

# Co-Creation in Higher Education

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

Tatiana Chemi and Lone Krogh (Eds.)



## **Co-Creation in Higher Education**

## CREATIVE EDUCATION BOOK SERIES

Volume 6

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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*

*Edited by*

**Tatiana Chemi and Lone Krogh**

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TATIANA CHEMI AND LONE KROGH

## **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 Rasesa (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<sup>1</sup> in Denmark, Uppsala University/CEMUS<sup>2</sup> 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: deuterio-learning (Bateson, 1972a) and embodied neural metaphors (Lakoff, 2012; Springborg, 2015). The perspective of deuterio-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 Otrell-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

- <sup>1</sup> University College North Jutland.
- <sup>2</sup> The Centre for Environment and Development Studies.

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ANNIE AARUP JENSEN AND LONE KROGH

## 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 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.

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

### 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<sup>1</sup> 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<sup>2</sup> 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).

## RE-THINKING CURRICULUM FOR 21ST-CENTURY LEARNERS

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