extra effort when the limits are not drawn, and the bureaucratic requirements maintain professors into old bundles. However, value creation does not seem to have a recipe. Our duty as educators in this time of profound disruption is to create the framework to facilitate the change process and eventually, make it happen.

5. References

Adelekan, S.A., Williamson, M., Atiku, S.O., 2018. Influence of social entrepreneurship pedagogical initiatives on students' attitudes and behaviours. J. Bus. Retail Manag. Res. 12.

Alvarez, M.G., Rijsdijk, L., 2017. Value Creators: an innovative learning environment to shape the future together and find glocal soulutions to the challenges ahead. J. Eur. Honor. Counc. 1, 1–4.

Bina, O., Verdini, G., Inch, A., Varanda, M., Guevara, M., Chiles, P., 2017. INTREPID Futures Initiative: Universities and Knowledge for Sustainable Urban Futures: as if inter and transdisciplinarity mattered. 4th INTREPID Rep.

Buchele, L., Scherer, P., 1998. Putting social policy to work. OECD Obs. 34–37.

Caniglia, G., Luederitz, C., Groß, M., Muhr, M., John, B., Keeler, L.W., von Wehrden, H., Laubichler, M., Wiek, A., Lang, D., 2017. Transnational collaboration for sustainability in higher education: Lessons from a systematic review. J. Clean. Prod. 168, 764–779.

Dentoni, D., Bitzer, V., 2015. The role(s) of universities in dealing with global wicked problems through multi-stakeholder initiatives. J. Clean. Prod. 106, 68–78. doi:10.1016/j.jclepro.2014.09.050

Disterheft, A., Caeiro, S., Azeiteiro, U.M., Filho, W.L., 2014. Sustainable universities – a study of critical success factors for participatory approaches. J. Clean. Prod. 106, 11–21. doi:10.1016/j.jclepro.2014.01.030

Donaldson, T.J., Scharmer, O., Waddock, S., Walsh, J.P., 2016. Making Organizations Meaningful-Rethinking Management around Dignity and Well-being, in: Academy of Management Proceedings. Academy of Management Briarcliff Manor, NY 10510, p. 10926.

Edwards, C.P., Gandini, L., Forman, G.E., 1998. The hundred languages of children: The Reggio Emilia approach--advanced reflections. Greenwood Publishing Group.

Eisenkraft, A., 2003. Expanding the 5E model. Sci. Teach. 70, 56–59.

Eisler, R., Quinn, R.E., Scharmer, O., Wilson, S., 2016. Social Change for a Healthy World: Leading Meaningfully, in: Academy of Management Proceedings. Academy of Management Briarcliff Manor, NY 10510, p. 10619.

Ferreira, J.-A., Evans, N., Davis, J.M., Stevenson, R., Evans, N., 2019. Teacher Education and Education for Sustainability. Learn. to Embed Sustain. Teach. Educ. 7–21.

Ferrer-Balas, D., Buckland, H., de Mingo, M., 2009. Explorations on the University's role in society for sustainable development through a systems transition approach. Case-study of the Technical University of Catalonia (UPC). J. Clean. Prod. 17, 1075–1085.

Ferrer-Balas, D., Lozano, R., Huisingh, D., Buckland, H., Ysern, P., Zilahy, G., 2010.

Going beyond the rhetoric: system-wide changes in universities for sustainable societies. J. Clean. Prod. 18, 607–610. doi:10.1016/j.jclepro.2009.12.009

Gardner, H., 2008. The five minds for the future. Schools 5, 17–24.

Haider, L.J., Hentati-Sundberg, J., Giusti, M., Goodness, J., Hamann, M., Masterson, V.A., Meacham, M., Merrie, A., Ospina, D., Schill, C., 2018. The undisciplinary journey: early-career perspectives in sustainability science. Sustain. Sci. 13, 191–204.

Handley, K., Sturdy, A., Fincham, R., Clark, T., 2006. Within and beyond communities of practice: Making sense of learning through participation, identity and practice. J. Manag. Stud. 43, 641–653.

Hugé, J., Block, T., Waas, T., Wright, T., Dahdouh-Guebas, F., 2016. How to walk the talk? Developing actions for sustainability in academic research. J. Clean. Prod. 137, 83–92.

Kelly, L., 2017. Research in Early Childhood Education for Sustainability: International Perspectives and Provocations Julie Davis and Sue Elliott (Editors) London, Routledge, 2014. Aust. J. Environ. Educ. 33, 229–231.

Kenney, D.R., Dumont, R., Kenney, G., 2005. Mission and place: Strengthening learning and community through campus design. Greenwood Publishing Group.

Loucks-Horsley, S., Stiles, K.E., Mundry, S., Love, N., Hewson, P.W., 2009. Designing professional development for teachers of science and mathematics. Corwin Press.

Lozano, R., Carpenter, A., Huisingh, D., 2014a. A review of 'theories of the firm' and their contributions to Corporate Sustainability. J. Clean. Prod. 106, 430–442. doi:10.1016/j.jclepro.2014.05.007

Lozano, R., Ceulemans, K., Alonso-Almeida, M., Huisingh, D., Lozano, F.J., Waas, T., Lambrechts, W., Lukman, R., Hugé, J., 2014b. A review of commitment and implementation of sustainable development in higher education: results from a worldwide survey. J. Clean. Prod. 108, 1–18. doi:10.1016/j.jclepro.2014.09.048

Mulder, K.F., Ferrer, D., Segalas Coral, J., Kordas, O., Nikiforovich, E., Pereverza, K., 2015. Motivating students and lecturers for education in sustainable development. Int. J. Sustain. High. Educ. 16, 385–401.

Page, I., 2017. Social technology and Theory U: Co-creating actionable knowledge for leadership, in: Sustainability Science. Routledge, pp. 133–146.

Ramos, T.B., Montaño, M., Joanaz de Melo, J., Souza, M.P., Lemos, C.C. de, Domingues, A.R., Polido, A., 2015. Strategic Environmental Assessment in higher education: Portuguese and Brazilian cases. J. Clean. Prod. 106, 222–228. doi:10.1016/j.jclepro.2014.12.088

Ravetz, J., 2017. Postscript: Heuristics for sustainability science, in: Sustainability Science. Routledge, pp. 337–344.

Scharmer, O., 2018. The essentials of theory U: Core principles and applications. Berrett-Koehler Publishers.

Segalàs, J., Ferrer-Balas, D., Svanström, M., Lundqvist, U., Mulder, K.F., 2009. What has to be learnt for sustainability? A comparison of bachelor engineering education competences at three European universities. Sustain. Sci. 4, 17.

Segalàs, J., Tejedor, G., 2015. Multicultural constructive community learning course for education in sustainable development applying backcasting, in: Transformative Approaches to Sustainable Development at Universities. Springer, pp. 337–347.

Senge, P.M., 2014. The fifth discipline fieldbook: Strategies and tools for building a learning organization. Crown Business.

Siemens, G., 2017. Connectivism. Found. Learn. Instr. Des. Technol.

Sonetti, G., Brown, M., Naboni, E., 2019. About the triggering of UN sustainable development goals and regenerative sustainability in higher education. Sustain. 11,

254. doi:10.3390/su11010254

Sonetti, G., Lombardi, P., Chelleri, L., 2016. True green and sustainable university campuses? Toward a clusters approach. Sustain. 8. doi:10.3390/su8010083

Spangenberg, J.H., 2017. Hot air or comprehensive progress? A critical assessment of the SDGs. Sustain. Dev. 25, 311–321.

Steiner, R., 1988. Goethean science. Mercury Press New York.

Stevenson, R.B., Lasen, M., Ferreira, J.-A., Davis, J., 2017. Approaches to embedding sustainability in teacher education: A synthesis of the literature. Teach. Teach. Educ. 63, 405–417.

Tejedor, G., Segalàs, J., Barrón, Á., Fernández-Morilla, M., Fuertes, M.T., Ruiz-Morales, J., Gutiérrez, I., García-González, E., Aramburuzabala, P., Hernández, À., 2019. Didactic strategies to promote competencies in sustainability. Sustainability 11, 2086.

Tejedor, G., Segalàs, J., Rosas-Casals, M., 2018. Transdisciplinarity in higher education for sustainability: How discourses are approached in engineering education. J. Clean. Prod. 175, 29–37.

Trencher, G.P., Yarime, M., Kharrazi, A., 2013. Co-creating sustainability: cross-sector university collaborations for driving sustainable urban transformations. J. Clean. Prod. 50, 40–55. doi:10.1016/j.jclepro.2012.11.047

Wenger, E., 2010. Communities of practice and social learning systems: the career of a concept, in: Social Learning Systems and Communities of Practice. Springer, pp. 179–198.

Westberg, L., Waldenström, C., 2017. How can we ever create participation when we are the ones who decide? On natural resource management practice and its readiness for change. J. Environ. Policy Plan. 19, 654–667.