Co-Creation in Higher Education

Students and Educators Preparing Creatively and Collaboratively to the Challenge of the Future

Tatiana Chemi and Lone Krogh (Eds.)

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Co-Creation in Higher Education

CREATIVE EDUCATION BOOK SERIES

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Scope

The knowledge, learning and creative economies manifest the changing significance of intellectual capital and the thickening connections between economic growth, knowledge and creativity. Increasingly economic and social activity is comprised by the 'symbolic' or 'weightless' economy with its iconic, immaterial and digital goods. This new digital knowledge economy includes new international labor that rely on developments in information and communication technologies (ICTs) that are changing the format, density and nature of the exchange and flows of knowledge, research and scholarship. Delivery modes in education are being reshaped. New global cultures of knowledge and research networks are spreading rapidly. New forms of openness and networking, cross-border people movement, flows of capital, portal cities and intensive development zones all are changing the conditions of imagining and producing and the sharing of creative work in different spheres. At the centre of is the economy/ creativity nexus. But are education systems, institutions, assumptions and habits positioned and able so as to seize the opportunities and meet the challenges? This new series investigates all the aspects of education in (and as) the creative economy in order to extend the dialogue about the relationship between contemporary higher education and the changing face of contemporary economies.

Co-Creation in Higher Education

*Students and Educators Preparing Creatively and Collaboratively
to the Challenge of the Future*

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All chapters in this book have undergone peer review.

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SETTING THE STAGE FOR CO-CREATION IN HIGHER EDUCATION

RETHINKING CO-CREATION

With this introductory chapter we wish to set the stage for the perspectives behind the present contribution. The broad field to which our research studies ascribe will be presented and the structure of the book unfolded. Our ambition is not to review exhaustively the many – and still growing in number – contributions that have been dedicated to the investigation of co-creative practices. Rather, we wish to make visible and explicit the common thread among the different chapters, as well as to relate our contributions to a specific field of studies and a specific need for knowledge. First of all, we should spend some words to clarify the concept of co-creation.

Contributions on co-creation have so far touched upon specific themes, such as:

- design thinking
- product innovation
- organisational development
- social innovation/management research
- student direction
- conceptual research in general

Contributions that make use of the concept of co-creation are primarily design and business oriented. Prahalad and Ramaswamy (2004) are often mentioned as the initiators of co-creative discourses. However, their perspective on co-creation is confined to the market discourse. In their understanding, co-creation is related to the value creation that customers-market relations can generate bringing new values into the market. Their ground-breaking role is recognised, probably on the grounds that they were the first to write about optimising customer experiences through co-creation (co-opting).

Degnegaard's review (2014) considers a wide range of disciplines in his specification of the concept and we consider this as a good place to start. We refer to his review for a thorough conceptual stage setting. Sanders and Stappers (2008), instead, represent one of the major research areas in co-creation: design thinking. Voorberg et al. (2014) contribute with a review that is focused on social innovation. Camargo-Borges and Rasera (2013) represent a second direction within co-creation: a social constructivist perspective on organisational development. As Degnegaard

(2014, p. 99) clearly illustrates, business and social studies are the areas that have mostly contributed to reflections on and applications of the concept of co-creation. He therefore concludes that "there is very little research-based literature so far on how the field of co-creation has developed, and of how the concept is being established and on the future trajectory of the concept of co-creation" (Degnegaard, 2014, p. 96). Regarding the design thinking perspective, we refer to Liedtka's extensive work (2014) and her collaboration with Ogilvie (Liedtka & Ogilvie, 2011).

Our anthology focuses on approaches to teaching and learning in Higher Education (HE) with a special focus on collaborative, co-creative and distributed perspectives. As such, it aims to follow up on research in the area of co-creation and to apply it in the new context represented by Higher Education. With this collection of articles, we wish to show the diversity of approaches to co-creation, on the one hand and, on the other, we intend to give a specific direction to these studies, which is humanistic, sociological, creative and pedagogical – a direction that is still in need of further investigation and research into co-creative practices. In accordance with our purpose, we look at co-creation as the process of creative (original and valuable) generation of shared meaning and development.

HIGHER EDUCATION: CHALLENGES

HE institutions are here seen in the light of the societal developments and of recent directions in academic workplaces, nationally and internationally. The academic labour market has been changing rapidly during recent decades and new developmental tendencies in how to handle the development and its challenges have led to the fact that higher educational pedagogies are emerging (Krogh, 2013). Educating students to be able to develop skills that will prepare them to manage personal as well as social and occupational challenges in ever-changing, global and technology-based settings is progressively becoming the aim of educational institutions. According to the transformations in society, HE institutions are changing their very roles, from focusing on research and teaching to having focus on research, teaching and more effective learning. This includes keeping their attention on the emotional, sensory, affective and psychological sides of learning and teaching, together with a general approach to curriculum development that is creative and innovative. At the same time, these ideals have to face a harsh reality: the number of students is increasing more and more. This makes motivational, relational and affective issues even more relevant. We have to ask ourselves, are the students increasingly unengaged and detached? And are the HE institutions able to engage and challenge students optimally? However, we know from research and experiences (Aarup Jensen, 2015) that students seem to react according to the structures, culture, and human beings (staff) they meet in the educational systems, if we as educators invite and allow them to do so. Therefore, we must not underestimate the influence that the institutional system and staff have on the students' learning and development. If we wish to prepare our students for a yet unknown future, we must work on academic excellence, as well as psycho-affective

readiness (mindfulness, resilience, collaborative processes, creativity). How can the HE institutions of the future prepare for this educational task?

We know a great deal about what makes learning happen (Ramsden, 2003; Gibbs & Tang, 2007), and in HE institutions a large number of teachers carry out experiments that approach and involve the students in such a way that they learn skills and abilities to meet future challenges.

In Denmark, principles of collaborative and co-creative learning have found their institutional places. Aalborg and Roskilde universities have for years been organising their pedagogy based on principles such as problem-based learning (PBL), student-led directions and participation, students taking on responsibilities and teachers as supervisors, facilitators (Bovill, 2011). At other institutions (e.g. UCN[1] in Denmark, Uppsala University/CEMUS[2] in Sweden), principles such as learner-led (Iversen et al., 2015) and co-creation processes in teaching activities have resulted in increased student engagement and involvement, and high-level learning outcomes.

It is not simple to change educational cultures. Many diverging interests, traditions, values, and emotions are influencing these changes and the very possibility of them happening.

This book will cover and document new research within aspects of working with teaching and learning approaches aimed at empowering students to handle their lives during their education and towards an occupational life.

There is not one way of doing this, all kinds of teaching strategies must be based on very essential curricular arguments for making the relevant choices for doing it. We refer here to the principles of alignment (Biggs & Tang, 2007) or the educational design (Dale, 1999; Jank & Meyer, 2006).

The basic themes we are interested in researching are:

- Problem-based learning (PBL)
- Co-creation
- Learner-led teaching
- Student-centred approaches
- Assessment
- Arts-based methods
- Collaborative dynamics
- Interconnection of cognition/emotion
- Creativity in HE

WHY CO-CREATION?

The relevance of investigations and research on the concept and practices of co-creation is many-sided. The concept is intuitively perceived and understood, as is the experience of shared values across different stakeholders. Not as intuitive, though, are the ways in which individuals and groups can develop awareness of the practices that are linked to co-creative experiences.

Within the framework of Higher Education this is even more relevant: for a future that needs to strengthen human relationships and practices of sharing, the ability (or disposition) of creating a shared value in spite of differences is strategically fundamental.

Can we envision and describe co-creation as deliberate research strategy for the future? Can we imagine a future where co-creation is a deliberate pedagogical strategy?

Often educators work with co-creation in their teaching but lack a context to reflect, analyse and conceptualise their co-creative practices. With this book based on our research in different HE areas, we wish to engage in a conversation with scholars, researchers and practitioners, and we wish to think together with educators *about* co-creation, as a framework that can explain relational dynamics in Higher Education for society in the future.

Our target group is an international community of scholars, researchers, educators, artists, leaders and consultants at Higher Education institutions. Our book is primarily aimed at an academic reader. However, reflective practitioners within adult education in a broader sense might be interested in the topic, especially if their profession involves educational or organisational tasks (adult learning or life-long learning). Moreover, the book is meant as inspiration for educators, facilitators and leaders, who are interested in the concept of co-creation and its applications in different HE educational areas. At academic level, we believe that several graduate and postgraduate courses can actively use the book, as a teaching or inspiration resource.

We suggest that attention to co-creative processes is a trend that is going to grow in the future, together with the growing of interest in creative solutions for future education and organisation. With the global focus on our main and intertwined themes, we intend to address an international audience of scholars in the Western world as well as countries with growing economies. Where, globally, countries have conceptualised and formulated a strategic interest in the field of Higher Education, we can offer original and relevant research.

It is our hope that this book will inspire a large target group from the fields of education, pedagogy, leadership, consulting and development. Last but not least, we wish to contribute meaningfully to the future development of these fields, opening up new debates on co-creation and on how to prepare our students in the best way to handle academic tasks and challenges in the future.

BOOK STRUCTURE

The present volume is the product of a co-creative process that the authors went through and that we, as editors, facilitated. The chapters cover a variety of topics and interventions within Higher Education. Their authors have worked collaboratively, giving each other feedback and suggestions. This generated internal conversations that – hopefully – generated a shared value for all.

In Chapter 1, *Re-thinking curriculum for 21st-century learners – Examining the advantages and disadvantages of adding co-creative aspects to Problem-Based Learning*, Annie Aarup Jensen and Lone Krogh discuss an experiment of changing curriculum in the direction of students, to a greater degree, becoming 'leaders' of their own learning processes and how this can be done within the formal framework of an educational programme. They argue that the Problem-Based Learning (PBL) principles as they are practiced at Aalborg University with focus on concepts such as student direction, problem solving, peer feedback and teachers facilitating the learning processes and the competence development can be transferred to other teaching areas. The case in point is a 1st year BA in Organisational Learning, where an experiment was carried out. Students were offered the possibility of participating in co-creative and collaborative processes with the teachers as far as the formal framework of the programme allowed. Some of the results of the experiment are presented. Among other things they show that most students wish to be a part of the co-creation processes regarding teaching activities. However, some also seem to prioritise more traditional teaching forms. From the results they also see that introducing these kinds of change in an educational institution is not necessarily an easy task for neither teachers nor students, as it entails a shift in roles for both.

In Chapter 2, *Co-creating knowledge – students and teachers together in a field of emergence*, Ann-Merete Iversen and Anni Stavnskær Pedersen introduce co-creative processes as a means to re-inventing teaching in Higher Education. A methodological approach is presented in which significant parts of knowledge production and knowledge exchange are based on co-creative generative dialogue between students and teachers. It is argued that co-creative methodology enhances the societal relevance of education and at the same time prepares students for becoming 21st-century knowledge workers.

Chapter 3, *Facilitating reflective learning and co-creative teaching by portfolios in problem-based learning (PBL)*, will mainly focus on how the development of teaching portfolios can facilitate new teaching staff's reflective capability in a PBL environment. Chunfang Zhou, Ole Ravn, and Xiangyun Du look at the social theories of learning that regard a co-created curriculum model as a basis for developing a community of practice, as in PBL, where all learners and teachers are reflective partners who contribute to a joint enterprise, a shared repertoire and mutual engagement. One of the authors of this chapter describes how reflective didactic experiences were developed by her teaching portfolio through participation in the university pedagogy programme at Aalborg University (AAU), Denmark. The discussion of this case leads to the following findings: (1) the teaching portfolio is an effective means of facilitating new staff's self-enhancement and shaping professional identity towards being a reflective teacher, and (2) the teaching portfolio is an effective means of building reflective conversations for oneself and between supervisors in a PBL staff development programme, and of developing the value of co-creation in a PBL environment.

In Chapter 4, *Teaching co-creation in higher education through dance exercises*, Claus Springborg explores how to use exercises from improvised couples dances, such as tango and contact improvisation, to teach four co-creation capabilities: Voicing, listening, respecting, and suspending (Isaacs, 1999). He first looks at the challenge of teaching these co-creation skills from two related perspectives: deutero-learning (Bateson, 1972a) and embodied neural metaphors (Lakoff, 2012; Springborg, 2015). The perspective of deutero-learning highlights that an important part of learning co-creation skills is the process of internalising the structure of the learning context itself. The perspective of embodied neural metaphors highlights the importance of considering which sensory-motor experiences students are exposed to within the learning context and whether these can be used as embodied metaphors for the more abstract co-creation skills and concepts taught. The author proposes how exercises elsewhere used to teach improvised couples dance can provide both a learning environment structure and direct sensory experiences, useful for the teaching of co-creation skills, such as voicing, listening, respecting, and suspending.

In Chapter 5, *Co-creation in PBL project work*, Ole Ravn uses the notion of co-creation in the particular context of higher education where the teaching by supervisors and the learning processes of students are entangled in a co-creative process in a PBL setting. The scenario is the situation where the teaching process is developed continuously during meetings with students and the specific content is what students bring into the teaching and learning situation. And the students' learning processes and knowledge production are shaped and formed by a co-creative process, fuelled by their own and the supervisor's contributions. Based on the above reflections on the key elements in the area of teacher-student co-creation, this chapter takes as its problem formulation: how can a supervisor establish an open space for a co-creative process between supervisor and a group of students?

The approach to developing a vocabulary about this open space for co-creativity falls into three steps. First, the idea is to pinpoint more clearly how we can conceptualise the open space for co-creative processes in education. Here the framework developed by Helle Alrø and Ole Skovsmose in their study of dialogical processes in education is discussed. Their work builds, among other sources, on Paulo Freire's ideas of dialogical pedagogy.

Secondly, the idea is to look into supervision approaches and discuss how they relate to the developed co-creative process space. Finally the chapter establishes some reflections on how to open the co-creative space in a fruitful way.

In chapter 6, *A cogenerative dialogue: reflecting on education for co-creation*, Henrik Find Fladkjær and Kathrin Otrel-Cass utilise Roth & Tobin's method of cogenerative dialogue (2001) to co-construct and analyse a teaching innovation. The teaching innovation was based on the principle of peer learning and involved students going through cycles of evaluating, critiquing and co-constructing their learning. More specifically, students discussed first in groups with a more senior peer, then paired up with an opponent student to discuss each other's projects, not only to share feedback but also to come up with solutions. The authors' cogeneration

foregrounded different insights and voices and how they have come together to formulate a joint product, this chapter.

In Chapter 7, *Theatre as co-creative space and as inspiration for higher education*, Tatiana Chemi and Pierangelo Pompa look at collaboration in the theatrical creative process, which defines a very interesting and fertile paradigm for all kind of co-creative dynamics. Theatre can be co-creative or not. Theatrical co-creation implies structurally a pedagogical and ethical process, since it is founded on the development of embodied skills and values, which are always, by their own technical nature, relational and social. In the extra-daily time and space of theatre laboratory work, the traditional notion of authoriality is abandoned, and a collective body-mind arises as an unforeseeable discovery for each individual.

In Chapter 8, *Co-creating the joy of writing: creative analytical writing practices*, Charlotte Wegener suggests a way to think about and teach creative co-created writing practices that makes writing a key to both learning and identity building for students. It suggests ways in which writing becomes a way of thinking, learning and being in the world, and allows for joy. The chapter presents examples from writing supervision based on a model of three drivers for creative co-created writing called 'the Toolbox', 'the Building Materials' and 'the Building'.

The purpose of Chapter 9, *Co-creating meaning through Artful Inquiry*, is to point out the need for aesthetic and artful methods for reflection, learning and co-creation. The context is management education focused on developing innovation competency. The data derive from action research, observations and written reports. The main contribution of this chapter is the introduction of a model for Artful Inquiry, which involves constructing powerful questions and finding appropriate artistic methods for reflecting and for co-creating with people or with artistic material. Lotte Darsø argues that Artful Inquiry can access deeper layers of knowing, which would otherwise remain tacit and non-conscious. The findings show how new insights can be obtained through drawing with dominant and non-dominant hands and through reflecting with artistic processes. The material 'speaks back' in surprising ways, metaphorically and symbolically. Also the impact of leadership icons, as well as co-creating with tangible materials, can give rise to new meaning and transformational learning.

In Chapter 10, *Arts-involving Burning Man festival as co-creation in social education studies*, Julie Borup Jensen addresses the topic of co-creation in student learning processes concerning democracy and citizenship in social education studies at the Danish University College, Northern Jutland. The co-creational effects of experimenting with an arts-involving festival, inspired by the new Nevada Desert event *Burning Man*, in collaboration with pedagogical staff and residents of local refugee and immigrant institutions and local communities, are investigated by means of socio-cultural and cultural-psychological perspectives on learning processes. Original data is drawn from a qualitative action research project that aimed at developing practice and knowledge about arts involvement in the local social education programme. The study revealed potential and challenges in respect

of using artistic and aesthetic expressions, methods and activities as a way of framing the co-creational aspects of student learning within the area of democracy and citizenship. The findings show that working with co-creation in teaching may lead to community building, building of relationships within the local community, visibility in society and, last but not least, student learning and development of understanding of democracy in practice. The findings also indicate that there are challenges in respect of scaffolding a co-creational process that requires a great deal of negotiation of responsibility and participation.

In Chapter 11, *Bizchange: co-design meetings to enable stakeholder-supported design moves*, Sune Gudiksen, Søren Bolvig Poulsen et al. take their point of departure in co-creation as a design negotiation endeavour. Through an engaged scholarship approach and in a four-month course *BizChange,* they describe a series of co-design meetings in three different digital media student-company cases. In particular, they explore in what way the students manage to get across perspectives, ideas and concepts to decision makers and stakeholders. This includes how to approach stakeholder involvement and associated constraints, the inclusion of experienced peers to spot blind spots and the use of co-design negotiation tools as a means of involving a circle of stakeholders.

In Chapter 12, *Teaching co-creation: paradoxes in rock and pop ensemble classes*, Turid Nørlund Christensen looks at the domain of arts-based rock and pop music, where co-creative processes are essential in the artistic formation of an authentic and original band expression. However, methods for teaching the tacit knowledge of these artistic co-creative competences in Higher Education have yet to be developed. Teaching ensemble playing from an artistic co-creative perspective was researched from an instructor's point of view in a pedagogic development project at the Royal Academy of Music, Aarhus (RAMA). An ensemble course was designed and facilitated through problem-finding group improvisations, mimicking the exploratory process of co-creative rock bands. Experience-based group reflections were facilitated, aiming at identifying and transforming the domain-specific tacit knowledge to propositional knowledge from a social constructivist perspective. The didactics and methodology were conceptualised from a pragmatic approach to interdisciplinary research in co-creation, co-design, social systems, cultural sociology, psychology, educational theory, dramaturgy, and domain-specific aesthetic and educational studies, and researched using audio recordings, feedback from students, class notes and self-observations.

Two main contributions resulted:

- Structures for a co-creative educational design approach, incorporating the informal educational characteristics of rock and pop ensembles and corresponding learning objectives.
- A mapping of the structural elements of the educational co-design approach and corresponding co-creative competences, derived from the aesthetic characteristics of rock and pop ensembles.

In Chapter 13, *Designing learning for co-creation – conceptual and practical considerations*, Dorina Gnaur and Inger Marie Larsen-Nielsen explore the practical implications of the concept of co-creation in a professional context from an educational point of view. The question they are posing themselves is: how can higher and further education (HE) educate for co-creation, that is, provide educational frameworks that respond to the societal demand for co-creation, particularly within the public welfare sector? First, they focus on which organisational and individual requirements an HE learning design should take into account in order to support the diffusion of co-creation competences. Then they argue for the need to integrate these considerations in the learning design and demonstrate a practical application in the form of a didactical design. They call this a hybrid learning design, in that it takes advantage of technological developments to mediate co-creative learning in multiple learning environments.

NOTES

[1]   University College North Jutland.
[2]   The Centre for Environment and Development Studies.

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1. RE-THINKING CURRICULUM FOR 21ST-CENTURY LEARNERS

*Examining the Advantages and Disadvantages of Adding
Co-Creative Aspects to Problem-Based Learning*

Through whom is Denmark going to live in the future? We must live by our children. We do not know what they are going to do. But we know that they are the ones who will drive everything. And the best we can do for them is to prepare them for a future that no one knows what it will look like. Therefore, what is happening in the education system, public and private, is paramount. For this is where the preparation for to the unknown and unpredictable happens. This is where our children can be fired with self-awareness, competences and confidence. With perceptions of what talents they carry. With professional skills to think and act, academically and creatively. And with confidence to meet the unpredictable future with the belief that precisely what they personally have to offer is worth something. That precisely their contribution can help to change things, and not only to be victims of change.

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(Claus Buhl, Nyhedsbloggen *Information* 13. January 2012.
Translated from Danish by the authors)

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INTRODUCTION

Why is it relevant to re-think curriculum in Higher Education? Society and the labour markets have in many ways been undergoing dramatic changes during past decades. This has been explained as being a change from the industrial society to the information society, the knowledge society, and even to the learning economy and society (Lundval, 2008). Academic working life – whether we talk about the private or public sector – has become more complex and unpredictable, technologically as well as in terms of work functions, qualifications, competencies, values and attitudes among employers and employees. The changes have had an impact on jobs, work functions and company structures, as well as on industrial dynamics. However, they have also had an important impact on everyday social life and on the dynamics of the economy and society (Sennett, 2006). The changes not only have an impact on society in general and on firms and institutions as such. They also seem to affect relationships between people in all their mutual activities.

These tendencies influence the requirements for professional and personal competencies of academic and scientific staff. Relating to the professional foundation of disciplines within the individual subject area and profession, there is a demand for abilities in development, planning, knowledge processing, theoretical reflection and problem solving (Globalisation Council, 2006).

Regarding the student perspective, an international Education Advisory Board (Learning in the 21st Century) has been bold enough to come up with some suggestions regarding how to name 21st-century student (the millennials). These students represent the generation born during the previous century. At a general level they seem – according to investigations done by the Education Advisory Board – to be able to react and act according to changes in society. In the paper, they characterise this generation of students in general terms as follows,

- They like to be in control, but they do not want to be bound by traditional schedules, and they do not necessarily want to sit in a classroom to learn. Instead, they prefer to use technology to study at any time of the day or night, … and they want to define "balance" in that in their own individual ways.
- They like choices. In project-based environments, they use technology to complete tasks in new and creative ways. They are group-oriented and social. Relentlessly exposed to the world through the media.
- They are highly collaborative; sharing what they learn with others actually helps them in creating their own personal identities.
- They are inclusive, because their generation has been taught to be tolerant of all kind of races, religions and sexual orientations.
- They are users of digital technology, as ICT has always been part of their lives.
- They think differently. They simply accept technology, adapt to it and use it.
- They are more likely to take risks.
- They value time off because they consider life as being uncertain.

We might assume that the developments they are experiencing regarding changes in society, in IT, in internationalisation and global conflicts, in their personal and school lives so far have put them on track to meet the challenges for their future in societies undergoing continuous changes. However, it is important to be aware that we also see many young students having difficulties in handling all these challenges. This only emphasises the importance of focusing to a much greater degree on the individual student's prerequisites in educational settings.

According to Ananiadou and Claro (2009) developments in society and economy require educational systems to support young people in acquiring the skills and competencies that allow them to benefit from emerging new forms of socialisation and to contribute actively to economic development in a system where the main asset is knowledge. These skills and competencies are often referred to as 21st-century skills and competencies, in order to indicate that they are more related to the needs of the emerging models of economic and social development than to those of the past century, which were primarily suited to an industrial mode of production. Comparing

the above-mentioned characteristics of 21st-century learners with the demands for 21st-century skills and competencies, it seems that students, generally speaking, not only are ready to acquire and develop these types of skills, but also expect a change from traditional teaching and learning methods in the direction of more innovative methods. They are collaborative risk takers and media literates, and they are already themselves practicing new and alternative ways of informal learning.

Back in 1998, Boud and Marton emphasised in their research that Higher Education (HE) institutions have the responsibility to ensure students become prepared for an unknown future. HE institutions have, according to the two researchers, to make sure that students learn the basic academic skills in order to continuously be able to solve unforeseen problems in a diversity of professional and private situations. Their answer to the demands of the unknown future was thus focused on students learning basic academic skills, and they recommended learning these skills during education through innovative teaching and learning strategies and methods.

Continuously developing curriculum is the foundation for building education that will meet the demands of society and the workplace. But there is no doubt that, when the politicians cut investment in a system and regulate the financial resources spent on education, this is the ultimate reason for the HE[1] system to change. The huge access to HE by students during the last decade (education in Denmark is free), together with the reduction in finances, have become the driving force to re-think education in HE institutions. Furthermore, the Danish government has increased its focus on the quality of education and teaching, to ensure that economic resources are spent as intended and that the amount spent is worthwhile. Here, an important question is how the government defines quality. Some of their focus is centred on issues such as transparency, students' experience of meaningfulness, relevance, and employability. The Expert Committee on Quality in Higher Education in Denmark established by the Danish Government (2014) published two reports, in Winter 2015 and Spring 2016, in which several of the above-mentioned quality issues were pointed out. Furthermore, the Danish Accreditation Institution published an analysis report in 2015, based on knowledge from the accreditation process at the Danish Accreditation Institution, supplemented by interviews with selected informants and stakeholders from the educational sector. The analyses showed that, despite the varied and comprehensive work being done by the educational institutions to ensure the relevance of their programmes, it is important to improve the match between graduate competencies and demands from labour markets.

From the above-mentioned arguments, and from the focus of politicians and stakeholders, it follows that we need to reconsider how study programmes are organised and how resources are used in order to be able to educate our students for society and for the future academic and scientific labour market, in the most relevant ways.

In this chapter we investigate how and to what extent an existing pedagogical model based on problem orientation and student direction may be further developed to take into account the above-mentioned factors and meet the expectations of the 21st-century learner. We will do this by first presenting the existing pedagogical

model (Problem-based Learning – PBL) and what it requires of students to participate. Based on this, we analyse an experiment that aimed at increasing student contribution and responsibility through co-creative processes. The results are related to the concepts of co-creation, learning conditions and the 21st-century learner.

THE PEDAGOGICAL MODEL – PROBLEM-BASED LEARNING

The pedagogical framework of the experiment is problem orientation and student-directed learning based on the principles of the Aalborg University PBL model. Problem-based learning, project work, etc. are concepts that are used widely and with different meanings, integrated into varying educational designs and with different kinds of goals. The original idea and theoretical foundation of problem-based project work, in a Danish context, were formulated by the Danish researcher K. Illeris (1974) in his seminal book, *Problem orientation and participant direction: An introduction to alternative didactics*. The PBL pedagogies at Aalborg University have been developed from these original principles since the 1970s. Exemplarity, open curriculum, interdisciplinary and experience-based learning, peer learning, and collaborative learning in groups are important concepts (Aarup Jensen & Krogh, 2013). These concepts will be further explained in the following sections.

Basic Principles of Problem-Based Project Work

Illeris lists three categories of qualifications which appeared to be necessary for the development of society at that time: (1) skills which can be defined in direct relation to a given task or work process, (2) adaptive qualifications of a general character and comprising attitudinal characteristics (e.g. diligence, perseverance, vigilance etc.) – combined with a willingness to apply these characteristics in relation to work, to accept and adapt to existing work processes, (3) creative/innovative qualifications that may be divided into qualifications for scientific, innovative work and qualifications for continuous renewal and the ability to collaborate (Illeris, pp. 32–35). Referring to Piaget, Illeris understands accommodative learning processes as a prerequisite for creativity. From this point of departure, he describes an expedient learning process that allows for the development of skills, adaptive ability and creativity in a process which alternates between accommodative processes (the creation of new cognitive structures) and assimilative processes (the incorporation of new material in the individual's existing structures). Such alternating processes are a precondition of students' ability to acquire holistic competencies that comprise skills, an adaptive ability and creative qualifications (Illeris, pp. 76–77).

Illeris developed these ideas further, suggesting an alternative didactic concept – problem-oriented project work, characterised by:

- *Problem orientation*, which means that the point of departure is the subject-related knowledge, methods and theories relevant to the specific problem, rather

than a narrow discipline-bound theme or task. Consequently, interdisciplinarity becomes a core principle.

- *Participant direction*, which means that the students define the problem and choose the work methods.

These are important principles for the creation of possibilities for the accommodative learning processes, which are necessary for developing creativity and flexibility. This is important to emphasise, because if teachers or the educational system determine the problems for students to work on, and how students are supposed to work with problems, there may be a transgression of the traditional borders between disciplines, but new political agendas may delimit and constrict the students' work in the same way as the traditional disciplinary borders would do, thus hindering students' accommodative learning processes (Illeris, 1982). In other words, the possibility of creativity and innovation relies on students' ownership of their projects and their freedom and responsibility to find and define the problem to research. With this freedom and responsibility also comes a demand for academic skills, such as analytical skills, critical reflection and communicative and cooperative skills. These are examples of the accommodative learning processes that students (are expected to) go through during their collaborative work on the project. Accommodative learning processes are demanding and will only take place in situations of significance for the individual student, where something is at stake. Otherwise, the individual student will dismiss the problem or assimilate it, i.e. integrate it into already established cognitive structures (Illeris, pp. 82–83). Therefore it is important that the individual student is motivated and engaged in the problem and the process of researching it.

The principles are:

- *Exemplarity*, which means working with the important and representative aspects, which exemplify the area of the discipline in question.
- *Group work*. Students collaborate in groups on problem finding and problem solving. In this way they learn the difficult art of collaboration, communication and project leadership.

Practicing the PBL Project Work

Typically, the problem-based project work will go through the following phases,

- Selection of the subject and the first reflections on relevant problems;
- Problem formulation of the project – a dynamic process which continues throughout the project period;
- Methodological reflections and decisions on how to research and solve the questions raised in the problem formulation;
- Project work (i.e. theoretical and empirical work, perhaps involving experiments);

- Production of project report (sometimes involving descriptions of reflections on work processes); and
- Product evaluation and if necessary – product adjustment.

The role of the teachers is to act as supervisors/facilitators and to offer the students formative assessment and feedback during their project work in order to provide valuable input in the process. Sometimes fellow students give feedback, organised as opponent seminars.

Problem-based project work may be interpreted and implemented in a number of different ways, according to educational institutions, disciplines, subjects, and learning goals. There may be varying degrees of free choice regarding the specific problem, subject area, and method, and the project work may differ in size (ECTS[2] points), i.e. the students' workload per semester. At Aalborg University problem-oriented project work generally accounts for 50% of the study activities. The remaining 50% consists of course work, lectures, workshops, assignments etc. The study activities should support and inspire students in their project work.

During the project work the groups are assigned a supervisor with whom they discuss their problem formulation/research questions, progression of their work and the chapters of the project report. This report will be the final documentation of their work over the project period and form the basis of their oral examination, which will take place with all group members present. The role of the supervisor/ facilitator is important both as discussant for the group and as controller/ representative of the study programme, in terms of ensuring that the subject area of the project lies within the framework of the formal study regulation. The role as discussant also means asking critical questions, turning the students' attention to weak or questionable points in their work as well as commending the good points. Furthermore, the supervisor/facilitator may recommend literature, theories, methods of research etc. It is, however, essential to mention that the supervisor does not take over the project, but that the students remain the 'owners' of the project and make their own decisions.

Some elements of PBL are key points that we consider relevant to transfer into other kinds of learning arenas. The elements in question are:

- student direction, where students are the owners and the managers of their own research and learning processes in investigating subject-relevant problems,
- students defining and leading the learning processes towards defining methods of finding solutions for the problems, and
- teachers as collaborative partners, not taking ownership of the students' work, but instead having the role of facilitating their learning processes.

National and international research has documented that most students are well motivated and curious when they start on HE programmes (Ramsden, 2003; Biggs & Tang, 2007, Iversen et al., 2015).

We also know from working with and doing research in relation to the pedagogies in the Aalborg PBL model (Problem-based Learning), that most students can manage individual as well as collaborative learning processes, when it is expected of them and clearly signalled to them, although they may be collaborating with fellow students with diverse backgrounds. However, we also realise that many students lose motivation and interest for the study if they experience teaching activities and a culture where they are not taken seriously and if the culture signals distance and academic arrogance (Ramsden, 2003, Biggs & Tang, 2007).

The learning processes involved for the students in the Aalborg PBL model as described regard both the subject-related content of the project work, and the basic academic skills of finding the (right) problem to investigate/the right research question, doing research, negotiating meaning with peers/fellow students, discussing and arguing, critical thinking, and written communication. These are aspects that are, in a sense, already covered by the pedagogy in the Aalborg PBL model as it has been practiced for years – or should ideally be covered. At the same time, principles such as student direction, collaboration with fellow students and problem solving fit with the characteristics of the 21st-century students aiming at meeting the 21st-century demands described above. Analysing the potentials of the PBL model we decided to expand the principles of this model to cover more aspects of the activities.

CO-CREATION IN EDUCATION

Our inspiration for the concept of co-creation is from the business world, where the concept was introduced by Prahalad and Ramaswamy in 2000 in the article Co-creating Customer Competence (2000) in Harvard Business Review. Here the authors refer to the fact that consumers often seem to be ignored as the factor that most radically transforms the industrial system. In the light of this understanding of co-creation, they were moved out of their role as passive recipients ("audience"), to that of active participants, co-creating about developing products and services. The authors argued that, by doing this, customers are fundamentally changing the dynamics of the marketplace, with marketplaces becoming forums where the consumers play an active role in establishing values.

Although there are contemporary discourses positioning students as customers and universities as marketplaces providing services and products, i.e. education for the marketplace, we will take a different view of the concept of co-creation and move it beyond the business terminology and into the realm of education. The principles we will take from the above-mentioned understanding are the inherent respect for students, the importance of their active participation and openness to their contribution in establishing value in the educational process. From Degnegaard's overview of the development of the concept of co-creation, it appears that the application of the concept may be divided into the following streams (Degnegaard, 2014):

• Co-creating shared meaning (often in a socio-constructivist perspective)

- Co-creating user experience and shared value (marketing and service perspective)
- Co-creating technological solutions (ICT perspective)
- Co-creating ideas and new products and services (related to the concept of innovation)
- Human-centred co-creation (settings for design and research)

We draw on the strands of interest to educationally related issues and terminology. To us, the interesting issue is how to design settings that may support the co-creation of knowledge, shared meaning and peer-to-peer production. Such approaches call for openness to change in the understanding of both teacher and student role.

Based on the overall PBL principles as framework, combined with these principles of co-creation, we designed a pilot period for the first semester of a bachelor study programme in organisational learning, thus taking the PBL model a step further. The rationale behind the experiment was therefore a mix between the pedagogical principles of the PBL learning model applied at Aalborg University, and selected principles of co-creation.

CASE DESCRIPTION

The context of the experiment is first year students at BA level in the study programme of Organisational Learning at Aalborg University. The aim of the programme is to educate students to be able to analyse, support and manage learning and knowledge-based development in private and public organisations in the light of national and international development in society. The subject areas are social science, organisational development and learning at macro, meso and micro level. Within this framework we wished to create learning scenarios where students from day one of their study were expected to involve themselves and participate actively in supporting their own and their fellow students' learning processes.

The Framework of the Programme

The BA degree in Organisational Learning is a 3-year research-based full-time programme, equivalent to 180 ECTS. It aims at giving students an introduction to the social sciences and methods that provide the basis for understanding, analysing, supporting and managing learning and knowledge-based development in private and public organisations. Typical business functions will be as development consultant, quality staff member, innovation employee, occupational health consultant, job consultant and HR consultant. The programme is organised inter-disciplinarily, and is problem-based and practice-oriented, based on organisation theory, learning theory, sociology of knowledge, innovation theory and related disciplines as well as science, methodology and evaluation.

Our research covers the 1st semester where the basis for the content and programme in the whole education is established. The programme follows the PBL

model as described above, and a problem-oriented project is the focus of the first semester. In the first semester there are altogether four modules:

Module 1: Problem-Based Learning (PBL I) (5 ECTS)
Module 2: Organisation and Society (15 ECTS)
Module 3: Problem-Based Learning (PBL II) (5 ECTS)
Module 4: Cognition processes and production of knowledge. (5 ECTS)

The students work with two projects. The first project (PBL I), the pilot project, was chosen as the context for the experiment. It was assessed after 4 weeks. This first project forms the basis for the next two modules.

Input for Change

As mentioned, the study programme in question is new. There had been some difficulties the year before with some discontent being voiced and some students dropping out. Based on this, management asked us to take over and to make some changes that might address some of the challenges from the previous year.

Before the summer holiday, meetings were held with 4 more experienced students from the study programme, hired to collaborate with the teacher team in the processes of involving the new students in the study programme in the very best way. During the meetings, they received full information and explanation about the thinking behind and the plans for strengthening the collaboration with students, based on an understanding of concepts such as learner-led teaching and co-creative approaches. It should be mentioned that not all members of the 5-strong teaching team wanted to participate in the experiment, which for some of them represented a pedagogical challenge. 3 of the team agreed to participate, including the coordinator of the programme. This will not, however, be the focus of this chapter.

Based on analyses regarding the content, students' background, the possibilities within the framework of the study regulations and our aim towards more student direction, we had meetings with students from the previous cohort who were appointed tutors to support the new students. Their feedback and evaluation was valuable additional input, and the pedagogical strategy was decided in collaboration with them.

ORGANISING THE EXPERIMENT PEDAGOGICALLY– WHAT DID WE DO?

As a starting point, we argue, based on research and experience (Iversen et al., 2015), that principles such as respect for students and the establishment of study environments where students are offered the role of becoming leaders of their own learning processes are important. Students who act responsibly and have influence on the curriculum while collaborating with teachers (who of course have overall educational responsibility) create good conditions for developing the knowledge and

skills which are not only expected and described in the formal study regulations, but also required for the 21st century.

A thematic framework suitable for the project work was decided upon. The theme was "*The university as an organisation: structure and processes*". This theme was chosen with the intention of accommodating students who probably had chosen this course because of their interest in organisations. And one of the most relevant organisations they had to face, at that time, was the university they were just entering. Our plans were that working with a theme that might seem relevant to them would motivate them to work in depth in trying to understand and be able to act pro-actively in their study life within this organisational framework. So we expected that there would be personal, as well as a professional/educational interest and motivation for working with this theme in their first PBL project. Their task was to investigate the phenomenon of the university as an organisational framework for the learning that takes place here at all levels (among students, teachers, principals and so on). They were allowed to choose for themselves which level they wanted to focus on. They could choose different perspectives – society, students, organisation or teachers.

In organising the teaching, several lectures were replaced with teaching and learning forms, where students were the most active partners, within the framework of some rules decided by the teachers and based on their experience and the input of the preparation phase. The principles we followed were those of student direction, problem solving, peer learning and peer assessment, as they were used in PBL project work. They were supplemented with the principles of co-creation, i.e.

- co-creation of knowledge and peer-to-peer production and
- instead of teachers offering feedback on students' work, students gave feedback to each other, supplemented with feedback from the teachers (supervisors).
- instead of teachers lecturing, students prepared and lectured to each other, supplemented by teaching from the teacher.

The overall signal from the teachers was that the students were the most important persons and agents in these feedback and teaching activities.

EMPIRICAL DATA AND RESULTS

There were 36 students representing a diversity of age, gender and educational and cultural background. The gender ratio was approximately 50/50. Most of the students were in the age group between 21 and 30. A few were in their forties. Most of them had some kind of workplace-related experiences, which meant that they knew about working in some kind of organisation. Some of them had an educational background at Diploma or BA level.

The results of the experiment are based on the following empirical data:

- Notes and observations from a 'future workshop', where students were guided through a process where they initially identified and discussed existing challenges

and problems in their education. This is the 'critique phase' and it was followed by the 'dream phase' where students came up with all their wishes without having to consider if they were feasible. The final step was the 'realisation phase' where they had the opportunity to come up with realistic ideas and solutions for dealing with the challenges and problems. The process was facilitated by one of the teachers.

- Reflection papers from 30 students. At the very beginning of the semester they were asked to fill in a reflection paper, where they wrote about their former experiences, their understanding of organisations, their reasons for choosing the course and how they preferred to work in educational settings.
- Notes from classroom observations of the co-creative sessions by the teacher in charge
- Formal evaluation meeting with student representatives
- Formal evaluation done by the school management

Generally, compared with the previous year, there was not much discontent. The students very much enjoyed being active partners, although they also enjoyed high quality lectures from teachers as a supplement.

They wanted even more involvement in planning and practicing the teaching. Students asked for more student teaching and more creative teaching forms in general applied by the teachers. Furthermore, they would also have preferred more teaching together with older fellow students (ref. data from the future workshop).

Their wish for more involvement corresponds with the characteristics of 21st-century students and with what most students write in the reflection paper they are asked to write at the beginning of the semester:

> I partly prefer working individually and partly together with fellow students. I prefer to write under inspiration and feedback from fellow students, so that you get new ideas and thoughts that can move you forwards. (Male, 21 years old).

> I am many-sided, I like to work autonomously and concentrate myself in things, but I definitely also enjoy collaborating with fellow students. (Male, 21 years old)

> I prefer collaborating with fellow students as it provides more angles on the work and because you learn from your fellow students. (Female, 23 years old)

These quotations very much describe the learning approaches of all the students in the class, and they support to a high degree our intentions in organising the semester's teaching as we did. But there are limitations to the extent to which student direction and co-creation can be practiced. One of these limitations is related to the structural conditions. Regarding the planning process, the semester must be planned two months before the start of the semester. This means that a number of decisions have to be made before the students start regarding, for instance, content, literature, or

overall frameworks. These conditions pose considerable limitations for co-creating with students in their first semester.

Another challenge is that teachers in a team represent a diversity of values and understandings about how quality teaching has to be unfolded. Such values may be connected with the subject area, with background from different kinds of university teaching cultures and different understandings about how students learn best. In our data we see that students react to these different kinds of approaches and ways of handling teaching and learning situations, – here the degree to which the teachers dare to let go of control and believe that students can do well if goals and expectations to them are transparent and the teacher has prepared the pedagogical framework.

A final limitation is the students' approaches. Although you can read from their expectations stated in the reflection paper at the beginning of the semester that they generally prefer to be in control as active problem solvers with fellow students, when it comes to the actual situation where they are expected to be active and self-directed, old habits from earlier school situations may take over and lead to frustration.

> It would be nice with some nerd teaching (from evaluation with student representatives).

> It would be nice with more teaching, done by senior fellow students (from evaluation with student representatives).

In both cases students ask for more delivery of lectures, which implies a return to a passive role as student.

Our desire to establish a culture where students dared to speak up, ask questions, be active, make decisions, criticise constructively and be professionally responsible for each other's learning processes from the very beginning of their first semester seemed to be successful. They expressed the feeling of having some kind of influence on what was going on and they expressed contentment with that.

However, it is impossible to meet all students' expectations and wishes, and there were also some who expressed a wish for more traditional teaching forms as indicated in the above statements.

CONCLUSION

Based on our experiences of how students engage when they work with PBL projects on self-defined problems/research questions and the principles of co-creation, we aimed at establishing a culture where we involved the students in some of the decision-making processes and expanded the principles of self-definition and self-direction to other types of activities during the semester. Comparing the results of the experiment with the process the year before, the students expressed much more contentment. In that respect we regard the experiment as a success. Relating the results to the characteristics of 21st-century learners we conclude that the pedagogical strategy of co-creation could easily be further strengthened, as

the students ask for even more activity, influence and responsibility in relation to teaching.

However, introducing this kind of change in an educational institution is not necessarily an easy task, especially when it entails a shift in roles for teachers. According to a report describing the definitions and foundations of the terms co-creation and co-production in relation to Danish society (Agger & Tortzen, 2015), research shows that professionals within an area may be one of the groups that have the most difficulty in changing their roles, because it challenges their traditional professional culture and understanding of their professional responsibility.

If teachers find that their professional culture and usual approach to pedagogical planning and teaching is questioned or overruled, their response may be resistance or scepticism. Teachers might find that 'the rug is being pulled from under' their professional identity. Another, more pragmatic aspect of change is that, for some teachers, the idea of having to reconsider and rethink an educational element (e.g. a course, a lecture series) might in itself represent a huge work load, which is not always welcomed.

Consequently, while the advantage is that students thrive with the new pedagogical approaches, the disadvantage is that re-thinking curriculum and introducing aspects of co-creation in education may involve daunting aspects for the teachers involved, who are forced to reconsider their role in teaching and learning scenarios, which might lead to resistance to change.

NOTES

[1] In Denmark – as in other European countries – there have in recent years been cuts in resources to HE institutions.
[2] European Credit Transfer System.

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2. CO-CREATING KNOWLEDGE

Students and Teachers together in a Field of Emergence

> The modern school, at its best, is a satisfying extension of the unreality of societal perception. As we enter the conclusion of an industrializing age, I recognize that, within its walls, lectures are concerned with an abstract dream of future usefulness, while life is happening between classes. Half of the time, and half asleep, teachers and students keep each other caught in a fiction of relevance: Relevance of knowledge to our lives, relevance of the relationships to each other, and relevance to the questions of our time and to the society in which we live.
>
> (Besselink, 2014, p. 92)

Education systems around the world strive to customise methods and practices to fit rapidly changing societal requirements and cultural changes. Education is expected to deliver a highly skilled workforce and the term *employability* is among the parameters used in quality assessment of work done at universities and other higher education institutions. And so the aim of education becomes an ever-changing fixed point.

Preparing students for becoming 21st century knowledge workers, then, entails preparing them for an unknown future. Critical reflection, independent thinking, creativity and a strong sense of navigating in the unforeseen are among the skills required of the individual student. Moravec (2008, 2014) describes the future knowledge worker as "nomadic":

> […] a nomadic knowledge worker – that is a creative, imaginative, and innovative person who can work with almost anybody, anytime, and anywhere. Industrial society is giving way to knowledge and innovation work. Whereas industrialization required people to settle in one place to perform a very specific role or function, the jobs associated with knowledge and information workers have become much less specific concerning task and place. (Moravec, 2014, p. 18)

The point being that, to a large extent, education as we know it is operating in 1.0 mode, out of tune with surrounding cultures and societies, which are operating in mode 3.0. With increasing amounts of accessible knowledge and rapidly changing platforms of learning due to the development in digital media, classical educational

institutions are facing the risk of being irrelevant to future generations of students and to society in general terms.

> In university, the focus is on the 1400-page curriculum. In university, the academic assignments must be between 20 and 25 pages. In university, we sit and translate complicated English theoretical texts into Danish, and then write them down in our assignments. Where the hell is the creativity? (Madsen, 2016)

The question is asked by 24-year-old Jonas, a student at the University of Copenhagen, a future knowledge worker, in a direct appeal to his teachers, calling for more creativity, a possibility of independent thinking and translation of theory into practical knowledge in universities.

A quick glance into higher education institutions around the world indicates that the better part of teaching takes place the way it has taken place for centuries (Adler & Hansen, 2012; McWilliam, 2008). The architecture of universities is a good indicator of the didactics performed in the rooms – chairs in rows facing a podium, a blackboard/whiteboard or a screen for the professors to speak and the students to listen.

C. Otto Scharmer, Senior Lecturer at MIT, points to the problem of downloading habits and reproduction of knowledge in teaching; "We probably spend more than 90 percent of our educational resources on lecturing: downloading old bodies of knowledge without self-reflection" (Scharmer, 2007, p. 448). Moreover, he points to the need for a small-scale revolution to transform our education system, so that it becomes up-to-date and able to encourage the individual's resources, creativity, and knowledge: "We need to reinvent our schools and institutions of higher education" (Scharmer, 2007, p. 449).

In this somewhat gloomy future perspective we, as teachers (and researchers), need to ask ourselves: what does it take to re-invent higher education and for teachers to become 21st century educators, especially able to navigate in the unforeseen, instantly designing education in a cross field of societal and cultural change, practical skills and individual relevance?

CO-CREATION IN AN EDUCATIONAL SETTING

The term *co-creation* is used in fields as different as therapy and product innovation (Degnegaard, 2014) although it probably originated in the field of therapy where it is used to describe the shared production of meaning in the therapeutic session. The shared production of something is the common denominator in all the uses of the expression. In the broad field of innovation it denotes a process where different stakeholders are involved in the creation of "the products", be they solutions in the welfare sector or apps for mobile phones. Even though the end goal differs – roughly speaking, the goal is creating solutions within a political system or making money – there is a clear overlap in methods.

The methods applied when working with co-creation are designed to engage the stakeholders in a collective learning process built on emerging awareness and shared commitment. Investigating both the field of intervention and the individual and collective intention is part of this process (Scharmer, 2007, 2014; Hassan, 2014) and requires facilitation, either by the participating stakeholders or by consultants/ facilitators. Frequently-used methods are dialogue, field studies, interviews, log-writing, narratives and a variety of creative methods inspired by the world of design and art (Kahane, 2012; Scharmer, 2007; Darsø, 2004; Hassan, 2014; Belling, 2012; Bason, 2010).

In this chapter, we explore co-creation as an opening towards re-designing and re-inventing the shared space of teaching and learning. The methods suggested in the chapter in some ways suspend the classical concept of teaching and replace it with a structured *co-creative generative dialogue* within which knowledge exchange and knowledge production can take place.

We base the chapter partly on theoretical perspectives, partly on empirical material generated through a series of qualitative interviews with teachers, and on extensive personal experience of teaching in higher education. Our intention is to establish a dialogue between practice and theory. In the interviews, the interviewer did not set out to explore co-creation *per se* but the concept emerged as the interviews progressed. Two main questions were asked; (1) which interdisciplinary, innovation pedagogy can higher education teachers design and use, so that it has the best potential to stimulate the development of innovation and transferability competencies in students? and (2) what does this innovation pedagogy demand of the teacher? (Stavnskær, 2014) In other words, exploring innovation and innovation pedagogy in the interviews led to the emergence of the concept of co-creation. We draw on the descriptions given by the teachers, theoretical perspectives and personal experience in the conceptual framing.

This chapter has two meta-perspectives in its approach to co-creation. One meta-perspective primarily focuses on communication and explores the *term co-creative generative dialogue* and the demands on teachers and students. The other meta-perspective offers a five-phase model to design a co-creative teaching process for students.

IT ALL STARTS WITH COMMUNICATION!

A discovery we made, on analysing the interviews with teachers, was that they brought a focus on communication to their meetings with students, especially with regards to how they listened and asked questions. The teachers described in detail how they listened, how they asked questions, how they meta-communicated with students to create new learning and innovation. Meta-communication in this context is to be understood in the sense originally introduced by Gregory Bateson (1972) as communication about communication "all exchanged cues and propositions about (a) codification and (b) relationship between the communicators". Lotte Darsø, too,

highlights the importance of communication: "It is especially important that one is clear about these patterns of dialogue if one wishes to lead processes of change. It is through dialogue that we create the world here and now" (Darsø, 2011, p. 154).

In order to explore the type of communication that facilitates co-creative dialogue between teachers and students we turn to Shaw, who takes her point of departure in complexity theory (Shaw, 2002). Shaw includes a description of the communicative approach to user-driven design, which could be transferred into an educational context (Shaw, 2002, 2005). She describes an open and meaningful type of communication that captures the interest of participants, revolving around what excites or even frustrates them. The dialogue implies a willingness to explore and improvise. The teacher listens closely to what students say and lets associations arise. "I am describing the process of weaving in our actions one with one another to co-create the future" (Shaw, 2002, p. 70).

This implies that the purpose of dialogue between students and teachers is not just the mutual understanding of preconceptions, but also the co-creation of new ideas. The teacher becomes a facilitator in order to encourage lively dialogue and encompass different views, even conflicts, regarding what is going to be taught and how. This requires that teachers and students alike be at ease, with an open approach. Teachers must let go of fixed agendas and be able to help students do the same. "Leading becomes being able to articulate issues and themes as they emerge and transform" (Shaw, 2005, p. 21).

A co-creative dialogue requires the teacher/facilitator to be very conscious of the form of communication used.

Generally speaking, teachers should be good at asking questions and stimulating students to ask questions themselves in order to create lively dialogue. In a quote from the empirical material, one teacher stresses how important it is to listen to the students: "It's important for me to listen to the students and start the process where they are. It is important for me that I can see that they are getting smarter and more competent and that they are empowered" (Stavnskær, 2014). Furthermore, the majority of the teachers focus on listening when facilitating co-creation between teachers and students, as well as in student-student communication. Shaw recognizes that listening is a central competence of the facilitator. The facilitating teacher listens closely to what the students say, and to their associations. Ideas regarding the given task or problem (content and form) should arise out of that listening (Shaw, 2002, p. 5).

This also implies being able to balance different viewpoints and manage conflicts. Students should be encouraged to express explicitly what they think – so that teachers can relate their understanding to other approaches (Iversen et al., 2015).

A co-creative dialogue allows something new and unforeseen to emerge. Stacey puts it this way: "We should expect not to see what we set out to achieve in the way we originally intended" (Stacey, 2007, p. 812).

The majority of teachers emphasised that one has to be able to improvise in the encounter with students, if something new is to arise. One teacher in particular

stressed repeatedly in the course of the interview how important improvisation is to her: "Innovative communication consists in being prepared for the unexpected-in being able to improvise. I believe this to be a very important innovative competence. It gives me energy and flow" (Stavnskær, 2014). Similarly, Shaw mentions improvisation in her approach to facilitation: "a more improvisatory way of approaching how we might go on together" (Shaw, 2002, p. 5). The essence is that the facilitator of co-creation, in this case the teacher, should possess the ability to improvise, be ready for it, and have the courage and ability to step into the unknown together with the students.

These teachers' approaches can be seen as similar to the learning processes described by Chris Mowles et al. and Ralph Stacey. In their work, learning is understood as something complex and non-linear, emerging in communication by listening to participants, not by following a path staked out in advance by an expert (Mowles et al., 2008; Stacey, 2007).

It is teachers and students, who know the complexity of their own reality and, on that basis, who can find the way and *create something* together. One of the teachers described something similar: "The most important thing for me is to be a catalyst. Filter whatever the students carry with them, and put it in perspective, while at the same time presenting them with new perspectives" (Stavnskær, 2014). Co-creation is a mutual process amongst teachers and students where both parts contribute, as the teacher here underlines.

However, the demands on teachers and students are not identical. The majority of the teachers interviewed stressed the necessity of connecting with the students 'where they are', so to speak: "Meeting others where they are sounds simple, but it demands a certain didactical knowledge to be able to do it. It's about engaging the students, and getting them to engage themselves. It's like digging for gold" (Stavnskær, 2014). In other words, a precondition for finding gold is meeting students where they are. The majority of teachers interviewed said that they are expected to have a large methodological knowledge they can draw on and adapt to different target groups. They mention that didactics has to be in motion all the time: "It's important that didactics don't stiffen up, that they change to follow who the students are, that they are dynamic" (Stavnskær, 2014). This implies that the teacher has to be able to be flexible and able to create situation-based didactics out of his or her toolbox.

ROLES AND RESISTANCE

Under the title *Unlearning how to teach* Erica McWilliam (2008) introduces what you could call a teacher typology – or a set of positions to describe the relation between student and teacher in current education. Looking at teaching as a social practice, she makes a point in comparing teacher roles and communication strategies in teaching to societal changes and changes in cultural production in general. The point being that relational habits which once served teaching well may be past their expiration date and in need of revision.

McWilliam (2008) outlines three relational positions in teaching: *sage on the stage*, *guide on the side* and *meddler in the middle,* arguing that the latter is a possible equivalent to the unstable and ever-changing cultural conditions teaching is embedded in. In short, *sage on the stage* is a position where the teacher is an expert lecturing primarily one way, a classical auditorium situation. As a *guide on the side,* the teacher is a coach following the learning process on the side. The *meddler in the middle*:

> … positions the teacher and student as mutually involved in assembling and dis-assembling cultural products. It repositions teacher and student as co-directors and co-editors of their social world. […] it means less time giving instructions and more time spent being a usefully ignorant co-worker in the thick of action, less time spent being a custodial risk-minimizer and more time spent being an experimenter and risk-taker; less time spent being a forensic classroom auditor and more time spent being a designer, editor and assembler; less time spent being a counsellor and "best buddy" and more time spent being a collaborative critic and authentic evaluator. (McWilliam, 2008, p. 263)

The apparently paradoxical constellation of being a collaborative critic and an ignorant co-worker makes way for a new interpretation of the relation between teacher and student. This means neither leaving the responsibility of the learning with the student nor placing the responsibility of the teaching on the teacher. It is a position where the social space of teaching and learning is co-created in a cross-field of emergence and control. With the teacher not playing the role of curricular custodian and bearer of answers, knowledge can be regarded, then, as something occurring in a shared space of teaching and learning.

Changing habits, however, requires the will to change. Habits. A somewhat redundant statement, but nevertheless relevant. As teaching is a skill acquired over time, the individual teacher, like all professionals, acquires a level of expertise by doing certain things a great number of times. Changing strategies, consequently, puts the teacher in a potentially vulnerable and anxiety-provoking situation. Otto Scharmer talks about this challenge of not downloading:

> What we do is often based on habitual patterns of action and thought. A familiar stimulus triggers a familiar response. Moving towards a future possibility requires us to become aware of – and abandon – the dominant mode of downloading that causes us to continuously reproduce the patterns of the past. (Scharmer, 2007, p. 119)

Experimenting and taking risks may not be the average state of teaching. And venturing into a space of not knowing is not particularly common either. It is then, in short, something completely "other" that is required by both teachers and students. The challenge is mutual; teachers experimenting are at risk of exposing themselves to disappointed expectations and frustrations on the students' part. Or maybe even

anger and aggression. An ability to manage and contain the potential anxiety in students is seen as a central and necessary quality inherent in the role of facilitating co-creative learning processes by most of the teachers we interviewed. One teacher says:

> You should be able to manage the frustrations of students, because […] you are challenging them. […] So the contact you will have with them will be closer than if your job was simply to deliver the sum of 2+2. The former approach implies going into a more personal dialogue with them, where you maybe put pressure on them. Some students appreciate it; others find it anxiety-provoking. (Stavnskær, 2014)

Darsø (2011) describes this ability to contain anxiety as essential for something new to emerge: "The teacher must train his ability to 'hold space', space which is characterized by chaos, uncertainty, anxiety, and vulnerability" (p. 12). Another teacher expresses something along the same lines. One should be able to: "contain and manage the students' uncertainty and insecurity. I should be able to handle all the feelings that are circulating in the classroom" (Stavnskær, 2014). And a third teacher adds that it puts a demand on the teacher to navigate on shaky ground, "It requires that you as a teacher "put yourself at risk" (Stavnskær, 2014). As such it takes a great deal of courage to become a 'meddler in the middle' or a co-creating teacher; "Facilitation is not for wimps" (Ghais, 2005, p. 2).

All the teachers interviewed emphasised that when they engaged in the process of facilitation in the search for innovation and co-creation, meeting resistance was part of the process. This resembles the conviction held by Susanne Ghais: "Whereas many books on facilitation treat conflict as an occasional snafu, I consider it as a given" (Ghais, 2005, p. 3). One teacher puts it this way: "You get a few slaps in the face." The courage required is described by another teacher. In a teaching situation she used a new creative method in a course, which led to one student leaving the room in frustration:

> I experienced a student who grabbed her bag and said, "this is simply too much, I'm gone." Then you stand there and hold your breath for 10 or 15 minutes. So you gamble a bit. But always with the idea in mind of creating something new for the students. (Stavnskær, 2014)

One teacher mentions courage explicitly as a necessary element of a co-creative approach. Adler & Hansen, too, identify courage as a central quality in creating change: "Daring to care requires courage—the courage to speak out and to act. Courage transforms convictions and compassion into action" (Adler & Hansen, 2012, p. 2). All this seems to indicate that courage is an essential quality for daring to facilitate transformative processes in students, which means pushing them out of their zones of comfort, as you do when being a co-creative teacher or a *meddler in the middle*. It is clear from these quotes that courage is required if one is to persist with co-creative dialogue when faced with resistance.

THE 'CO' AND THE 'CREATION'

In co-creation both the 'co' and the 'creation' are significant. The 'co' signals that the process is social and the 'creation', that something new appears as a consequence of the process. Taking a closer look at the social aspect in co-creation, inspiration can be found in the writings of Scharmer. He introduces a conceptual approach that combines relation and communication as a set of "social fields" within which different states of attention determine the quality of the communication, which on its part determines the outcome of the situation (Scharmer, 2007). This is conceptualised as a set of different ways in which the 'I' relates to the 'you', both the I and the you being understood as generalised terms. Scharmer names the positions of four different sources of attention from which social action can emerge (Scharmer, 2007, p. 234). Each position combines a state of attention with a mode of communication. The four positions are;

1. The I-in-me: the I relates to the you from a point where the focus is on the I itself. The communication in this state would be a monologue or parallel monologues where communication aims at confirming existing knowledge and perceptions and avoiding relating to the other, who is simply an ear in the periphery of attention.
2. The I-in-it: the I directs the attention to the outer world. From a position of not necessarily wanting to change, the attention is directed towards seeing the world as it really is. The mode of communication is discussion and critical scrutiny.
3. The I-in-you: the I relates to the you with the intention of understanding beyond the boundaries of the preconceptions of the I. Emphatic listening, dialogue, and reflective inquiry characterise the communication of this position.
4. The I-in-now combines introspective self-awareness of the I with listening beyond the I and entering a collective field of emergence. It is listening to both the intention and preconceptions of the I and being part of a shared generative space. The mode of communication is *presencing* – a hard to define term, which we choose to name generative dialogue, partly for lack of a better expression and partly inspired by earlier writings of Scharmer and Kaüfer (2000).

Most of the teachers interviewed describe how they establish a dialogue with the students, and how their field of attention moves away from themselves towards the domain of 'I-in-you': "Creating this kind of attentiveness and closeness is not so simple. One needs to have both knowledge and the opportunity of training the skills involved in practicing this kind of dialogue".

Above and beyond listening and dialogue is the 'I-in-now' position, which is a creative field of generative listening. The distance between teacher and student is dissolved, and a process of co-creation arises:

> The relationship with the students is more equal and more a co-creation process. As a teacher I have more knowledge that I contribute to the shared knowledge – where students also contribute. The knowledge I contribute and

what the students bring is made into one collective pool of knowledge. It is a broader and more diverse perspective on the new knowledge that emerges between us. (Stavnskær, 2014)

It is neither clear nor important who contributes what in the dialogue, but something new arises among the participants and the learning process is mutual. "Being with students changes me." The teacher role in the generative field resembles McWilliams *meddler in the middle*.

The opposite teacher role is 'sage on the stage', where the students: "spent time guessing what the teacher wants to know like a quiz." 'Quizzing'. We interpret this as 'listening downloading' or 'projective listening', (Scharmer, 2007, pp. 275–276) and being in the position of the 'I-in-me' where the teacher only hears what students say insofar as it fits into the mental models that already exist in his or her own mind. The rest of what students say is more or less ignored.

A MATRIX

Looking at modes of attention AND intention in the context of teaching is highly relevant, as is the emphasis on communication. Taking steps towards understanding how co-creating knowledge is related to communication as well as roles and intention could then be done by combining the teacher typology outlined by McWilliam with the set of social fields described by Scharmer. The point of so doing would be to develop a hypothesis on how teacher position and communication are related, when it comes to identifying prerequisites for co-creation to take place in teaching. In a simple matrix we place communication and mode of attention on the y-axis and teacher roles on the x-axis, generating a model looking like this:
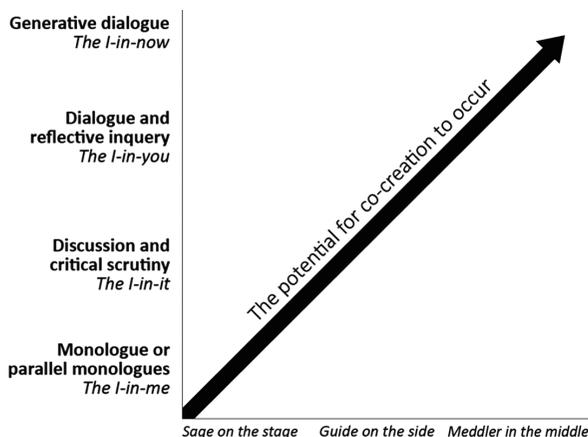

Figure 2.1. The co-creation matrix (Iversen & Stavnskær, 2016)

Drawing on both Scharmer and McWilliam and comparing their writings to the experiences of the teachers interviewed, it would be our hypothesis that the potential for co-creation to occur in teaching can be described as an outcome of communication and teacher position. Moving from the lower left corner to the upper right the potential increases. As *sage on the stage,* the teacher is not inclined to include the students in knowledge production. Communication will tend to be monological, since the teacher is regarded as the knowledge bearer. For the most part, the teacher lectures and the students listen. As the *guide on the side,* the teacher may join the students in a discussion or a critical scrutiny of the state of the world. Or (s)he could be the empathic listener and dialogue partner. As *meddler in the middle*, the description of teachers and students as co-directors and co-editors of their social world (McWilliam, 2008, p. 263) matches the coming-to-be of a collective field of emergence expressed as the I-in-now mode of attention. And generative dialogue, then, is the type of communication that represents the highest potential when it comes to co-creation in teaching. Generative dialogue – with teachers and students as co-directors and co-editors – calls for a change in the way knowledge production takes place in teaching, and in the design and framing of learning processes. Below we suggest a possible approach to reframing teaching and operating from basic co-creation principles.

FRAMING AND DESIGNING CO-CREATIVE LEARNING PROCESSES

Through years of personal experimenting with different types of participatory approaches in teaching, a progression or design-model emerged. It describes phases in a co-creation process customised to a teaching-learning environment. Its origin is higher education but it most likely has a broader relevance due to its relatively simple composition.

The design progression comprises five phases. Through all phases, teachers and students co-operate through generative dialogue with a shared goal of developing and carrying out curricular activities. Not as an extraordinary or extra-curricular activity, but as a basic methodological approach to designing and performing education. The five phases are as follows:

1. Framing/contextualising; defining the intention and understanding the field – which journey are we embarking on? The where and the why
2. Finding the question(s); what are the challenges of the field we are entering? The what
3. Co-designing micro-prototypes (of knowledge production); in which ways will we try to engage with the challenges? The how
4. Co-operative performance
5. Evaluating

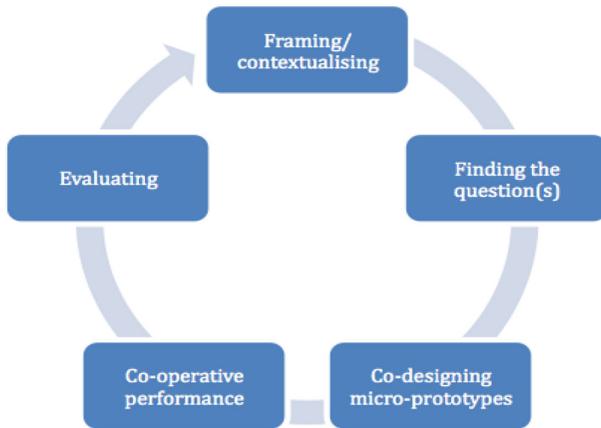Given a visual expression, the design progression will come out like this:

Figure 2.2. The co-creative learning process wheel

FRAMING/CONTEXTUALISING

Framing and contextualising is about clarifying both the where and the why. In what specific context are teachers and students situated? Which course, class, lecture or training session and so forth is the objective of the teaching situation? And what are the formal requirements, the learning goals and academic demands of the forthcoming process? All of these are potential subjects of discussion and shared reflection among teachers and students. A shared awareness of these basic conditions constitutes a platform from which direction can be taken for the design process. Also, goals and objectives of a more informal character can be integrated during this phase. For instance, both students and teachers may have personal aspirations and ambitions related to the process.

FINDING THE QUESTIONS

The next phase is focused on finding the question(s) and looking at the challenges of the field we are entering. In other words, defining the 'what' of the teaching.

Part of designing a learning process that facilitates co-creation is finding the questions or challenges that the students strive to solve. A challenge and questions where there are no pre-given or self-evident solutions or answers are more likely to facilitate co-creation and co-creative dialogue than *sage on the stage*-type processes.

These challenges and questions could be real-life projects. This means that in the preparation phase, either students or teachers, as part of preparing a specific project, investigate who it would be relevant to work with, contact them, and agree on what the project's character and goals are. This is to say that, for the teacher, there is a

didactical balancing act between academic demands and a real-life challenge. The point is that students, like the teacher, have to learn to balance the academic demands of their disciplines with the challenges.

Or it could be simply by challenging or questioning knowledge domains.

CO-DESIGNING MICRO-PROTOTYPES

The expression "prototype" – or "micro-prototype" – is used regarding the different potential solutions to the challenges established in phase one. In practice, these kinds of prototypes can vary, from suggestions, to solving actual problems formulated by external stakeholders and partners, to teaching design. The prototypes spring from non-linear, open space, improvisatory processes involving students and teachers as co-designers. Co-designing involves collective creativity and socio-epistemic practice. Students and teachers are co-developers of whatever designs and solutions emerge. There are no pre-defined answers.

There are points of similarity between this learning design and some of the factors identified by Teresa Amabile as encouraging creativity. Amabile concludes, among other things, that individuals must be offered a degree of autonomy if one hopes to encourage the development of intrinsic motivation: "Autonomy around process fosters creativity because giving people freedom in how they approach their work heightens their intrinsic motivation and sense of ownership" (Amabile, 2002, p. 82).

One of the teachers interviewed describes the transformation occurring in students when they encounter co-creative teaching design:

> We see students with a long history of discouraging experiences with education systems. They appear withdrawn and frustrated when they come to us, but we see that they gradually and quietly discover that they actually have a pool of competencies inside themselves. We see them straighten up, pull the hair back from their faces, see light come back into their eyes. What a transformation! It's one of the most meaningful things we experience as teachers, and it happens fairly often when you work in this way.

All in all, the interviews with teachers could indicate that the intention of dynamic flow in the design of the co-creative learning process between (1) learning goals and (2) challenges – between theory and practice – in some way has a potential for creating new solutions and new knowledge. Brown and Isaac's discussion of learning in the following passage could lend support to the potential of this co-creative way of designing the teaching:

> It's never enough just to tell people about some new insight. Rather, you have to get them to experience it in a way that evokes its power and possibility. Instead of pouring knowledge into people's heads, you need to help them grind a new set of sunglasses so they can see the world in a new way. (Brown & Isaacs, 2005, p.12)

This is not a new insight, as Ib Ravn points out: "For teaching to be effective and learning to take place, educators must realize that students are actively engaged in constructing their worlds […] They learn from engaging" (Ravn, 2007, p. 215). Ravn continues his point with reference to older learning theories by Dewey, Piaget and Vygotsky, which also emphasise that teachers often ignore the importance of context and engagement, and instead teach in a way that pacifies students. And, we could add, Carl Rogers in his groundbreaking book, *Freedom To Learn*, first published in 1969, introduces significant learning with a set of characteristics similar to the points made by Brown & Isaacs, and Ravn. Significant learning is self-initiated, has a quality of personal involvement, and is driven by a sense of meaning to the learner (Rogers, 1983, p. 20).

CO-OPERATIVE PERFORMANCE

The name of the fourth phase indicates that this is the phase of enacting the prototypes developed in phase three, be they teaching designs or prototypes related to challenges put by external partners Or a combination of both. Types of action can vary from carrying out courses, workshops, training programmes and so forth to presenting and/or carrying out prototypes in co-operation with external partners. The performance is co-operative in the sense that it progresses as a co-operative action driven by shared knowledge production. Steps are taken on a basis of generative dialogue and shared reflexion.

Integrating co-operative performance in teaching design facilitates action. Consequently it stimulates both teachers' and students' capacity for action. And at the same time – and more importantly – it stimulates the capacity for actually creating sustainable proto-types. They are, so to speak, tested by action.

The action perspective is identified by researcher Anne Kirketerp as initiative-taking didactics. (Kirketerp, 2010). Kirketerp explores different teaching designs that support entrepreneurial initiative, and develops the SKUB (English: PUSH) method, a method of integrative learning, which leads to changes in patterns of both thinking and acting in students:

> With regards to teaching entrepreneurship, it should be the norm that the greater part of teaching must be action-oriented. The methods that encourage initiative specially belong to the didactics of entrepreneurship. If one of the goals is to stimulate innovation competence generally, one of the means to that end is to push the students out into action. (Kirketerp, 2010, p. 258)

Teaching in this sense always involves practice alongside elements of reflexion and analysis. The students and teachers are, in other words, pushed to act. Kirketerp's point is supported by Brown and Duguid (1991). They argue that there is a huge difference between espoused practice and actual practice and that acquiring abstract knowledge about, for instance, co-creation will have little or no effect on the capacity

of co-creating. Consequently, teaching design aiming at developing co-creation skills in students must include co-creation practice.

EVALUATION

The last phase is evaluation. It consists of two parts. One part is the evaluation, done by the external partners, of practical real life proto-types. Criteria for this are the quality and the practical applicability of the proto-types in the context for which the prototypes are designed. The second part of the evaluation is an internal one with teachers and other students. In this part, both the quality of the teaching design and the correspondence between learning goals, academic demands and the final outcome of the entire process are evaluated.

From a teacher's perspective, there are specific challenges that arise with designing evaluation methods that can measure co-creative competencies. Co-creative knowledge production, in some ways, constitutes an opposition to strict academic norms. Standards for exams and evaluations for the most part stem from the latter. Evaluation, then, to some extent will risk reproducing academic standards far from the methodology in co-creative knowledge production. This remains a challenge to be taken into consideration in a future perspective.

CO-CREATIVE KNOWLEDGE PRODUCTION AND ITS FUTURE POTENTIAL

One of the aims of this chapter was to give some pointers towards preparing students for becoming 21st century knowledge workers, and preparing them for an unknown future. Another aim was to answer the question of what it takes to re-invent higher education and for teachers to become 21st century educators and designers of education characterised by a high degree of relevance to both society, and culture and the to the coming generations of students.

The answer suggested in this chapter is building significant parts of knowledge production and knowledge exchange *on co-creative generative dialogue*. The purpose of this would be to develop new types of knowledge and subsequently potential answers to the questions of our time. It would require breaking habits and changing modes of communication. Building education round the emerging future is no easy task. It is, however, a task to be taken on – and why not involve the students?

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