DEVELOPMENT AND FACILITATION OF INNOVATIVE PEDAGOGY IN THE NORDIC–RUSSIAN CONTEXT

Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.)

MAMK
University of Applied Sciences

DEVELOPMENT AND FACILITATION OF INNOVATIVE PEDAGOGY IN THE NORDIC–RUSSIAN CONTEXT

Project report

Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.)

MIKKELI UNIVERSITY OF APPLIED SCIENCES
MIKKELI 2016
D: FREE FORM PUBLICATIONS – VAPAAMUOTOISIA JULKAISUJA 78

Cover Picture: Mikhail Nemilentsev
Layout and printing: Grano Oy
ISBN: 978-951-588-564-7
ISBN: 978-951-588-565-4 (PDF)
ISSN: 1458-7629

julkaisut@xamk.fi

CONTENTS

PREFACE

The project of Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context was implemented in 2016. The main objective of the project was to develop and facilitate innovative pedagogy in the entrepreneurship and business study curriculum in higher education in the Nordic–Russian context by deepening the network cooperation of the four partner HEIs. The primary target group of the project was teachers of the partner universities. Demand for the proposed project activities was identified during the finished project on innovative entrepreneurship (NCMRU/10088) with the same composition of partner organisations.

This publication consists of three parts: Part A describes the implementation of the project. The first article presents the whole project and the three following articles introduce the teaching training seminars conducted during the seminar. Part B introduces the educational systems of the partner countries and the current practices of the partners related to the teaching methods and collaboration with enterprises. Finally, Part C of the publication includes an introduction to innovation pedagogy and presents the innovative teaching methods piloted during the project.

The innovative teaching methods described in the publication are either the current state of continuous development by the partner universities or being applied in the cross-cultural study environment in Finland, Denmark and Russia. The objective of this publication is not only to report the project outcomes, but to disseminate them and also to encourage teachers to use them open-mindedly. This publication provides a broad outlook on the international cooperation in the field of innovative education, contributing thus to the modernisation of the educational practices in Finland, Denmark and Russia. In conclusion, the modernisation of the European society in the XXI century is connected primarily with the continuous development of the European educational system. Concrete suggestions for such improvement with the use of innovative teaching methods in the cross-cultural educational environment are given in the publication and represent the practical contribution of the project to the European education.

Mikkeli, November 2016

Marja-Liisa Kakkonen
Project manager

Mikhail Nemilentsev
Project participant

AUTHORS

Bobritzkaya Julia
Ph.D, Head of the Department, SPbSFTU
***

Burström Gandrup Malin
M.Sc., Project Manager, Associate Lecturer, EAL
***

Christiansen Pernille Kjærgaard
M.Sc., Assistant Professor, EAL
***

Freidkina Elena
Ph.D., Associate Professor, SPbSUIID
***

Immonen Anna-Liisa
M.Sc., Senior Lecturer, Mamk
***

Järvinen Tuuli
M.Sc., Senior Lecturer, Mamk
***

Kakkonen Marja-Liisa
D.Sc., Head of Department, Mamk
***

Kinnunen Kristiina
M.Sc., Senior Lecturer, Mamk
***

Kotova Anastaiya
Senior Teacher, SPbSUIID
***

Lindholm Nana
BBA, Project Coordinator, EAL
***

Lund Simon
BBA, Assistant Lecturer, EAL
***

Morozova Natalia
Ph.D., Associate Professor, SPbSFTU
***

Nemilentsev Mikhail
Ph.D., Senior Lecturer, Mamk
***

Tereshchenko Svetlana
Ph.D., Associate Professor, SPbSFTU
***

Tereshkina Tatiana
Ph.D., Professor, SPbSUIID
***

Roponen Marjaana
M.Sc., Senior Lecturer, Mamk
***

Storm-Henningsen Peter Lütken
M.Sc., Associate Professor, EAL
***

Tiljander Petteri
M.Sc., Senior Lecturer, Mamk
***

Toijonen-Kunnari Sari
M.Sc., Senior Lecturer, Mamk
***

Torniainen Anna-Maija
BBA, Project manager, Mamk
***

Zementckii Iurii
Ph.D., Associate Professor, SPbSFTU
***

PART A

A DESCRIPTION AND IMPLEMENTATION OF THE PROJECT

I. A DESCRIPTION OF THE PROJECT

Marja-Liisa Kakkonen and Mikhail Nemilentsev

INTRODUCTION

The present article describes the one-year international project carried out by the partnership of the four higher education institutions (HEIs) from Finland (Mikkeli), Denmark (Odense) and Russia (Saint Petersburg). The project is the second consecutive project done in the same composition of HEIs in the field of innovative entrepreneurship education. The project title is Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context.

FIGURE 1. NORU participants (Photograph by Manu Eloaho)

The primary target group of the project is teachers of the partner universities. The demand for the proposed project activities was identified during the project on innovative entrepreneurship (NCMRU/10088) that was completed by the same composition of partner organisations. During that previous project, cultural differences in teaching and learning among the Nordic and Russian partner HEIs were identified, and a network for developing innovative pedagogy in the Nordic and Russian partner universities was established (Kakkonen 2015b). However, a sustainable framework for innovation teaching of entrepreneurship and business courses is to be developed for achieving the described long-term results. The teachers of the partner universities (i.e. the target group) need to enhance further the use of innovative teaching methods and materials by continuing to work closely together with various industries (Kak-

konen & Nemilentsev 2015a). By arranging teacher training sessions during all the project activities, studying innovative teaching methods and approaches during and between the activities, and by integrating teaching and company assignments in the study curriculum, the partner universities meet the needs addressed by this project (Kakkonen & Nemilentsev 2015b).

The main objective of the project is to develop and facilitate innovative pedagogy in the entrepreneurship and business study curriculum in higher education in the Nordic–Russian context by deepening the network cooperation of the four partner HEIs. The specific objectives of the project are as follows:

1. to train teachers on topics related to innovation pedagogy utilising the synergy of the Finnish, Danish and Russian systems of entrepreneurship education;

2. to enhance the use of innovative teaching methods and materials in the multicultural learning environment;

3. to increase the use of enterprises as learning environments in order to form better relationships with the business community.

The achievement of the main and specific objectives is based on the project activities, inter-activity work performed by the partner HEIs and their close cooperation with enterprises.

PROJECT ACTIVITIES

The project duration was one year starting in January 2016 and ending in December 2016. The project consisted of three interconnected teacher training seminars, which were organised over the year. Each project seminar lasted three days, but the participants arrived a day in advance and left a day after the activity. In addition, each teacher training seminar pursued the specific objectives in the following way:

The first day of each seminar was based on the first specific objective and involved teacher training, a workshop for good practices and lectures prepared by an external lecturer on the specified theme. In addition, other project matters were handled during the first day (i.e. budget control and planning the lectures for the following seminars).

The second day of each seminar was based on the second specific objective and focused on teaching methodology and documentation and creation of learning strategies for a multicultural learning environment.

The third day of each seminar concentrated on sharing good practices, study curriculum and work-related student tasks.

The first teacher training seminar, the kick-off seminar, was arranged in Mikkeli in January 2016. The theme of the seminar was productisation of education in a multicultural learning environment. The second teacher training seminar was held in St Petersburg in June 2016, and its theme was cooperation between the university and the business world in a curriculum. The third teacher training seminar was conducted in Vejle and Odense in October 2016. The theme of the seminar was academic–industrial cooperation in a curriculum in the Nordic context. Each seminar is described in the following three articles respectively.

The last project activity is the final seminar in Mikkeli in December 2016. This publication will be completed and delivered to the participants during the final seminar. All the results of the project will be presented and disseminated in the final seminar.

Supplementary tasks between the seminars

Efficient progress of each seminar was assured by assigning supplementary tasks that were planned in advance. The supplementary tasks between the first and second seminar included two parts: working on Part A of the final project publication, involving applied research (by all partners) on the topic of the enterprising culture in an educational process. The partner universities conducted a joint survey about innovative teaching methods. The questionnaire used for the survey was created solely by the partners. Supplementary tasks between the second and third seminar included working on Part B of the final project publication. This included applied research (by all partners) on the topic of using enterprises as a learning environment in education. The partners developed a questionnaire that was used for interviewing the local Finnish, Danish and Russian enterprises about their cooperation with HEIs and development needs for such cooperation. In addition, the partners piloted several innovative methods of teaching in the autumn 2016 that could be used for developing innovative courses on innovative pedagogy.

Finally, the supplementary tasks between the third and fourth seminar consisted of the parts described further: working on the concluding Part C of the final publication with the focus on sustainable development of innovative pedagogy in a multicultural study context.

Both the organisation of the project seminars and the inter-activity tasks contributed to the development of teaching in the partner HEIs. In addition, the conducting of joint research on innovative pedagogy and the organising of the joint project activities strengthened the network of the four partner universities and created synergy for the HEIs. The synergy is expected to continue and to produce multiple positive effects even after the project funding period (e.g. teacher and student exchange).

CONTRIBUTIONS OF THE PROJECT PARTNERS

The cooperation of the four project partners was based on the equal recognition of the used methods and approaches of innovative teaching. The partners achieved a high degree of successful cooperation during the previous project, identified differences and similarities of the entrepreneurship and business education systems in Finland, Denmark and Russia, and tested their national models of teaching (Kakkonen 2015 a; Kakkonen 2015 b). In the current project, the partners developed and facilitated approaches to enable innovative methods of teaching entrepreneurship and developing a sustainable international framework of innovative pedagogy.

Each project partner was responsible for organising and hosting one project seminar (teacher training seminar) and attending all other project activities abroad. All four partners were responsible for attaining the main and specific objectives of the project. Additionally, all four partners took the joint responsibility of conducting applied research.

The pilots of the innovative methods of entrepreneurship education are connected with the main project result – development of a sustainable innovative pedagogical framework. The project partners will also develop methods and approaches for enhancing connections to enterprises. An applied research on cooperation between universities and enterprises was undertaken during the project.

The participants from Mikkeli University of Applied Sciences (Mamk), Finland, brought their competences in productisation of education in a multicultural learning environment (i.e. the theme of the first seminar) to the project. Additionally, the Mamk participants contributed to the project by utilising their international project experience to coordinate and manage the project during the entire project period (January–December 2016). Mamk was also the coordinator of the final seminar.

In turn, the participants from Lillebaelt Academy (EAL), Denmark, contributed their wide experience and competences in entrepreneurship and business education. In particular, the university–industry–community cooperation strategies and work-related study projects utilised by EAL in the bachelor courses were brought to the project and shared with all the project partners.

The participants from the two Russian partner HEIs, Saint Petersburg State Forest Technical University (SPSFTU) and Saint Petersburg State Technological University of Plant Polymers (SPSTUPP) contributed competences in initiating and developing academic–industrial cooperation and integrating it into a study curriculum. The emergent learning strategies of innovativeness and creativity in the education process developed by SPSFTU and SPSTUPP were utilised by all the project partners.

DISCUSSION AND CONCLUSION

With the project, the four partner higher education institutions (HEIs) from Finland, Denmark and Russia aimed at developing and facilitating innovative entrepreneurship pedagogy in the Nordic–Russian context. The project was based on the pedagogical results of the previous project run by the same consortium of HEI partners (Kakkonen et al. 2015). The main objective of this project was achieved by accomplishing three specific objectives. In particular, the project and the partners' effective collaboration, already experienced in the previous project, enabled introducing innovative pedagogy to the participants working in teacher training. In addition, the partners strived for enhancing the use of innovative teaching methods and materials in the multicultural teaching environment. Finally, the project focused on the increased use of enterprises as learning environments with the focus on strengthening the connections between the academic and business circles. This was implemented by means of the active involvement of the Finnish, Danish and Russian enterprises in the programs of the organised seminars. In addition, it was achieved by analysing the results of the conducted survey about enterprises' cooperation with HEIs.

In the project application, it was expected that successful achievement of the project main and specific objectives would bring forth the following long-term results: the methods and approaches for innovative pedagogy would be developed further in the sustainable network of the partner HEIs and a free online learning environment would be created for dissemination of the project outcomes, in particular the innovative methods and approaches to teaching. All the project work has been documented and reported in several articles, which are published in the printed project publication. It can be concluded that the plan to create an electronic platform during this project (besides all other project work) was unrealistic. Finally, it can be concluded that the working-life cooperation of the partner HEIs was strengthened further to some extent with the focus on local enterprises during the project. Local companies were invited to the project seminars.

In addition to the long-term results, the short-term results were achieved. The project partners improved the participating teachers' competences related to innovation pedagogy. In order to increase the academic cooperation among the partner HEIs and disseminate the results internationally, a joint publication of articles is produced in accordance with the project goals and project milestones.

To sum up the results of this project, the teachers of the partner universities received both theoretical and practical training in matters related to innovative pedagogy utilising the synergy of the Finnish, Danish and Russian systems of entrepreneurship education. The existing differences in the aforementioned systems of entrepreneurship education were identified and utilised in the training programs of the seminars throughout the project. In addition, the participants enhanced the use of innovative

teaching methods and materials cross-culturally. Finally, the project contributed to increasing the use of enterprises by the partners as learning environments with the primary focus on improving the connections to working life that are integrated into the curricula of the partner HEIs. These results show that the main and specific objectives of the project were met.

This publication describes all the activities and outcomes of the project. Part A of the publication presents the teacher training seminars one by one and Part B presents the results of the international research on innovation systems, use of innovative methods in teaching and collaboration with enterprises in the partner countries. Finally, Part C reports all the innovative teaching methods which were piloted during the project. In addition to developing the partner network and collaboration between the members of the network, the concrete project outcomes include the learning and piloting of innovative teaching methods.

REFERENCES

Kakkonen, Marja-Liisa (2015 a) Description of the implementation of the project: innovative entrepreneurship in Nordic–Russian context. In Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.), *Innovative Entrepreneurship Education in the Nordic–Russian Context* (pp. 12–30). D: Free Form Publications – Vapaamuotoisia julkaisuja 58. Mikkeli: Mikkeli University of Applied Sciences.

Kakkonen, Marja-Liisa (2015 b) Assessment of the seminars of the project by the participants. In Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.), *Innovative Entrepreneurship Education in the Nordic–Russian Context* (pp. 31–37). D: Free Form Publications – Vapaamuotoisia julkaisuja 58. Mikkeli: Mikkeli University of Applied Sciences.

Kakkonen, Marja-Liisa, and Nemilentsev, Mikhail (2015 a) Achievement of the objectives from the perspectives of teachers. In Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.), *Innovative Entrepreneurship Education in the Nordic–Russian Context* (pp. 38–44). D: Free Form Publications – Vapaamuotoisia julkaisuja 58. Mikkeli: Mikkeli University of Applied Sciences.

Kakkonen, Marja-Liisa, and Nemilentsev, Mikhail (2015 b) Achievement of the objectives from the perspectives of students. In Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.), *Innovative Entrepreneurship Education in the Nordic–Russian Context* (pp. 45–49). D: Free Form Publications – Vapaamuotoisia julkaisuja 58. Mikkeli: Mikkeli University of Applied Sciences.

Kakkonen, Marja-Liisa, Gandrup, Malin Burström, Tereshchenko, Svetlana, and

Tereshkina, Tatiana (2015) Self-evaluation of the project by the steering group. In Marja-Liisa Kakkonen and Mikhail Nemilentsev (eds.), *Innovative Entrepreneurship Education in the Nordic–Russian Context* (pp. 50–55). D: Free Form Publications – Vapaamuotoisia julkaisuja 58. Mikkeli: Mikkeli University of Applied Sciences.

2. THE KICK-OFF SEMINAR IN MIKKELI

Marja-Liisa Kakkonen, Anna-Maija Torniainen and Mikhail Nemilentsev

INTRODUCTION

The kick-off seminar of the Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context (NORU) project was held in Mikkeli on 25–27 January 2016. The main goal of the project was to develop and facilitate innovative pedagogy in the entrepreneurship and business curricula of higher education institutions (HEI) in the Nordic Countries and Russia by increasing the network cooperation of the four partner universities. The kick-off seminar took place at the campus of Mikkeli University of Applied Sciences (Mamk). It was the first of the four seminars to be arranged over the course of the project:

1. Kick-off seminar in Mikkeli (1/2016). 'Productisation of education in a multicultural learning environment'

2. Teacher training workshop in St Petersburg (6/2016). 'University–industry cooperation in a study curriculum'

3. Teacher training workshop in Odense (10/2016). 'University–industry cooperation in a study curriculum in the Nordic context'

4. Final seminar in Mikkeli (12/2016). 'Facilitation of innovative pedagogy.'

Each day of the seminar focused on one specific objective of the project. The first day aimed at increasing the participants' understanding of innovative pedagogy, while the second day focused more on utilising innovative teaching methods and materials in the intercultural educational environment. At last, the third day of the seminar was orientated towards the academic–industrial interaction and understanding enterprises as learning environments. This article describes the first activity of the NORU project, the teacher training seminar held in Mikkeli.

THE SEMINAR IN MIKKELI

Day 1: Innovation Pedagogy

The objective of the first day was to get the training teachers acquainted with each other. In the first day of the seminar, the participants from Finland, Denmark and Russia took part in the cultural activity prepared by the senior lecturer Tommi Pantzar (Mamk Department of Culture, Youth and Social Work) after the official opening ceremony of the seminar. The cultural activity consisted of two team-building exercises.

Bunch of nails assignment

In the first exercise, the participants were supposed to distribute a bunch of nails over a wooden box without any glue or binding material. The participants were free to discuss the challenge and try out different solutions to the problem. The objective of the exercise was primarily to encourage active intercultural communication while working out an innovative pattern of assembling the nails. After a number of failures, several groups came up with the correct solution almost simultaneously. The exercise helped to improve intercultural communication between the participants and initiated consideration about innovative pedagogy.

FIGURE 1. Team-building exercise (photograph by Anna-Maija Torniainen)

Casino exercise

The Intercultural communication between the participants was further facilitated in the next task: the participants were required to communicate nonverbally at an imaginary casino setting. The rules of the games were quite sophisticated and remembering them required special methods, but the players were not allowed to say a word. The exercise was done in groups of four or five people. According to the rules of the exercise, only a winner was able to leave his/her original table and move to a new group to play another game. The exercise required effective nonverbal communication from each group in order to teach new incoming members how to play. The exercise showed how different the patterns of communication of the participating groups were.

Both of the team-building exercises can be described as icebreakers: they created a relaxed, comfortable atmosphere to continue with during the following days of the seminar. After the team-building exercises, Marja-Liisa Kakkonen, the manager of the project, discussed the project execution and future events with the partners in the kick-off meeting. Also, expectations for the project were discussed.

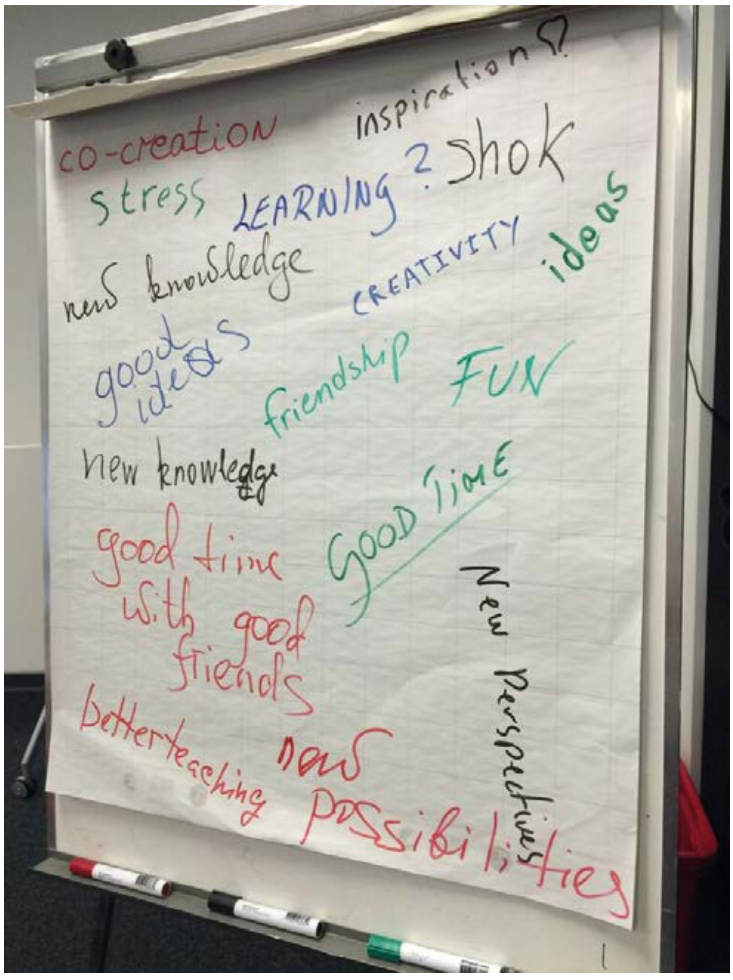

FIGURE 2. Expectations of the participants (photograph by Anna-Maija Torniainen)

Workshop

The program of the first day continued with the workshop organised by Michael Lundorff-Hansen from Lillebaelt academy (EAL Odense, Denmark), devoted to innovation pedagogy, entrepreneurial action in teaching and active collaboration with enterprises in the education process. In the workshop, the obstacles, challenges and possibilities for applying innovation pedagogy in Russia were presented and discussed by the seminar guests. During the first day, the marketing photograph for the project was taken at the campus. As an evening activity, the seminar group went bowling together.

Day 2: Innovative Teaching Methods

The second day of the seminar concentrated on enhancing the use of innovative teaching methods and materials in the multicultural learning environment. The day included two interactive parts performed by the Mamk and EAL representatives.

FIGURE 3. Reijo Honkonen in the act of storytelling (photograph by Marja-Liisa Kakkonen)

In the first part, Reijo Honkonen, Senior Lecturer of Marketing at Mamk, presented a storytelling method used in the pedagogical context followed by a task given to the participants. The participants were assigned the task of preparing a story and telling it to the rest of the audience. It was a real theatre interaction when the international groups of teachers and university staff members collaborated and created their own story – a subjective reality of their own – aiming at the listeners' better perception of the information. In particular, the use of the Prezi presentation software was considered as an effective tool for building stories for use in the education process.

In the second part of the day, the two EAL representatives – Michael Lundorff-Hansen and Pernille Christiansen explained their view on teaching and described various teaching roles. The participants had multiple opportunities to try out various teaching roles, explain the pros and cons of each role and contribute to the mutual understanding of teaching methods applied in the entrepreneurship education.

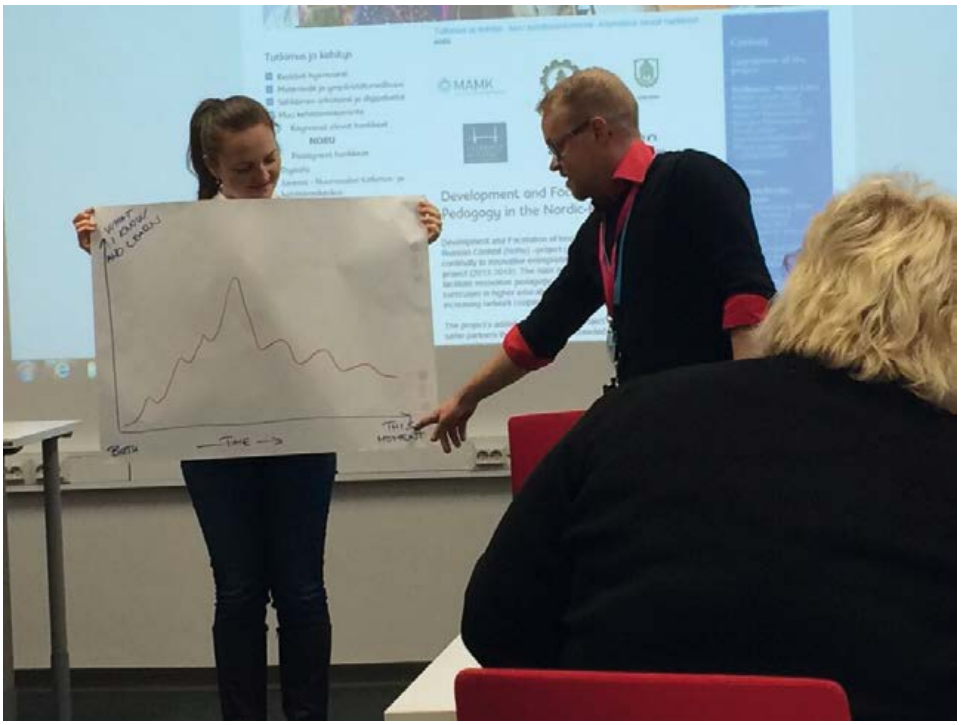

FIGURE 4. Pernille Kjærgaard Christiansen (EAL) and Petteri Tiljander (Mamk) presenting (photograph by Anna-Maija Torniainen)

Day 3: Enterprises as Learning Environments

The objective for the last day of the seminar was to discuss how the use of enterprises as learning environments could be increased and how the connections between institutions of higher education and businesses could be strengthened. The day was devoted to discussing the advanced innovation teaching methods designed in the Finnish tertiary (higher) education. The guest lecturer from Turku University of Applied Sciences (TUAS), Helena Rantanen, explained the INNOPEDA® training in theory and in practice with a TUAS student.

INNOPEDA® Training

INNOPEDA® Training refers to innovative professional competences gained through cross-disciplinary learning projects. Working life is changing and companies will have to find new ways to achieve a competitive edge in the innovation-based environment of the future. The change must also be reflected in how future professionals are educated. It is important that the new operating models are adopted during studies. Innovation pedagogy aims to find and define ways that are needed to teach and learn about the change (http://www.tuas.fi/en/services/products/innopeda-training/). The participants discussed the possibilities of developing similar teaching methods and its application in the Nordic–Russian entrepreneurship education context.

The project participants were required to work on the assignments throughout the project and in between the seminars. In the second half of the day, the participants discussed the project assignment set prior to the first seminar in groups. Due to the semantic and practical differences in the definition of such concepts as innovation, innovative teaching and entrepreneurship between the partner countries, it was decided to concentrate on the development of two questionnaires for understanding the current situation with teaching, development of teachers' skills and application of innovative teaching methods in the partner higher education institutions (HEIs).

Teaching during the seminar

During the seminar, two Russian participants – Iurii Zementskii and Elena Freidkina – gave lectures (5 academic hours per teacher) in the international Business Management programme at Mamk in addition to the seminar activities. They conveyed the experience of teaching entrepreneurship and business in Russia to the Finnish students and, in particular, offered a wider scope on international entrepreneurship to the students of Mamk.

DISCUSSION AND CONCLUSION

The present article describes the kick-off seminar of the project in Mikkeli. The three days of the seminar are analysed separately. The project's major focus on entrepreneurship education and innovative teaching methods made the description more articulated and accordant with the specific objectives of the project.

The fact that the participants know each other well brought a great deal of added value to the project – it was apparent when working with the project group. As the participants had already succeeded in establishing interuniversity cooperation and long-term partnership in entrepreneurship education, recognised and learned during the previous project, it was possible to reach the continuity and development — the results — more effectively. The project objectives were:

1. Development of a sustainable teaching network for innovation pedagogy in the partner universities

2. Creation of a free online learning environment for dissemination of the project outcomes (i.e. innovative methods and approaches to teaching)

3. Strengthened working-life cooperation between the partner universities and local enterprises.

The project seminars and assignments ensured the meeting of the objectives. The first seminar created a good base for the project's progression.

APPENDIX 1. Programme of the Seminar

Mon		
25.1.	**Innovation pedagogy**	
Time	*Programme*	*Place*
10:00	Opening of the seminar, Marja-Liisa Kakkonen Cultural activity, Tommi Pantzar	NC252 / Xinno
12:00	Lunch	restaurant Talli
13:00	Project Kick Off meeting, Marja-Liisa Kakkonen	NC 252 / Xinno
14:00	Coffee break	
14:00– 17:00	Workshop facilitator: Michael Lundorff-Hansen, EAL Obstacles, challenges and possibilities in applying innovation pedagogy in Russia Iurii Zementskii & Elena Freidkina	NC252 / Xinno
17:00– 18:00	Warm snacks at the campus	D2
18:00– 19:00	Bowling	Campus bowling hall

Tue		
26.1.	**Innovative teaching methods**	
Time	*Programme*	*Place*
10:00	Story telling workshop Reijo Honkonen, Mamk	NC261 / Xinno
12:00	Lunch	restaurant Dexi
13:00	Story telling sum up Reijo Honkonen, Mamk	NC 261 / Xinno
14:00	Coffee break	
14:30– 17:00	Applying innovation pedagogy in higher education in Denmark Peter Storm-Henningsen, EAL Pernille Kjærgaard Christiansen, EAL	NC 261 / Xinno
19:00	Dinner	restaurant Eino

Wed		
27.1.	**Enterprises as learning environments**	
Time	*Programme*	*Place*
10:00	INNOPEDA® training Helena Rantanen, Turku University of Applied Sciences	NC261 / Xinno
12:00	Lunch	restaurant Talli
13:00– 14:00	INNOPEDA® training Helena Rantanen, Turku University of Applied Sciences	NC261 / Xinno
14:30– 16:15	Teaching business students Elena Freidkina (2h)	
14:00	Coffee break	
14:30– 17:00	Project assignment in groups Closing the seminar	NC261 / Xinno
18:00	Dinner	restaurant Fransmanni

REFERENCES

Turku University of Applied Sciences. Innopeda training. [Online], Available: http://www.tuas.fi/en/services/products/innopeda-training/. Read 20.9.2016. Updated 20.9.2016.

3. THE TEACHER TRAINING SEMINAR IN ST PETERSBURG

Svetlana Tereshchenko and Tatiana Tereshkina

INTRODUCTION

The second meeting in the frame of the project "Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context" was organised in St Petersburg on the premises of two universities: St Petersburg State Forest Technical University and St Petersburg State University of Industrial Technologies and Design. The main theme of the seminar was "University industry cooperation in a study curriculum". Four representatives from Mikkeli University of Applied Sciences (Finland) and three representatives from Lillebaelt Academy University of Applied Sciences (Denmark) participated in the meeting (Figure 1). From each Russian university, participated four persons.

FIGURE 1. Project team in St Petersburg (photograph by Svetlana Tereshchenko)

The seminar was held from 31 May to 2 June 2016. The event included programme even after working hours. The participants also had the opportunity to get to know certain elements of Russian culture during the evenings and even nights. The days of the project meeting were very busy and fruitful.

A DESCRIPTION OF THE PROGRAMME

The first day was organised at St Petersburg State Forest Technical University. The aim of the day was to train teachers for innovation pedagogy utilising synergy of the Finnish, Danish and Russian system of entrepreneurship education. Due to the fact that the project meeting was organised in Russia, the seminar opened with a lecture titled "Innovational approach to students' motivation in Russian HEIs: achievements and problems" by Julia Bobritzkaya, the Head of Foreign Languages Department of St Petersburg State Forest Technical University. The main question discussed during the lecture was why it is so important to motivate learners in any educational process. The lector stressed that it is necessary because it helps students to study effectively, gain the necessary professional skills and transform their studying into a life-long learning process. It also helps to compensate lack of knowledge. Julia Bobritzkaya identified three main aspects of the significance of motivation:

1. It helps to improve one's ability to set goals and find ways to achieve them.

2. It prevents suppressing process-oriented motives – i.e. students get interested in the process of studying itself.

3. It stimulates the activation of the achievement motives in the motivation sphere of students.

During the lecture, the main components of students' motivation were identified: stimulus, need, analysis of all pros and cons (filter), motive activation and activity. The lector briefly described all the components of motivation. The main factors affecting students' motivation were discussed at the lecture. First of them is the external and internal characteristics of the educational process. External characteristics include the curriculum, textbooks, different devices, such as computers, VCRs and CD players, even classrooms and lecture halls. All these components cannot be changed by the teaching staff but even if they could, they still would not play the decisive role regarding their students' motivation. The internal characteristics include: students' knowledge; preparedness to study at a higher school; ability to study at a higher school. All the three components are also the three main problems which the Russian higher educational institutions are facing nowadays. At the end of the lecture, Julia Bobritzkaya gave tips on how to increase students' learning motivation in a positive and sustainable manner.

During the discussion, the teachers from Denmark, Finland and Russia stressed that nowadays it is essential to first motivate students and only then to work with them using innovational approaches to teaching, especially when teaching topics related to entrepreneurship. Moreover, the participants concluded that not only should students be motivated but teachers should be also motivated to use innovational teaching methods.

Between the meeting in Mikkeli in January 2016 and in St Petersburg in May–June 2016, a study was carried out pertaining to the relation to and use of innovative teaching methods. The results of research on educational processes in Denmark, Finland and Russia were presented during the second part of the first day of the project workshop. Presentations were given by the representatives from each partner university: Mikhail Nemelenztev from Mikkeli University of Applied Sciences, Peter Lütken Storm-Henningsen and Michael Lundorff-Hansen from Lillebaelt Academy, Natalia Morozova from St Petersburg State Forest Technical University and Anastasiia Kotova from St Petersburg State University of Industrial Technologies and Design. The opinions of teachers from the three countries on factors that influence the educational process the most were presented. The most popular teaching methods in institutions of higher education in these countries were presented. The research demonstrated the teachers' willingness to use innovational teaching methods. Interesting results were reported in analyses regarding the necessity of involving companies in teaching from the point of view of developing of students' professional competencies. The research indicated the changes that occurred in the teaching carried out by the participating teachers during the last year. The comparison of the results enabled the participants to discover common tendencies and differences in the teachers' attitude towards using innovative teaching methods in educational process and in connection to companies.

The second day of the workshop was organised at St Petersburg State University of Industrial Technologies and Design. The main objective was to enhance the use of innovative teaching methods and materials in the multicultural learning environment. A masterclass was organised by Maria Zagorskaya, Director of a Business consulting group. The name of the masterclass was "How to motivate students by using innovative teaching methods in the multicultural environment". The main objectives of the masterclass were:

1. To identify motivating factors of students from different countries,

2. To understand how to motivate students in the multicultural environment by using innovational teaching methods, and

3. To organise the exchange of teaching experiences on working in multicultural environments.

During the masterclass, Maria Zagorskaya used such teaching methods as mini-lec-

tures, sharing (exchange of views in the general group), discussion in small groups (three or four people) and case studies. At the beginning of the masterclass, Maria Zagorskaya described the educating, motivating and mentoring role of the teacher in the multicultural environment. The participants shared their views on the characteristics of modern students in the context of learning motivation in the multicultural environment (Figure 2).

FIGURE 2. Discussion on the characteristics of modern students (photograph by Svetlana Tereshchenko)

The new generation of students is more free and independent and they lose their learning motivation quickly. In this regard, the teacher's role as a motivator is increasing. Such methods of motivation FROM (negative motivation) as non-admission to a session and low marks are used nowadays. Participants of the masterclass concluded that the motivation FOR (positive motivation) is more effective for students in the multicultural environment. Factors that motivate students in the multicultural environment were identified: the prestige of the university, the public life of the university, belonging to a certain group, and comfortable learning conditions.

The participants of the masterclass were asked to analyse students' learning methods in the multicultural environment and to suggest interactive training methods to improve students' motivation. The participants were asked to develop cases, in which they would develop their "students'" learning program, using the maximum number of innovative teaching methods to motivate their students in the multicultural environment (Figure 3).

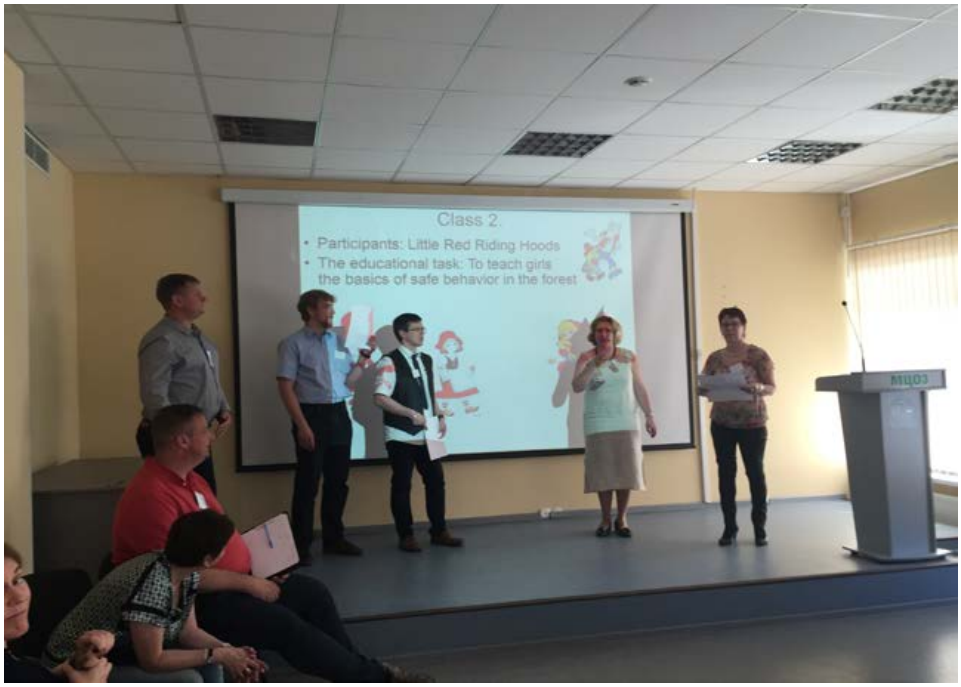

FIGURE 3. Group work. Case Red Cup (photograph by Svetlana Tereshchenko)

The trainer used the Matryoshka doll approach in the masterclass. Creating a fabulous case, the teachers themselves showed creativity, innovative approach and a high level of motivation for the assignment, which confirms the effectiveness of interactive innovational teaching methods in the multicultural environment. During the masterclass, it was noticed that training group dynamics can increase learning motivation.

Innovative teaching methods encourage creativity, allow students to rise above the situation, or, conversely, to be "inside" the case. In any case, they differ from the formal educational process. At the end of the masterclass, various innovative methods for motivating students in the multicultural environment were discussed.

The third day of the workshop was also organised at St Petersburg State Forest Technical University. The aim of this day was to discuss how the use of enterprises as learning environments could be increased and the connections between the HEIs and the business world could be strengthened. On the third day, two presentations were given by business representatives. The first presentation was held by Alexander Dobrovolskii, Director of SME "Geliantus". The theme of the presentation was "How to work effectively with HEI. Experience of commercialisation of intellectual property rights via SME." The company was created at St Petersburg State Forest Technical University. The aim of the creation of this enterprise was the implementing of innovational technologies in forestry. Alexander Dobrovolskii stressed that they are actively working with students to carry out scientifically and practically oriented projects. The students who have worked with the company have really good chances in finding a good job in forestry or a related field.

The second presentation on the third day was given by Ivan Petrov, Head of Marketing at Ponsse. The title of the presentation was "Experience of cooperation with HEIs of Ponsse company". The company produces and sells forestry machines for logging. The company collaborates with several universities in Russia, such as St Petersburg State Forest Technical University. The cooperation between the company and the university includes practical training especially during summer time and study trips to the Ponsse factory in Finland for Bachelor and Master students from the Institute of forest machines and transport of forest. The company also provides study materials for the students and offers continuous training for the teachers. According to the company representative, the cooperation between the company and institutions of higher education is very important for them. During the third day, the following steps of the project were discussed. It was decided that the project participants would continue to work on the research on cooperation between the HEIs and businesses in Denmark, Finland and Russia. A meeting of coordinators was also organised to discuss the urgent questions connected with the project realisation.

THE STEPS TAKEN TOWARDS INNOVATIVE PEDAGOGY

One of the questions posed during the project seminar organised in St Petersburg was which methods can be used to raise students' motivation, especially in the multicultural environment. It is necessary to discuss this question, because if students have motivation, it will help them to study more effectively and they can easily obtain the required professional skills. The theoretical aspects of this problem were discussed and the teachers participated in the practical training, devoted to the use of innovational methods for raising students' motivation. Innovative teaching methods give additional bonuses — students are motivated by group dynamics, necessarily arising in a competitive atmosphere, leadership, and at the same time moments of team building,

total wins mini-group or their own individual success (the price of which increases in the competitive environment). It is very important because the teachers can use these methods in their practice at home universities.

The discussion about the research of the usage of teaching methods in the partner universities showed which factors mostly influence the learning process and which teaching methods are the most common in different countries and universities. The Russian teachers said that due to the project they got to know new teaching methods and they would like to test them in their classroom. In the discussions, the teachers expressed their will to use innovative teaching methods and were already speculating which method would be the most interesting for them to pilot.

The analyses of the need for the involvement of companies in educational processes indicate that the involvement of companies helps to develop students' professional competencies. The participation of business representatives in the project seminar helped to understand the business perspective to the topics and the opportunities that lie in businesses' cooperation with HEIs. They also described the conditions of cooperation with HEIs. Such cooperation is interesting not only for universities, but also for businesses. The real-life examples of the companies working with universities and the description of how the cooperation is included in the curriculum may help other universities participating in the project to implement similar collaboration. The use of innovational teaching methods for business needs and in cooperation with businesses may be especially interesting.

SUMMARY

The project seminar in Saint Petersburg helped to understand how and to what extent innovative teaching methods are used in the partner universities and the role of the business world in the activation of this process. The seminar was effective. The participants received theoretical information and practical skills in using innovative teaching methods for raising the level of students' motivation. If the students are motivated, the teacher may use any innovative teaching method more effectively. The project seminar showed that all the teachers who participated in it are motivated to use innovative teaching methods. Only cooperation with businesses will enable creating the professional competencies that students need. Including cooperation with businesses in the curriculum will improve the quality of the educational process.

4. THE TEACHER TRAINING SEMINAR IN DENMARK

Malin Burström Gandrup

INTRODUCTION

The third seminar in the *Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context* project was organised at Lillebaelt Academy University of Applied Sciences (EAL), Denmark in October 2016. EAL is located in Southern Denmark and has campuses in Vejle and Odense. The three-day seminar was therefore divided between the two cities, being in Vejle on Tuesday and Wednesday and in Odense on Thursday. The theme of the seminar was *'University-industry co-operation in a study curriculum in the Nordic context'* and included a masterclass about learning styles, LEGO workshop and company presentations and visits. Throughout the seminar, participants worked in intercultural teams to ensure that cross-border learning and networking were achieved. A total of 22 people participated in the seminar; 6 from St Petersburg State Forest Technical University, SPbSFTU (RU), 5 from St Petersburg State University of Industrial Technologies and Design, SPbSUITD (RU), 6 from Mikkeli University of Applied Sciences (FI) and 5 from Lillebaelt Academy University of Applied Sciences (DK).

A DESCRIPTION OF THE PROGRAMME

The seminar focused on the three specific objectives defined for the project:

1. to train teachers on matters pertaining to innovation pedagogy utilising the synergy of the Finnish, Danish and Russian systems of entrepreneurship education

2. to enhance the use of innovative teaching methods and materials in the multicultural learning environment

3. to increase the use of enterprises as learning environments in order to better connect studies with the working life.

The first day primarily focused on the first objective, day two primarily on the second objective and day three primarily focused on the third objective. However, there were some overlaps between the three objectives during the seminar.

The first day of the seminar

The first day started with a masterclass about learning styles with two external lecturers from eKnowledgeCentre. Each person prefers different learning styles and techniques, and everyone has a mix of learning styles. During the masterclass, the participants were introduced to theories related to learning styles. Furthermore, the participants were asked to do a learning style test to find out what type of learning style they prefer. The purpose of the masterclass was to give the participants a chance to gain knowledge about learning styles in order to have the necessary skills and competencies to develop teaching activities that are adapted to students with different learning styles. It became clear that most of the participants had very limited knowledge about learning styles and had previously never done a learning style test. Through discussions in intercultural teams, the participants reflected, e.g. on how their learning style affected their way of teaching, and how this knowledge can be implemented when planning their teaching activities in the future. In the afternoon, the participants visited The Spinning Mill (Spinderhallerne 2016).

The Spinning Mill is a development and innovation environment for people who work in the field of business, design and art. The 13,000 m2 industrial building houses more than 60 creative micro-companies and artists, meeting and workshop facilities, exhibition space, prototyping workshop and a café (www.spinderihallerne.dk). During the visit at The Spinning Mill, the participants listened to a presentation about the location, a student from EAL gave a presentation about her internship, during which she has started her own business, and a company gave a presentation of their experience on working at The Spinning Mill. All in all, the presentations and the guided tour afterwards gave a good understanding of what The Spinning Mill of-

fers to its clients and how a co-working environment can be set up. The visit at The Spinning Mill was more related to the third objective since the participants gained knowledge about how a co-working environment can be utilised in teaching activities. (Spinderhallerne 2016.)

The second day of the seminar

The second day was a workshop in which LEGO blocks were used. The participants were divided into five intercultural teams and were asked to individually build a LEGO figure that illustrated how they taught their classes. Thereafter, each participant gave a short presentation about their LEGO figure to the other members of the team. That activity made the participants individually reflect on their role as a teacher and they also gained insight into how others teach and what type of teaching methods they implement. Each team then built one LEGO figure that illustrated what a teaching situation should look like and they were asked to integrate elements about learning styles in their figure.

FIGURE 1. The participants' teaching activities with the use of Lego Serious Play ® method (Photo by Malin Burström Gandrup)

After building the figures, a "café visit" exercise was carried out. In the exercise, one team member pitched their LEGO figure to another group, while the other team members listened to another group's pitch. Every eight minutes the team members that listened to the pitches moved on to the next group, and at the end all teams had listened to each teams' pitch. One of the goals of the exercise was to focus on providing input and asking questions in order to get a deeper understanding of the LEGO figure that another group had developed. Hearing about which elements the other teachers find relevant to focus on inspired the participants and also gave them input on how knowledge about learning styles can be integrated in teaching activities. After the café visit exercise, the five teams had time to further develop their LEGO figure and the day was finished off with each team presenting their LEGO figure to the other teams. Throughout the workshop, the participants developed knowledge about different teaching methods and two innovative teaching methods were actively introduced to them: involvement of LEGO and the café visit exercise.

FIGURE 2. Team work on perfect teaching activity (Photo Malin Burström Gandrup)

The third day of the seminar

The third day included presentations, a workshop and a company visit. During the morning session, the participants were introduced to Factory of Festivals, which is a concept implemented at EAL's Tourism, Events and Leisure faculty. Festivals in the region are offered a work space for free at EAL with the condition that they involve students in the planning, execution and evaluation of the festival. A teacher at EAL and a company representative from HCA Comedy Festival told about their experiences with Factory of Festivals. Furthermore, a student from EAL shared her experiences with 48-hours. 48-hours is an innovation concept in which students work in interdisciplinary teams for 48 hours to solve a real-life problem for a company in the region. During the session, the seminar participants gained knowledge on how companies can participate in teaching activities.

After lunch, the participants presented the results from the piloting of innovative teaching methods, which had been implemented in Finland and Russia. The activity is specifically linked to the second objective of the project and provided the participants with hands-on knowledge about innovative teaching methods and how to implement them. The participants were then again divided into the five intercultural teams and asked to further develop their LEGO figure with the aim to include enterprises in the learning environment. The final LEGO figures were presented and the day was finished off with a company visit.

SUMMARY AND CONCLUSION

During the three-day seminar, the participants participated in workshops, a masterclass, teamwork and presentations. Through the masterclass in learning styles, the participants developed relevant knowledge about different types of learning styles and became aware of which learning style they prefer themselves. By developing that knowledge, the participants can better understand how their students learn and they can also implement innovative teaching methods that are adapted to different learning styles. By working in intercultural teams, the participants gained a better understanding of the teaching environment in Denmark, Finland and Russia. Through discussions and team work, the participants exchanged knowledge and ideas that can be used when planning teaching activities in the future. During the second day, the participants were introduced to using LEGO bricks in a teaching situation and the "café visit" exercise, both of which can be identified as innovative teaching methods. Furthermore, during the third seminar day, participants presented the pilot project of innovative teaching methods, which had taken place in Finland and Russia, and gave the participants further knowledge about how to implement innovative teaching

methods. The seminar therefore contributed to improving the participants' competences in innovative pedagogy.

During the first and the third day, the participants were introduced to different methods of collaboration between institutions of higher education and companies. They gained insight on how teachers, students and company representatives view such collaboration, what to avoid and what successful collaboration requires. That knowledge as such does not improve cooperation with businesses, which is one of the targets of the project, but it can be utilised by the participants when establishing collaborations between their institutions and companies. During the three-day seminar, the participants gained new knowledge and inputs as well as hands-on experience on innovative teaching methods. By reflecting on their role as a teacher and discussing their views with other teachers, they improved their understanding and knowledge about innovative pedagogy and teaching in general.

REFERENCES

Spinderhallerne (2016) [Online], Available: http://www.spinderihallerne.dk/facts-in-english/. Referred: 18.10.2016. No updating information.

PART B

AN INTRODUCTION OF THE EDUCATIONAL SYSTEMS OF THE PARTNER COUNTRIES AND CURRENT PRACTICES OF THE PARTNERS RELATED TO TEACHING METHODS AND COLLABORATION WITH COMPANIES

5. THE EDUCATIONAL SYSTEMS IN DENMARK, FINLAND AND RUSSIA

Nana Lindholm, Pernille Kjærgaard Christiansen, Peter Lütken Storm-Henningsen, Tuuli Järvinen, Julia Bobritzkaya and Elena Freidkina

INTRODUCTION

For many years, both policymakers and researchers have struggled to find an answer to the question of the most appropriate system design and structure for the higher education sector. Perhaps this is due to the fact that there seems to be no right or wrong structure of the higher education system, as it depends on a variety of factors (Goedegebuure 2010, 616).

The development of the educational systems is not just dependent on national systems and political priorities (ibid.) but also on a growing complex world and on an ever-growing number of students (ibid., p. 617). Furthermore, the term *higher education* covers a whole range of different institutions and study programmes. Often, the focus is on differentiation in terms of programme types and the levels of education offered within the specific institution. However, some studies also include differences in e.g. organisational structure and financial matters (Teichler 2010, 347). Since the diversity of higher education is so great and changes are very much dependent on national systems and their complexity, it is impossible for higher education systems to be completely uniform since they should serve different purposes for their enrolled students and the society in which they are placed (ibid., p. 352).

This article will provide a brief overview of the different educational systems in Denmark, Finland and Russia respectively. In extension of the above, the educational systems in the three countries differ in some aspects whilst being similar in others. The different parts of this article all have different focuses on the important elements of the respective educational system and the tendencies of the future.

THE DANISH EDUCATIONAL SYSTEM

A general introduction

In Denmark, the education begins in the basic school – referred to as the "Folkeskole" in Danish. The basic school is responsible for preparing the pupils for further education and training (The Aims of the "Folkeskole", n.d.). It is an important element of the education in Denmark and also contains teaching of the Danish culture and history, contribution to the individual's personal development, and the child's understanding of the rights and duties in a free democratic society (ibid.). The educational system in Denmark therefore supports intellectual freedom, equality and democracy for all (ibid.).

Education is primarily free in Denmark apart from some educational offers for adults, supplementary training programmes as well as private schools and the like (see chart in The Danish Education System 2016, 15). The education sector in Denmark therefore takes up quite a lot of the total public expenditure: 15.1%, which corresponds to 7.9% of the GDP as of 2012 (Denmark Key Facts, OECD, 2012). However, the great expenditure on education has resulted in 0% of the 25–64 year-olds to only have attained primary levels of education and 76% of the same age group (25–64 years) to have attained at least the level of upper secondary education (ibid.). Figure 1 gives an overview of the Danish educational system.

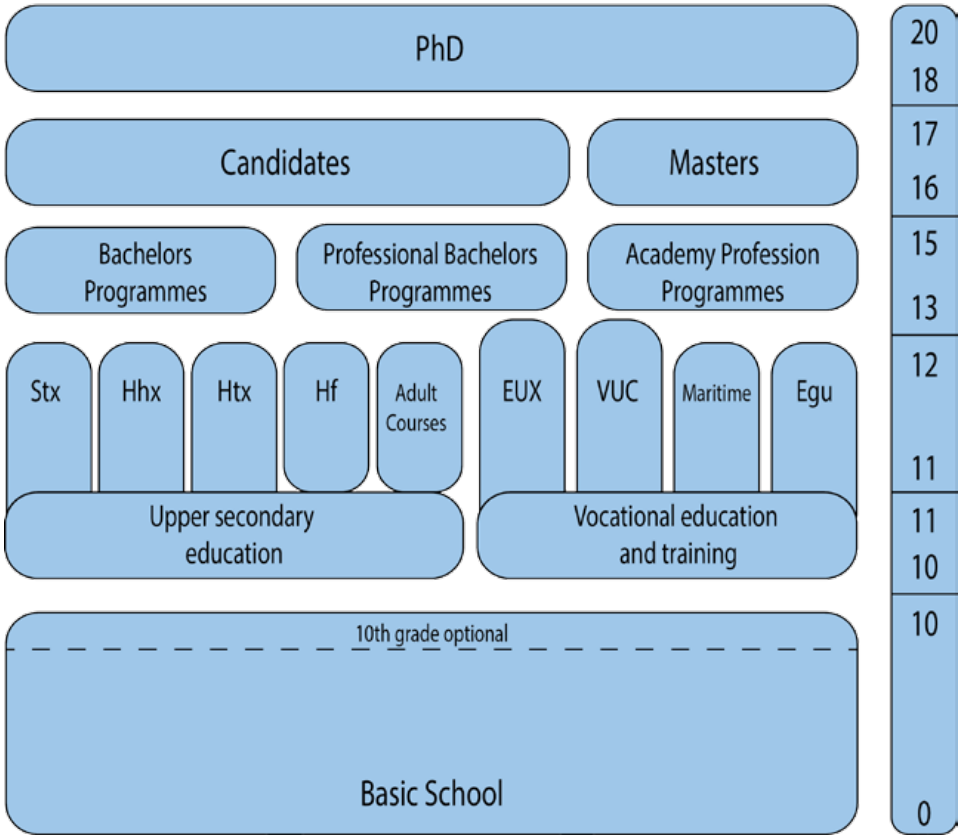

FIGURE 1. Overview of the Danish Educational System.

Basic School ("Folkeskole")

The Danish "Folkeskole" is a basic school education that covers both primary education (from 1st to 6th grade) and lower secondary education (from 7th to 9th grade). 10th grade is optional. Pupils in basic school are from the age of 6 to the age of approximately 17 (Primary and Lower Secondary Education, n.d.). In Denmark, education is compulsory — however, school attendance is not. This means that you are free to receive teaching for instance at home, as long as you reach the requirements set by the government, which correspond to those of the Danish Basic School (The Folkeskole, n.d.).

Upper Secondary Education

Upper secondary education is divided into "general education" and "vocational or technical education". General education grants pupils access to higher education. Vocational education and training programmes are the non-academic educations (Upper Secondary Education, n.d.).

Academy Profession Programmes

The Academy Profession Programmes are normally a two-year education. In some cases, a top up is added to the education and thus the end diploma will be a Professional BA (Academies profession programmes, n.d.).

Professional Bachelor Programmes

Professional BA is a programme that has a more practical approach compared to the traditional BA programmes. The Professional BA puts great emphasis on linking theory and practice and is offered at academies (UAS) and university colleges (Professional bachelor programmes, n.d.).

Bachelor Programmes

Bachelors in universities are research based with a duration of three years equivalent to 180 ECTS. Bachelor's degree programmes provide students with a broad academic knowledge as well as methodological and theoretical skills in one or more subject areas (The University Bachelor's […], n.d.).

Master's Programmes

Traditional Master's programmes are research based and consist of 120 ECTS points with the exception of a few degrees (e.g. Medicine). The degree gives students competences within theoretical and scientific knowledge, analytical skills and qualifies students for scientific work (for instance a PhD) or a professional career (ibid.).

Important elements of the education system

The Danish Grading Point System

The system was introduced in 2007 with the aim of making the grading system easier to understand and compare in an international context (7-point grading scale, n.d.). Table 1 presents it in detail.

TABLE 1. The Danish grading points system

Danish mark	Explanation of the mark	Equivalent ECTS mark
12	For an excellent performance	A
10	For a very good performance	B
7	For a good performance	C
4	For a fair performance	D
02	For an adequate performance	E
00	For an inadequate performance	Fx
-3	For an unacceptable performance	F

SU: The Danish Students' Grants

All Danish students are entitled for support during their further studies from the age of 18. The grants are given to students following a youth education programme (without any time limit) and for students who are enrolled in higher education courses (with a maximum of 70 months). Students who change their studies at their higher education will not receive extra grants but all students are entitled to a student loan with a low interest rate (State Educational […], n.d.).

Future aspects of the education system

Denmark as a Knowledge Society

Due to globalisation, the national economies have been linked closer together, which has led to outsourcing of many companies' production capacity. This, in turn, has led to a greater demand for more well-educated people who constantly acquire new knowledge through education and lifelong learning. Thus, the Danish government has focused on having more people finish a higher education and to make people achieve good academic knowledge and personal skills (Denmark's strategy for lifelong learning 2007, 5–6). This state-led approach helps to reduce social inequality and seeks to promote equal personal development for all through education (Kwon and Daeyeon 2010, 156).

Due to constant changes in society and the labour market, people should not just learn — they should learn to learn. They will acquire what we call lifelong learning skills, making them capable of adjusting to future needs in the job market (Denmark's strategy for lifelong learning 2007, 19–24).

Integration of theory and practice

In order to ensure growth and knowledge sharing as well as lifelong learning abilities, the Danish government has decided to increase the cooperation between educational institutions and the local business community (ibid., p. 28–29). These partnerships within education and competence development will help strengthen the lifelong learning and the quality and demand for education. Also, it will help businesses develop and grow further (ibid., p. 29).

The Ministry of Higher Education and Science has introduced a supplement to the already existing development contracts for each higher education institution in Denmark. This supplement has an extraordinary focus on an increased regional collaboration between the institutions and the businesses in their geographical area. The overall initiative by the Government has a specific goal: the knowledge gained at the educational institutions should benefit the entire society in a more extensive way in the future (Information Regarding the Supplement for the Development Contract, 2015).

THE FINNISH EDUCATIONAL SYSTEM

General information about the Finnish education system

According to the Finnish Ministry of Education and Culture (Education System in Finland 2016), the Finnish welfare society is built on education, culture and knowledge. The aims of the Finnish educational policy are quality, efficiency, equality and internationalisation. Also, there should be no dead-ends preventing progression to higher levels of education.

The Finnish educational system consists of the following levels:

- one year of voluntary pre-primary education
- nine years of primary education (comprehensive school)
- upper secondary education, which includes vocational and general education options
- higher education in universities and universities of applied sciences (UAS)

Adult education is provided at all levels of education. Adults can study for a general education certificate or for a vocational qualification, or modules included in them, take other courses developing citizenship and working-life skills, or pursue recreational studies.

Most education and training is publically funded. In basic education, school materials, school meals and commuting are also provided free of charge. In upper secondary education, students pay for their books and transport. In addition, there is a well-developed system of study grants and loans. Financial aid can be awarded for full-time study in upper secondary education and in higher education. (Financing of Education 2016.)

According to Statistics Finland (2016), the expenditure on the regular education system decreased by 0.2% in 2014 compared to the previous year. Current expenditure on the regular education system totalled EUR 12.3 billion in 2014. The expenditure on comprehensive school education constitutes the largest proportion of the current expenditure on the regular education system. The expenditure on comprehensive school education was EUR 4.5 billion in 2014. The next largest proportions were university education and research, on which EUR 2.3 billion was expended, and vocational education, on which EUR 1.7 billion was spent.

Financial aid is provided in Finland in the form of study grants, housing supplements and government guarantee for student loans. Student financial aid is granted for full-time studies aiming at an upper secondary school certificate, a vocational qualification, a polytechnic or university degree, and for additional studies qualifying for a profession or a post. (Student Financial Aid in Finland 2016.)

According to OECD (Education at a Glance 2016), educational outcomes in Finland were among the top of OECD. In 2015, 43% of 25–64 year-olds in Finland had completed tertiary education. The first-time graduation from master's programmes (23%) and doctorate programmes (2.6%) are above the OECD average. In 2013, educational expenditure in Finland amounted to 7.2% of the GDP. (Government expenditure on education, total (% of GDP) 2013.)

Education System

Finnish institutions of higher education use the ECTS system in international student mobility schemes. This has revealed the problems in the Finnish credit unit system, especially as regards to university studies, which is why the Finnish degrees have been reformed to be compatible with the ECTS in connection with the adoption of the two-cycle degree system.

At present, degree structures are evolving in line with the Bologna Declaration (EHEA

1999) and the Bachelor–Master structure is becoming the prevalent model. However, the extent and duration of degrees in Europe vary, the most common structures being 3+2 years and 4+1 years. The ECTS and the Diploma Supplement are in use in most countries, also in Finland. In recent years, the Bologna process has focused on quality assurance systems and their recognition. (The Bologna process 2016.) In figure 2, the present Finnish education system is illustrated.

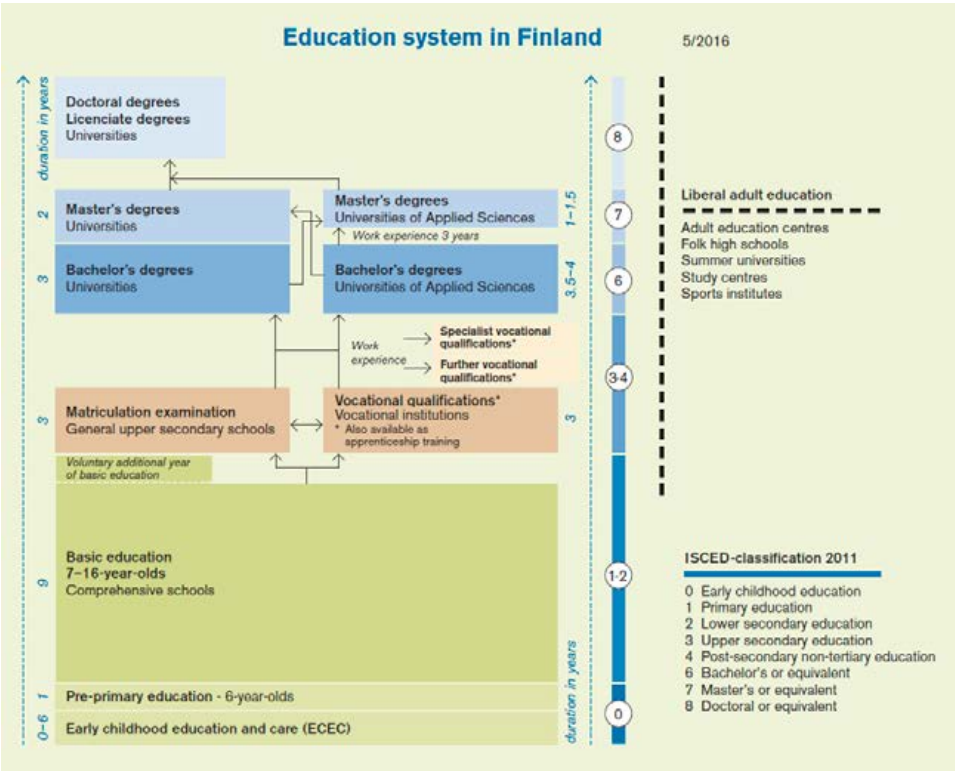

FIGURE 2. The Finnish Education System Chart (The Finnish Education System Chart 2016)

Early Childhood Education and Care

Local authorities in Finland are responsible for the provision, quality and supervision of early childhood education and care services. Day care is provided by trained personnel. The qualification of a kindergarten teacher is a university or university of applied sciences degree. All day-care centre personnel must have at least an upper secondary-level qualification in social welfare and health care. The qualification requirements for day care staff are stipulated by the decree on child day care and by the law and decree on the qualification requirements of social care professionals. (Early childhood education and care in Finland 2016.)

Basic Education

According to MEC (2016), basic education is a free nine-year education provided for the whole age group (in 2016, circa 60,000 children) in Finnish comprehensive schools. Compulsory schooling starts in the year when a child turns seven and ends after the basic education syllabus has been completed or after ten years. The tenth year is a voluntary possibility for students who have finished the 9th grade.

Textbooks and other materials, tools etc. are free of charge in basic education and pupils are offered a free daily meal. Also, school health care and other welfare services are free to the pupils. The school year, which has 190 working days, starts in mid-August and ends in the beginning of June. The summer holidays are over 60 days.

The network of comprehensive schools covers the whole country. Local authorities have a statutory duty to provide education for children of compulsory school age living in their areas. The language of instruction is mostly Finnish or Swedish. In 2016, there are around 25,000 pupils (4.6%) with immigrant background in primary and lower secondary education, and their integration is supported in many ways.

After basic education, 95.5% of school-leavers continue their education — in additional voluntary basic education (2.5%), in upper secondary schools (54.5%) or in initial vocational education and training (38.5%). (Basic education in Finland 2016.)

General Upper Secondary Education

The post-compulsory upper secondary level comprises general and vocational education. Both forms usually take three years and give eligibility for higher education. About 50% of the comprehensive school-leavers continue on to general upper secondary education. Upper secondary school offers general education for students of about 16–19 years of age. It provides students with the capabilities to continue to further studies.

The admission requirement for general upper secondary education is a basic education certificate. Students apply to general and vocational education through a joint application system. If the number of applicants exceeds the intake, the selection is based on students' school reports. The drop-out rate is low.

The general upper secondary school is based on courses with no specified year-classes. The scope of the syllabus is three years but the studies may be accomplished in two, three or four years. The students may proceed in their studies either as a group or individually. General upper secondary education is primarily free of charge for students, but students have to pay for the materials.

The upper secondary school ends in *a matriculation examination*, which does not qualify for any occupation. Passing the matriculation examination entitles students to continue studies in universities, polytechnics or vocational institutions. Matriculation examination is drawn up nationally, and there is a centralised body to check its individual tests against uniform criteria. (General upper-secondary education in Finland 2016.)

Vocational Education

The aim of vocational education and training (VET) is to improve the skills of the work force, to respond to skills needs in the world of work and to support lifelong learning. VET comprises initial vocational training and further and continuing training. A total of 146,000 students attend initial vocational training every year. Of them, 4,500 attend access courses preparing for initial vocational training. The largest fields are Technology and Transport (c. 36%), Business and Administration (19%) and Health and Social Services (17%). The other fields are Tourism, Catering and Home Economics (13%), Culture (7%), Natural Resources (6%) and Leisure and Physical Education (2%). In further training provided in the Ministry of Education and Culture sector, the annual number of students is about 40,000. (Vocational education and training in Finland 2016.)

Universities of Applied Sciences

Both UAS and universities in Finland, together with MEC set operational and qualitative targets and determine the necessary resources every four years. They also agree on how these targets are to be monitored and evaluated. They receive funding from the state, but they are also expected to raise external funding. Finnish universities are independent corporations under public law or foundations under private law. Universities of applied sciences are multi-field regional institutions focusing on contacts with working life and on regional development. At present, there are 24 UAS in Finland. The total number of young and mature UAS students is 130,000. Universities of applied sciences award over 20,000 Bachelor's degrees and 2,400 Master's degrees annually.

Degree studies give a higher education qualification and practical professional skills. They comprise core and professional studies, elective studies and a final project. All degree studies include practical on-the-job learning. There are no tuition fees in degree education in Finnish and Swedish, and the students can apply for financial aid. As of the beginning of 2016, institutions of higher education may charge tuition fees from students coming from outside the European Union and the European Economic Area.

The extent of UAS degree studies is generally 210–240 study points (ECTS), which means 3.5–4 years of full-time study. This education is usually arranged as degree

programmes. The entry requirement is a certificate from an upper secondary school or the matriculation certificate, a vocational qualification or corresponding foreign studies. The requirement for Master's studies in university of applied sciences is a Bachelors' level degree and *at least three years of work experience*. The Master's degree, which is 60–90 study points and takes 1.5–2 years, is equivalent to a university Master's in the labour market. (University of applied sciences' education Finland 2016.)

Universities

The Finnish universities, currently a total of 14 of them, operate in their new form from 1 January 2010. Their operations are built on the freedom of education and research and university autonomy. Universities confer Bachelor's and Master's degrees, and postgraduate licentiate and doctoral degrees.

At universities, students can study for lower (Bachelor's) and higher (Master's) degrees and scientific or artistic postgraduate degrees, which are the licentiate and the doctorate. It is also possible to study specialist postgraduate degrees in the medical fields. In the two-cycle degree system students first complete the Bachelor's degree, after which they may go for the higher, Master's degree. As a rule, students are admitted to study for the higher degree. Universities also arrange separate Master's programmes with separate student selection, to which the entry requirement is a Bachelor's level degree or corresponding studies.

Studies are quantified as credits (ECTS). One year of full-time study corresponds to 60 credits. The extent of the Bachelor's level degree is 180 credits and takes three years. The Master's degree is 120 credits, which means two years of full-time study on top of the lower degree. In some fields, such as Medicine, the degrees are more extensive and take longer to complete. (University education in Finland 2016.)

Important elements of the education system

Special features of the Finnish system are that most education is publicly funded, local administration and educational institutions play a key role, educational autonomy is high at all levels and quality assurance is based on steering instead of controlling. (Finnish education in a nutshell 2015.) For example, there are no national tests for pupils in basic education in Finland. Instead, teachers are responsible for assessment in their respective subjects on the basis of the objectives included in the curriculum. The only national examination is the matriculation examination as described earlier. Commonly, admission to higher education is based on the results in the matriculation examination and entrance tests. (General upper-secondary school in Finland 2016.) In higher education, the following grading system is commonly in use:

The Finnish Grading Scale	The ECTS Grading Scale
5 = excellent: outstanding performance with only minor errors	A
4 = very good: above average but with some errors	B
3 = good: generally sound work with a number of notable errors	C
2 = satisfactory: fair but with significant shortcomings	D
1 = sufficient: performance meets the minimum criteria	E
0 = fail: some more work required before the credit can be awarded	FX
0 = fail: considerable further work is required	F

For example, for the visiting lecturers in MUAS Bachelor Programmes in English, the following instructions are given:

89–100 p. = 5	(Excellent)
77–88 p. = 4	(Very good)
65–76 p. = 3	(Good)
53–64 p. = 2	(Highly satisfactory)
40–52 p. = 1	(Satisfactory)

Future aspects of education system

The decrease in young age groups poses a significant challenge for authorities in providing education services cost-effectively. The 5–14 age group will grow only in seven OECD countries by 2015. Most OECD countries experience the steepest decrease in the young age groups over the next ten years, after which the situation will level off to some extent. (Education at a glance 2016.)

According to MEC (2016), the higher education institutions' common objectives for 2025 comprise the following areas:

- strong higher education units that renew competence
- faster transition to working life through high-quality education
- impact, competitiveness and well-being through research and innovation
- the higher education community as a resource.

Until 2016, there have not been tuition fees at any level of education. However, the present cabinet proposed amendments to Finnish University Act and the Polytechnics Acts. As of the beginning of 2016, institutions of higher education may charge tuition fees from students coming from outside the European Union and the European Economic Area. This applies to study programmes conducted in a language other than Finnish which lead to either a bachelor's or master's qualification. Foreign

nationals studying in either Swedish or Finnish, however, will not face any fees. The size of the fee charged would have to be at least EUR 1,500 per year.

Higher education institutes would be able to set the fees themselves in such a way that the payments support the school's internationalisation strategy. They would need to have a scholarship system, through which the studies of students participating in the fee-charging degree programmes would be supported. Legislative changes came into force on 1 January 2016. The regulations on tuition fees would be binding on institutes of higher education for all students that start their studies on or later than 1 August 2017. (Tuition fees for higher education students from outside the EU/ETA area 2015.) Out of the Nordic countries, Denmark introduced fees in 2006 for those from outside the EU/ETA area, and Sweden did the same in 2011. Tuition fees are not charged at all in Norway and Iceland. (Education at a glance 2014.)

The Finnish Government aims to reform the society and to reinforce economic growth through five strategic priorities. One of these is competence. The world around us is changing rapidly, and education, too, must evolve to meet the needs of the future. The objective of these reforms is to raise the level of competence, expertise and education in Finland, making it possible to support the changes in society and enabling equal opportunities. This objective is to be promoted through six key projects. These six key reform projects are:

- New learning environments and digital materials to comprehensive schools. For example, in order to support teachers' ability to take advantage of this new approach, continuing professional education and training will be provided.
- Updating of all vocational education by 2018. For example, digital learning environments and new approaches to pedagogy (e.g. modern simulators) will have a larger role in the future of learning. Learning in the workplace will be increased.
- Development of tertiary education. For example, the intention is to increase the significance of matriculation examination results in student selections. In the future, higher education institutions will offer education around the year.
- Access to arts and culture will be facilitated.
- Cooperation between higher education institutions and the business community will be strengthened to bring innovations to the market. For example, the profiling and work division of higher education institutions, as well as the impact and commercialisation of research, will be made more effective. The portion of competitive funding will be increased in the financing of higher education institutions. There is also demand for Finnish education abroad. In order to meet this demand, the opportunities of educational export are promoted in all levels of education.
- Youth guarantee to support young people. For example, a place to study is guaranteed to everyone finishing comprehensive school. In addition,

support must be available for young people who cannot find a suitable study place immediately after comprehensive school. (Key projects reform Finnish education 2016.)

THE RUSSIAN EDUCATIONAL SYSTEM

A general introduction

The Russian general education is aimed at developing the intellectual, moral, emotional and physical development of the individual. The system also provides the Russian citizens with a common cultural identity as well as the skills to adapt to life in society and on the job market (Overview of the […], n.d.).

The education system employs more than 9 million people in Russia, and the annual expenditures of the Ministry of Education and Science of the Russian Federation amount to 2.72% of the total public budget as of 2015 (Federal State Statistics Service, n.d.).

The Russian education system has in recent years undergone significant changes in accordance with the economic and political changes in the society. Over the past 15 years, fast changes in demands for the working force and qualification structure have called for higher flexibility and adaptation of the educational system to meet the demands of the citizens, society and labour market (Filippov & Tkach 2010, 750).

General education and initial vocational training are free of charge in the Russian Federation (ibid., p. 755). This underlines the fact that Russia values education and training highly.

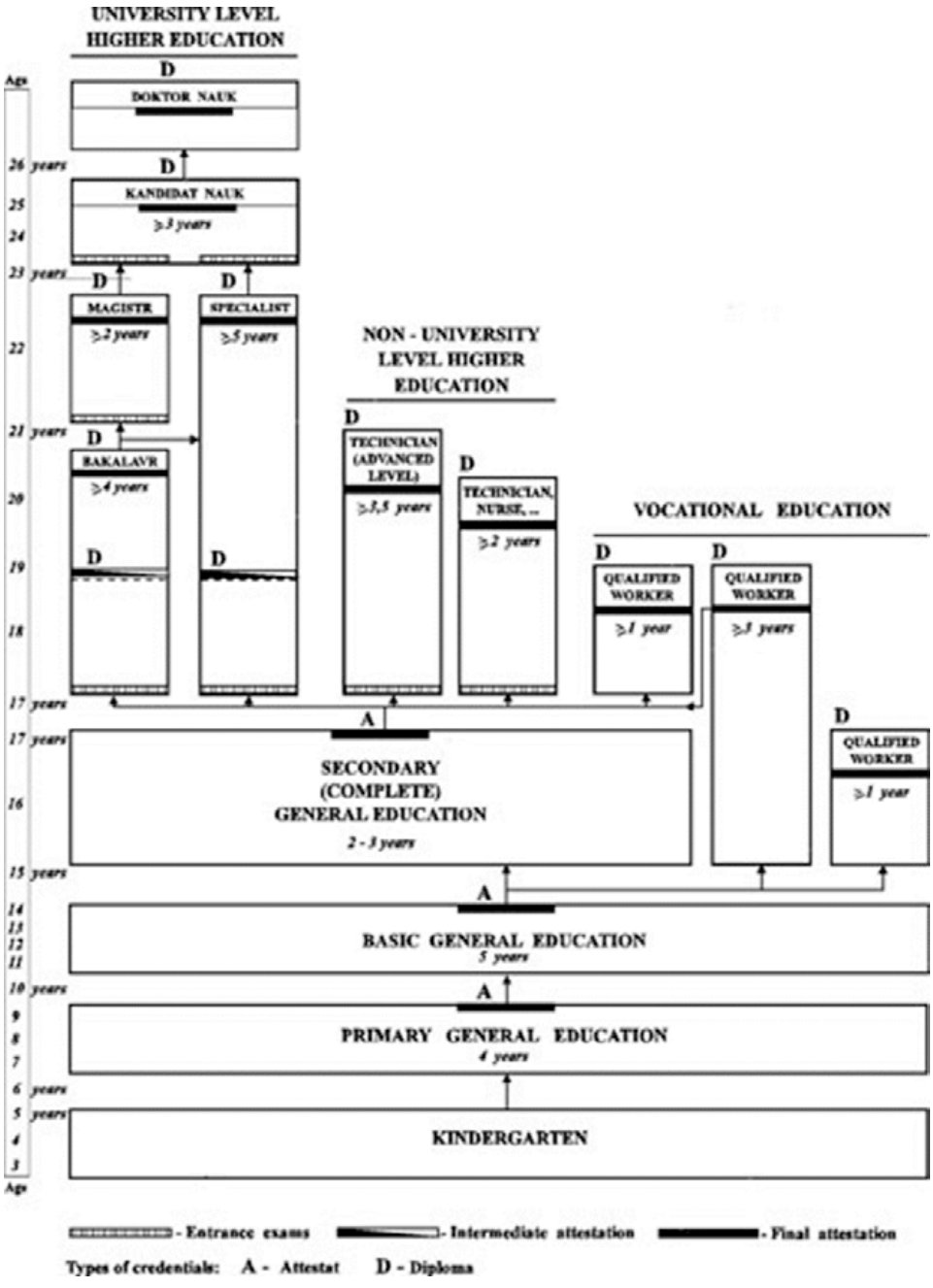

FIGURE 3. Overview of the Russian Educational System.

General Education

The general education includes pre-school, primary, basic and secondary (complete) general education (Federal Law […], 2012). The pre-school education (kindergarten) is open for children from the age of just two months to the age of seven. The pre-school provides supervision, care and rehabilitation for the children attending — however, it is also possible to care for the child at home instead of attending the pre-school (Model Provision of […], 2012).

The general education consists of three stages: the primary general education with a duration of four years, a basic general education lasting five years and finally the secondary (complete) general education that lasts two years (ibid.).

After the first two stages (that is after completion of the basic general education) and an examination, students either enter the secondary (complete) education (corresponding to high school) or attend schools of vocational training. The main purpose of attending the 10th and 11th grade is preparing for university studies. After completion of the last stage of the general education, the students receive a certificate — a document that confirms the acquisition of knowledge in the state standard volume (ibid.).

Vocational Education

The vocational education includes the initial vocational education, non-university-level higher education, higher professional education and the post-graduate professional education (including postgraduate training) programme (Federal Law […], 2012).

The non-university level in Russia is comprised of the two following types of institutions: technical college (tekhnicum) and college (Standard Provision […], n.d.). Admissions to these institutions vary depending on the study programme; e.g. programmes within art and culture can be undertaken already after completion of the 9th grade, whereas medical programmes require completion of the 11th grade (Order of December 20, 2007).

Higher Education in Russia

The higher and vocational education ensures the training of qualified persons in all major areas and sectors of the nation. The educational programmes further meet the students' personal needs of intellectual, cultural and moral development as well as provide them with opportunities to expand their scientific and pedagogical qualifications (Federal Law […], 2012). The higher education consists of three levels: a Bachelor's degree, a Master's/specialist's degree and a Doctoral degree (ibid.).

There are three types of educational institutions within the higher education sector in Russia: university, academy and institute. They differ in several ways, such as the amount of research carried out and the levels of training, etc. (Filippov & Tkach,

2010, 754). Within the higher education, students can follow one of two different cycles:

- The programme leading to a Master's degree (a minimum of 6 years of study)
- The programme leading to a specialist's diploma, e.g. engineering, teaching and medical doctor (a minimum of 5–6 years of study)

All educational programmes culminate in a national final test including examinations chosen by the respective HEIs as well as a defence of the students' attestation paper (project) (ibid.).

In Russia, the different specialties and areas of training have to be approved by the Ministry of Education and Science of the Russian Federation. At this moment, a total of 441 training areas and specialties are available for studying at all levels of the education system (Order of December 20, 2007).

Important elements of the education system

Decrease in number of institutions

In 2015, the total number of higher education institutions decreased by 5,7% compared to 2014. Also, the number of state and municipal higher education institutions had reduced by 3.3% in 2015 from the previous year. For private institutions of higher education, the decline amounted to 9%. These changes mean that the number of students within the higher education has decreased greatly (Federal State Statistics Service, n.d.). The strategy of decreasing the number of institutions has been undertaken in an attempt to weed out the average institutions and instead improve the quality of the top universities.

New forms of educational programmes

The network form of educational programmes builds on solid collaboration with other educational organisations — including foreign ones — as well as other organisations to develop and innovate the current educational programmes offered to students (Federal Law […], 2012).

Besides the network form of educational programmes, the use of e-learning tools has also been introduced to Russia. E-learning tools enable more people to participate in educational programmes regardless of their geographical location (ibid.).

Future aspects of the education system

Focus on lifelong learning

A greater focus has also been directed at the lifelong learning abilities of the students and people in Russia. The aim is to achieve a stable process of continuous education as an essential component of the Russian citizens' lives. In trying to reach this objective, the creation of open educational resources through the internet is in progress. E-learning will spark the development of implementing lifelong learning in the Russian society and education system (Conception Federal Target Programme […], 2014).

New approaches to learning

As stated in the introductory section to the Russian education system, great changes are undertaken within the Russian education system. Educational sector professionals in Russia work actively towards implementing both new approaches to learning and training whilst maintaining the best practices that already exist within their fields (ibid.).

In the reforming of the education sector within the country, it can be a challenge to ensure the high quality of the programmes. However, a national network is monitoring the quality at all educational levels to ensure that it meets the standards (Federal Law […], 2012).

Increased birth rates vs. a decreasing number of teachers

In Russia, the birth rate has increased, which obviously has led to a larger number of children enrolling in pre-school. This in combination with an early school age has led to an increasing demand for high-quality primary education. Also, easier access to the educational services is prioritised. As of 2015, the availability of pre-school education for children from the age of 3 to 7 years is 93.7% (Federal State Statistics Service, n.d.).

However, another challenge is the decreasing number of teachers as well the large number of current teachers reaching retirement age. This situation is presumably due to teachers' low wages, which make the profession less attractive. However, measures are being taken to solve this challenge e.g. by increasing the salaries of staff members (Conception Federal Target Programme […], 2014).

CONCLUSION

The article makes it clear that all of the examined educational systems have various focuses and challenges. However, it is also apparent that all nations work intensively towards finding solutions to those challenges and ensuring improvement of their respective educational system. As this article has shown, even though some educational systems might have similar features, there are still national differences that shine through.

For instance, in the Finnish system, the welfare society and its benefits can be seen in that pupils are offered a free hot meal in school every day. This is not the case in neither Denmark nor Russia. The strengths of the educational systems of these countries lie elsewhere: for instance, the Danish educational system prioritises collaboration between educational institutions and local business communities in order to improve knowledge sharing and meet the demands of the future labour market. The Russian educational system instead prioritises expanding the lifelong learning abilities of its people with the recent introduction of e-learning as a new tool.

Even though the emphasis and focuses of the different systems vary, the three nations could all contribute something valuable to the others. For instance, Denmark has already focused intensively on and had great success when it comes to lifelong learning — something that the Russian educational system could perhaps benefit from. This is just one example of how the educational systems could benefit from new perspectives and greater knowledge sharing.

The project does therefore open up new perspectives to view the world of education from — and hopefully it can teach us something valuable and new in the continuous and eternal search for the most appropriate educational system structure.

REFERENCES

7-point grading scale (n.d.). Ministry for Children, Education and Gender Equality. [Online], Available: http://eng.uvm.dk/da/Education/General/7-point-grading-scale. Referred to 21.09.2016.

Academy profession programmes n.d.. Ministry of Higher Education and Science. [Online], Available: http://ufm.dk/en/education-and-institutions/higher-education/

business-academies-1/academy-profession-programmes. Referred to 22.09.2016.

Basic education in Finland. 2016. MEC. [Online], Available: http://www.minedu.fi/OPM/Koulutus/perusopetus/index.html?lang=en Referred to 15.9.2016.

Conception Federal Target Programme of Education Development for 2016–2012. Approved by the Order of the Russian Federation from December 29, 2014, No. 2765 2014. http://metodist.lbz.ru/content/files/29-12-14.pdf. Referred to 22.09.2016. (OBS! Available in Russian only).

Denmark Key Facts 2012. OECD Indicators 2012. [Online], Available: http://www.oecd.org/denmark/_EAG2012%20-%20Key%20Facts%20-%20Denmark.pdf. Referred to 21.09.2016.

Denmark's strategy for lifelong learning 2007. Report published by the Danish Ministry of Education. [Online], Available: http://pub.uvm.dk/2007/lifelonglearning/lifelong_learning.pdf. Referred to 21.09.2016.

Early Childhood Care in Finland 2016. MEC. [Online], Available:http://minedu.fi/OPM/Koulutus/varhaiskasvatus/?lang=en Referred to 20.9.2016.

Education at a Glance 2014: OECD Indicators 2014. Organisation for Economic Co-operation and Development (OECD). [Online], Available:http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2014_eag-2014-en#.V_9_Ykk0OUk Referred to 20.9.2016.

Education at a Glance 2016: OECD Indicators 2016. Organisation for Economic Co-operation and Development (OECD). [Online], Available:http://dx.doi.org/10.1787/eag-2016-54-en Referred to 20.9.2016.

Educations System in Finland. (2016) MEC. [Online], Available:http://www.minedu.fi /OPM/Koulutus/koulutusjaerjestelmae/?lang=en Referred to 15.9.2016.

Federal Law "On Education in the Russian Federation" N 273-FZ of December 29, 2012 2012. http://zakon-ob-obrazovanii.ru/. Referred to 22.09.2016. (Available in Russian only).

Federal State Statistics Service (n.d.). Our own calculation according to the official statistics. [Online], Available: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/education/. Referred to 22.09.2016. (Available in Russian only).

Filippov, V. M. and Tkach, G. F. (2010) Russia. *International Encyclopedia of Education.* 3. ed. pp. 750–757.

Financing of Education. (2016) MEC. [Online], Available: http://www.minedu.fi /OPM/Koulutus/koulutuspolitiikka/rahoitus/?lang=en Referred to 15.9.2016.

Finnish education in a nutshell. (2015) Finnish National Board of Education. [Online], Available: http://oph.fi/download/146428_Finnish_Education_in_a_Nutshell.pdf Referred to 20.9.2016.

General upper-secondary school in Finland. (2016) MEC. [Online], Available: http://minedu.fi/OPM/Koulutus/lukiokoulutus/?lang=en Referred to 20.9.2016.

Goedegebuure, L. (2010) Unitary, Binary and other National Systems of Higher Education. *International Encyclopedia of Education.* 3. ed. pp. 616–621.

Government expenditure on education, total (% of GDP). (2013) World Bank. [Online], Available: http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=FI Referred to 20.9.2016.

Information Regarding the Supplement for the Development Contract (2015) Memorandum from the Ministry of Higher Education and Science. [Online], Available: http://ufm.dk/uddannelse-og-institutioner/videregaende-uddannelse/universiteter/styring-og-ansvar/udviklingskontrakter/udviklingskontrakter-2015-2017/tillaeg-til-udviklingskontrakt-2015-2017/information-om-tillaeg-til-udviklingskontrakten.pdf. Referred to 22.09.2016. (Available in Danish only).

Key projects reform Finnish education. (2016) Finnish National Board of Education. [Online], Available: http://www.oph.fi/download/177618_key_projects_reform_finnish_competence_and_education.pdf. Referred to 13.10.2016.

Kwon, D.-B. and Daeyeon, C. H. O. (2010) Overview of Lifelong Learning Policies and Systems. *International Encyclopedia of Education.* 3. ed. pp. 156–161.

Model Provision of Preschool Educational Institutions (2012) [Online], Available: https://rg.ru/2012/01/26/polojenie-dok.html. Referred to 22.09.2016. (Available in Russian only).

Official Statistics of Finland (OSF) (2016) Educational finances [e-publication]. ISSN=1799-0963. Helsinki: Statistics Finland [referred: 15.9.2016]. http://www.stat.fi/til/kotal/index_en.html

Official Statistics of Finland (OSF): Educational finances [e-publication]. ISSN=1799-0963. Helsinki: Statistics Finland [referred: 15.9.2016]. http://www.stat.fi/til/kotal/index_en.html

Order of December 20, 2007 N370 On Approving the List of Specialties of Secondary Vocational Education (2007) [Online], Available: https://normativ.kontur.ru/document?moduleId=1&documentId=121682. Referred to 22.09.2016. (Available in Russian only).

Organisation for Economic Co-operation and Development (OECD). *Education at a Glance: OECD Indicators 2006.*

Overview of the Educational System (n.d.). Ministry of Education and Science of the Russian Federation. [Online], Available: http://en.russia.edu.ru/edu/description/sysobr/902/. Referred to 22.09.2016.

Primary and Lower secondary Education (n.d.). Ministry for Children, Education and Gender Equality. [Online], Available: http://eng.uvm.dk/Education/Primary-and-lower-second ary-education. Referred to 21.09.2016.

Professional bachelor programmes (n.d.). Ministry of Higher Education and Science. [Online], Available: http://ufm.dk/en/education-and-institutions/higher-education/university-colleges/university-college-educations. Referred to 22.09.2016.

Standard Provision on Educational Institutions of Secondary Vocational Education (n.d.). [Online], Available: http://www.consultant.ru/document/cons_doc_LAW_78463/. Referred to 22.09.2016. (Available in Russian only).

State Educational Grant and Loan Scheme (n.d.). Ministry of Higher Education and

Science. [Online], Available: http://www.su.dk/english/state-educational-grant-and-loan-scheme-su/. Referred to 21.09.2016.

Student Financial Aid in Finland. (2016) MEC. [Online], Available: http://www.minedu.fi/OPM/Koulutus/opintotuki/?lang=en Referred to 15.9.2016.

Teichler, U. (2010) Diversity of Higher Education. *International Encyclopedia of Education*. 3. ed. pp. 347–353.

The Aims of the "Folkeskole" (n.d.). Ministry for Children, Education and Gender Equality. [Online], Available: http://eng.uvm.dk/Education/Primary-and-lower-second ary-education/The-Folkeskole/The-Aims-of-the-Folkeskole. Referred to 16.9.2016.

The Bologna Declaration of 19 June 1999. EHEA. [Online], Available: http://media.ehea.info/file/Ministerial_conferences/02/8/1999_Bologna_Declaration_English_553028.pdf Referred to 15.9. 2016.

The Bologna process (2016) MEC. [Online], Available: http://minedu.fi/ OPM/Koulutus/artikkelit/bologna/index.html?lang=en Referred to 20.9.2016

The Danish Education System (2016). Report published by the Ministry of Higher Education and Science, the Ministry for Children, Education and Gender Equality and the Ministry of Culture. [Online], Available: http://ufm.dk/en/publications/2016/files/ the_danish_education_system_pdfa.pdf. Referred to 21.09.2016.

The Finnish Education System Chart. (2016) MEC. [Online], Available: www.minedu.fi. http://minedu.fi/export/sites/default/OPM/Koulutus/koulutusjaerjestelmae/liitteet/finnish_education.pdf Updated 6.6.2016. Referred to 15.9.2016.

The Finnish Education System Chart. [Online], Available: www.minedu.fi. Updated 6.6.2016. Referred to 15.9.2016.

The Folkeskole (n.d.). Ministry for Children, Education and Gender Equality. [Online], Available: http://eng.uvm.dk/Education/Primary-and-lower-second ary-education/The-Folkeskole. Referred to 21.09.2016.

The Ministry of Education and Culture. (2016) *Basic education in Finland.*

The Ministry of Education and Culture. *Tuition fees for higher education students from outside the EU/ETA area*. [Online], Available: http://www.minedu.fi/OPM/Tiedotteet/ 2015/10/ETA.html?lang=en Updated 22.10.2015. Referred to 15.9.2016.

The University Bachelor's degree and the Master's degree (n.d.). Ministry of Higher Education and Science. [Online], Available: http://ufm.dk/en/education-and-institutions/higher-education/danish-universities/university-study-programmes. Referred to 21.09.2016.

Tuition fees for higher education students from outside the EU/ETA area. (2015) MEC. [Online], Available: http://www.minedu.fi/OPM/Tiedotteet/2015/10/ETA.html?lang=en Updated 22.10.2015. Referred to 15.9.2016.

University of applied sciences' education in Finland (2016) MEC. [Online], Available: http://minedu.fi/OPM/Koulutus/ammattikorkeakoulutus/index.html?lang=en Referred to 20.9.2016.

University education in Finland. (2016) MEC. [Online], Available: http://minedu.fi/

OPM/Koulutus/ammattikorkeakoulutus/?lang=en Referred to 20.9.2016.

University of applied sciences' education Finland. (2016) MEC. [Online], Available: http://minedu.fi/OPM/Koulutus/ammattikorkeakoulutus/?lang=en Referred to 20.9.2016.

Upper secondary Education (n.d.). Ministry for Children, Education and Gender Equality. [Online], Available: http://eng.uvm.dk/Education/Upper-second ary-education. Referred to 21.09.2016.

Vocational education and training in Finland. (2016) MEC. [Online], Available: http://minedu.fi/OPM/Koulutus/ammatillinen_koulutus/?lang=en Referred to 20.9.2016.

[Online], Available: http://www.minedu.fi/OPM/Koulutus/perusopetus/index.html?lang =en Referred to 15.9.2016.

6. A COMPARISON OF TEACHING METHODS BETWEEN THE NORU PARTNERS

Marja-Liisa Kakkonen, Natalia Morozova, Anastaiya Kotova and Malin Burström

INTRODUCTION

A lecture is the most traditional teaching method in higher education. For a long time, teachers and professors have taught their subjects in classrooms, in which students listen and take notes. During a lecture, the teacher may ask the students and the students may ask the teacher various questions in order to deepen their understanding of the issues at hand. Nowadays, it seems that the situation has changed to some extent. Universities utilise a wider range of learning methods than before and assignments require a greater degree of application of knowledge. In addition, collaboration with companies and organisations has facilitated new learning environments for students who work in different projects for them under teachers' supervision.

This paper introduces various approaches and methods for contemporary teaching in higher education. The four higher education institutions of the Nordic–Russian project introduce their current teaching practices and methods based on a survey that was conducted on the current teaching methods of the teachers in the four universities. The results of the survey are presented to gain deeper insight into the viewpoints of the teachers. Furthermore, a comparison of the results between the four universities is performed, not only to show the levels of teaching method utilisation in each university but also their relative positions to each other. Also, the cultural aspects are discussed and conclusions regarding them are drawn at the end of the article.

APPROACHES AND METHODS FOR CONTEMPORARY TEACHING

Approaches and methods for teaching that currently prevail in the higher educational system of any country depend on a variety of factors: historical development of the whole education system; traditions; differences in training and professional development of teaching staff; features of school education; and the necessity (or the absence of necessity) to reduce the costs of the learning process and many others.

Majority of teachers, scientists and psychologists consider a lecture as a traditional teaching method. Authors emphasise that this teaching method can be used for transmitting information quite effectively (Bligh 2000, 19–20). However, it cannot be considered as the best or most effective method for various reasons. For example, the students' attention tends to suffer during a lecture. Authors point out that lectures combine advantages (transmitting the core of the subject efficiently, sharing teachers' experiences, live communication with large audiences) and disadvantages, including long preparation for teachers and — after lectures — extensive work for students, one-way communication style, special expectation concerning teachers' skills (Armstrong 2012, 7). The conclusion is that only lectures that have a special structure and prepared handouts and include other (active) methods of teaching are considered effective (Bligh 2000, 19–20, 56; Ireland and Byrne 2016, 15).

Group work is described by researchers as an active teaching method that promotes development of students' communicative skills. It provides the opportunity to create an atmosphere of "joint creation", supports students' courage to accept risks and develops students' confidence. Authors especially highlight that group work helps to activate passive or lazy students. (Kraft 1985, 151–153). Further, individual counselling is widely used by teachers as a part of teaching activities regardless of whether it is included into curriculum or whether curriculum structure has any special requirements regarding this method. Individual student counselling is always interactive (Borck & Fawcett 1982, 17–29). On one hand, communication between the student and teacher focuses on the student's problem and, as a result, helps to highlight the student's problems and evaluate the progress in teaching (Fedorova 2010, 102). On the other hand, counselling sessions also provide teachers with a chance to improve their teaching methods; through discussions and talks with students, teachers find out the shortcomings in their own approaches to teaching, discipline content or even in the curriculum structure.

Problem-based learning (PBL) is an instructional approach that evolved from innovative health sciences curricula in the 1960s and has since then been adopted by many disciplines, e.g. architecture, engineering and economics. PBL is a learner-centred approach in which students learn to conduct research, integrate theory and practice, and apply knowledge and skills to solve a defined problem (Savery, 2006).

PBL begins with a problem, which is the driving force behind the approach. Students are expected to solve or learn about the problem, reflect on their experiences and present the conclusion of their problem-solving process but they are not required to create a product as a result (Dole, Bloom and Kowalske, 2016, Hmelo-Silver and Barrows, 2006). Selecting an ill-structured problem is crucial for a successful implementation of PBL (Savery, 2006). An ill-structured problem is complex and can be solved in several different ways. Therefore, students need to consider different options and provide a clear argumentation for the solution they have chosen (Hmelo-Silver and Barrows, 2006).

Student-centred learning derives from social constructivist theories (ibid), and involves changes to students and teachers' responsibilities compared to traditional classroom teaching (https://teal.ed.gov/sites/default/files/Fact-Sheets/6%20_TEAL_Student-Centered.pdf). In PBL, the teacher's role is not to communicate and transfer knowledge but to facilitate knowledge building and coach the students in their learning process (Dole, Bloom and Kowalske, 2016). A requirement in PBL is that students take responsibility for their own learning, and the teacher's interventions diminish as students progressively become self-directed learners (Hmelo-Silver and Barrows 2006; Savery 2006).

Studies show that students who have learned from PBL curricula are better, compared to students who have learned from traditional curricula, at applying their knowledge to a problem. Furthermore, PBL can lead to a deeper and more sustainable learning that can be transferred to new situations and problems (Hmelo-Silver and Barrows, 2006, Dole, Bloom & Kowalske, 2016). Despite the positive effects, it can be challenging to implement PBL due to standardised curricula and assessment. To ensure a successful implementation of PBL, changes in curricula, assessment and teaching methods are essential (Dole, Bloom & Kowalske, 2016).

To conclude, there are a lot of scientific papers devoted to the theoretical description of teaching methods. The detailed analysis does not allow to assume that some methods are better and others are less effective. In addition, teaching methods are ever changing, being reformed and developed. It is obvious that teaching and planning curricula need to be based on the teaching targets, students' needs and expectations as well as the restrictions and limits of the environment and educational institutions.

A BRIEF DESCRIPTION OF EDUCATION OF THE CASE UNIVERSITIES

The Danish Partner institution: EAL

Lillebaelt Academy University of Applied Sciences (EAL) is a business- and practice-oriented educational institution established in 2009. The Danish Ministerial Order creates a framework for all study programmes offered at EAL. The Ministerial Order states that 'the study programmes are based on up to date knowledge about key trends, which are of relevance to the profession that the specific study programme focuses on'. Furthermore, the study programmes are based on current knowledge gained from development work relevant to the profession a specific study programme focuses on (https://www.retsinformation.dk). EAL offers 30 higher educational study programmes at the AP- and BA level (https://www.eal.dk 1) at seven different faculties. The study programmes range from 2 to 3,5 years' full-time studies and follow a structure that applies to all academies in Denmark (https://www.eal.dk).

The study programmes include both theoretical and practical elements, and internship corresponding to 15 ECTS is mandatory (https://www.retsinformation.dk). According to surveys, students at EAL find their internship relevant in relation to their study programme, and they claim that it has improved their academic and professional skills and competences (https://www.eal.dk 3). Innovation is a keyword at EAL, and the institution's mission is "We educate to innovation and growth in the business community" (http://ipaper.ipapercms.dk /EAL/strategy/EAL_strategy_2015_2017/). Therefore, EAL works with several innovation projects where students, academic staff and company representatives collaborate on a given topic. InnoEvent is one of many innovation projects implemented at EAL. InnoEvent is a method that aims at making students experience real demands from potential future employers and teaching the students about innovative processes in an international and interdisciplinary context. Surveys made during InnoEvents show that students have either gained or improved relevant competencies related to their industry and gained a better understanding of innovation and the importance of adapting to new procedures, as society changes through their participation in InnoEvent (Christiansen 2014: 78).

At EAL, the combination of theoretical and practical elements is central, and several teaching methods are used. Lectures, group work and problem-based learning are just some of the methods that the academic staff uses in teaching. Problem-based learning is implemented by teachers but is also used during innovation projects, in which students, academic staff and companies collaborate.

The Finnish partner institution: Mamk

Mikkeli University of Applied Sciences (Mamk) is a successful, economically thriving, award-winning educator of professionals. Mamk offers study programmes in seven fields of study. In total, there are 4,500 students on the Mikkeli and Savonlinna campuses, with a total of 350 staff members. The scope of degree studies is 210–240 credits (ECTS), and the regular study time is 3,5–4 years. The degrees consist of basic and professional studies, practical training periods, project and final thesis. 900 students graduate from Mamk each year with excellent skills and employment prospects. Mamk applies research through research, development and innovation (RDI) activities. RDI activities take the form of projects or theses, and 30–60 projects and 900 theses are carried out every year.

The continuous development of the quality of teaching, modern working-life learning environment, digitalisation of learning processes and lifelong learning through participation in international projects are features of the educational strategy of Mikkeli University of Applied Sciences. Entrepreneurship and innovation are the target areas of the Department of Business Management at Mamk. Therefore, continuous development of innovative and entrepreneurship competences among teachers are critical for providing a top-quality education for Finnish and international students. Mamk teaches entrepreneurship, business and innovation for highly international groups of students in three degree programmes. The programmes include acquisition of practical knowledge, for example, through participation in international educational projects. In addition, in 2013, Mamk was selected as the best university of applied sciences (UAS) in Finland based on the indicators analysed by the business journal *Talouselämä*. Therefore, in order to preserve and strengthen the university's high position in the Finnish education market, a clear focus on innovation education and the teachers' competence development are required.

The teaching methods that are used at Mamk are mainly lectures, group works and projects. However, as a university of applied sciences, one of the tasks of Mamk is to serve the local companies and organisations by providing them with student and teacher resources. Therefore, Mamk has a strong and natural involvement of local companies and organisations in education, and students are provided with genuine assignments by and in companies (solving problems and completing assignments). In addition, Mamk focuses on the development of web-based pedagogy and the usage of technology and social media in teaching. The number of web-based courses has increased annually, and the teachers are used to virtual teaching. Mamk has set an objective that 20% of the courses are provided to the students as web-based courses by 2020.

The Russian partner institutions: FTU and PPU

Saint Petersburg State Forest Technical University (FTU) is the first institution of higher education specialising on forestry in Russia. It was founded by a decree of Alexander I in 1803. Nowadays, FTU provides secondary, higher and post-graduate programs. In addition, FTU annually organises special courses for professionals from forestry, woodworking, pulp and paper and hydrolytic companies. The University includes two expert subdivisions: Centre of Expertise and International Centre of Forestry and Forest Industry (ICFFI). More than 6,000 full-time and part-time students from 42 countries are studying at the eight institutes of FTU, including forestry, chemical technology and biotechnology, landscape architecture, forest engineering, forest management and economics institutes. Education is provided by qualified teaching staff. 67% of teachers have PhD degrees. The most important areas of scientific activity include the development of wood composite materials technologies, of modern innovative techniques and methods of quality control at wood production sphere, of innovative organisation methods for forest transport infrastructure and forest industry logistics, development of new methods of long-term forecasting of insect pests and diseases outbreaks, and modelling of biological processes on the basis of genetic research for development conditions of intensive forestry and high-yielding forest culture.

Saint-Petersburg technological university of plants polymers (PPU) is the only higher education institution in Russia engaged in the training of multiskilled engineering staff for the pulp and paper industry and the energy sector. More than a half of the technical staff of the sector are PPU graduates. More than 4,000 full-time and part-time students study in 63 Bachelor and Master training programmes, post-graduate courses. The history of the 85-year-old PPU has seen several generations of outstanding scientists, teachers, who have prepared approximately 50,000 specialists for the key sectors of the economy.

Nowadays in Russia, the use of innovative teaching methods and interactive educational technologies is embedded in the educational standards. As a result, teachers are obliged to use them. In spite of this, the dominant teaching methods in Russia are lectures, individual practical tasks, work in small groups (usually two or three people) and counselling.

In the Russian higher education system, which continues the traditions of the Soviet school system, the tendency for the teacher to transmit knowledge and for the students to remain inactive recipients is very strong. Moreover, despite the conversion to the Bologna system, which started about 10 years ago, the educational process is still aimed not at forming competences, but at forming knowledge. This is why lecturing is the main and most popular teaching method in Russia. A significant proportion of all lectures have neither interactive nor active elements.

Students in Russia perform a large amount of practical tasks in different forms (laboratory works, case studies, training tasks etc.). However, these tasks are generally aimed at the obtaining of specific practical skills and are not considered as a possibility of forming group interaction competences. The practical tasks are usually given to the students individually. Due to this teaching method, the results and knowledge of each student can be easily estimated. At the same time, students do not develop communication skills that would be useful in their future work.

Work in small groups in Russian higher education institutions is mainly used for practical tasks requiring interaction, or when the teacher does not have enough different tasks for each student. This method allows students to complete the task by utilising the potential of others. Working in small groups makes classes more dynamic. It enables developing communication skills, management skills and conflict management skills in a simple learning situation. Counselling is widely used in Russian universities. During a counselling session, the teacher answers the student's questions and explains the elements of the course. Unfortunately, in Russian universities counselling is rarely aimed at the student's development. In exceptional cases, counselling can be focused on solving the student's personal problem, for instance, if the student is facing problems related to balancing his/her studies, job and private life.

FINDINGS OF THE SURVEY

Data collection and analysis

The survey was implemented in spring 2016 by using a self-assessment questionnaire. The questionnaire included *five main questions, which had several statements each.* Each of the questions had statements to be assessed on a scale from one to five. The first question was related to the important factors of teaching, the second question was related to updating teaching methods, the third examined the usage of different teaching methods, the fourth focused on the involvement of companies in teaching, and the fifth main question was related to the changes that the teachers have confronted during the last year. In addition, the questionnaire included open questions, in which the respondents could provide further information pertaining to their answers. Plenty of answers to the open questions were given and analysed but will be reported elsewhere.

Webropol survey links to the questionnaire were sent by e-mail to the partner universities' NORU project coordinator, who forwarded them to their staff members. In addition, in the Russian partner universities, the answers were collected with paper versions of the questionnaire. The survey results from the four universities were combined and analysed together by the partner universities. By the deadline, Mamk received 58 answers, EAL received 56 answers, PPU received 47 answers, and FTU received 42 answers (completed questionnaires).

The data analysis was commenced by first calculating the frequencies of the different values and the mean values for each statement, although the purpose is not to generalise the results but to understand the findings. Next, the mean values for each statement were presented as tables in order to compare the findings by the four partners. All in all, the comparison provides an understanding of the level of each aspect in all the four partner universities.

Important factors in teaching

For the survey purposes, it was important to collect data about those factors that influence university teaching results. Therefore, in the first main question, six factors related to teaching results were included: learning methods, learning goals, content of discipline, approaches to students' assessment, features of learning process and the level of teachers' expertise.

The largest difference in opinions across the HEIs can be seen in the opinions concerning the significance of students' assessment: the mean value for EAL teachers was 3.39 points (minimum), whereas, for the respondents at FTU, it was 4.17 (maximum). The smallest distinction in the answer mean values between the institutions can be observed in the answers regarding the statements about the significance of learning process features (facilities, equipment etc.). The mean value ranges from 4.53 points (Mamk) to 4.41 (EAL and FTU). Table 1 presents the findings by statement category and organisation.

TABLE 1. The importance of different aspects of teaching according to the HEIs.

	Mamk	EAL	PPU	FTU
	n=58	n=56	n=47	n=42
Learning methods	4.31	4.21	4.21	4.60
Learning goals	4.53	4.09	4.42	4.60
Content	4.48	4.18	4.34	4.52
Assessment	3.91	3.39	3.45	4.17
Learning process	4.53	4.41	4.44	4.41
Expertise of teachers	4.50	4.21	4.64	4.62

Updating teaching methods

The second category of statements included a statement about the use of up-to-date teaching methods (actual use of new methods) and a statement about the willingness to apply new methods. The combined average for these two statements is rather high in all universities: 4.02 points for Mamk, 4.17 points for EAL, 4.23 points for PPU and 3.89 points for FTU on a scale from one to five. The frequency of using up-to-date teaching methods differs only slightly across the HEIs; from 3.78 points (minimum) at Mamk to 3.98 points (maximum) at PPU. Table 2 presents the findings in detail.

TABLE 2. The updating of teaching methods

	Mamk	EAL	PPU	FTU
	n=58	n=56	n=47	n=42
I use current/up-to-date teaching methods	3.78	3.93	3.98	3.78
I am willing to try out new teaching methods	4.26	4.41	4.49	3.99

The usage of various teaching methods

In general, the teachers of each university assessed that they use lectures, group work and counselling the most. Furthermore, the teachers assessed that the events and flipped classrooms as teaching methods are used the least in their teaching. Table 3 introduces and compares the mean frequencies of each teaching method between the

HEIs. On a scale from one to five, one means that teachers use that teaching method very rarely and five means that they use it very often.

TABLE 3. Teaching method usage

	Mamk	EAL	PPU	FTU
	n=58	n=56	n=47	n=42
Lectures	3.52	3.80	4.57	4.72
Group work	3.84	4.16	3.67	4.78
Counselling	3.66	3.84	3.90	4.64
Project-based learning	3.26	3.88	3.03	3.57
Events	2.31	2.45	2.75	3.07
Problem-based learning	3.26	3.93	3.09	2.83
Flipped Class Room	2.38	2.34	2.07	1.27

The Involvement of companies

According to the findings, the teachers agree that the involvement of companies helps students to develop their professional competences. Although this question did not indicate the actual involvement of companies, it shows how the teachers perceive its importance in teaching. On a scale from one to five, one means that the respondent strongly disagrees and five that the respondent strongly agrees with the statement. Table 4 reflects the views on the involvement of companies in teaching in the partner institutions.

TABLE 4. Involvement of companies in teaching

	Mamk	EAL	PPU	FTU
	n=58	n=54	n=47	n=42
The involvement of companies in teaching helps students to develop their professional competencies	3.95	4.33	3.84	4.28

Changes in teaching

The last research question was related to the changes the respondents had confronted during the last year. They were asked to assess a set of statements on a scale from one to five, and to illustrate their degree of agreement with the statements (one = strongly disagree and five = strongly agree). The findings indicate that the greatest experienced changes have occurred at EAL, while the teaching at FTU has been the most stable. Table 5 introduces the findings in detail.

TABLE 5. Changes in teaching during the last year

	Mamk	**EAL**	**PPU**	**FTU**
	n=58	n=56	n=47	n=42
My teaching tasks have changed	3.17	3.77	3.64	2.34
My teaching methods have changed	3.55	3.79	3.25	2.29
Teaching environment has changed	3.09	3.09	3.61	1.76

SUMMARY AND CONLUSIONS

This paper introduces the findings of the survey which focused on current teaching methods in higher education. In spring 2016, a questionnaire was sent to the teachers of the four partner institutions of the NORU project. Using a Likert scale of 1 to 5, where 1 was the lowest and 5 was the highest, the respondents were asked to rate their degree of agreement with the statements presented in the survey. All in all, it can be concluded that the teachers who participated in the survey rated their answers at a quite high level. It is interesting that the differences of the teachers' opinions at the different universities regarding each statement are not as significant as we expected. The results of the assessment of each factor vary by less than 1 point.

It is worth remembering that the results are the teachers' perceptions on various aspects, they are not verified in any way nor are they based on any documents or testimonials. Therefore, cultural factors might be influencing the rating of the perceptions. Nevertheless, the findings provide an insight into the aspects of teaching

methods at the NORU partner HEIs. It should be noted that in different countries teachers realise "up-to-date teaching methods" in different ways. For example, in Denmark, there is the official list of innovative teaching methods, while in Russia, only teachers themselves decide whether their methods are new or traditional. The respondents may have incorrectly evaluated the degree of novelty of their methods. When interpreting the results, we took into account the average values, but not the spread values.

We hope that the results of the survey and the international cooperation in conducting the survey will have a positive influence on the teaching processes in different educational systems, including traditional systems (such as the Russian system) and innovative systems (such as the Danish and Finnish system). In addition, the results of the survey and the research article could be considered as a basis for dissemination of innovative teaching methods.

REFERENCES

Armstrong, J. Scott. (2012) *Natural Learning in Higher Education* [Online], Available: http://repository.upenn.edu/marketing_papers/140/.

Bligh, Donald A. (2000) *What's the Use of Lectures?* 5th edition. San Francisco: Jossey-Bass Publishers.

Borck, Leslie E. and Fawcett, Stephen B. (1982) Learning Counseling and Problem-solving Skills. New York: The Haworth Press.

Christiansen, K. P. (2014) *InnoEvent – an Approach to World of Work. Innovative teaching and learning methods in multicultural environments*, pp. 78–89, [Online], Available:

http://cyberleninka.ru/article/n/konsultatsiya-kak-metod-aktivizatsii-raboty-studentov-v-protsesse-poznaniya-i-usvoeniya-ekonomicheskoy-teorii.

Dole, S., Bloom, L., and Kowalske, K. (2016) Transforming Pedagogy: Changing Perspectives from Teacher-Centered to Learner-Centered. Interdisciplinary Journal of Problem-Based Learning (Volume 10, Issue 1).

Fedorova, Svetlana. (2010) *Counseling as a method of activation of students work in the process studying of economics*.

Hmelo-Silver, C. E. and Barrows, H. S. (2006) Goals and Strategies of a Problem-Based Learning Facilitator. *Interdisciplinary Journal of Problem-Based Learning* (Volume 1, Issue 1), pp. 21–39.

Ireland, Christopher and Byrne, Gillian. (2016) U*sing Technology to Prevent Plagiarism: Skilling the Students*, [Online], Available: https://www.researchgate.net/publi-

cation/275637847_Using_Technology_to_Prevent_Plagiarism_Skilling_the_Students.

Kraft, Robert G. (1985) Group inquiry turns passive students active. College Teaching, 33 (4), pp. 149–154.

www.retsinformation.dk: https://www.retsinformation.dk/Forms/R0710.aspx?id=160878, 15.09.2016

www.eal.dk. 1: https://www.eal.dk/international/about-us/, 15.09.2016

www.eal.dk 2: https://www.eal.dk/international/education/full-degree-students/ Programmes/, 15.09.2016

www.eal.dk 3: https://www.eal.dk/globalassets/07.-pdf-dokumenter/kvalitet/eal_studietilfredshedsundersogelse-2015.pdf, 15.09.2016

http://ipaper.ipapercms.dk/EAL/strategy/EAL_strategy_2015_2017/), 15.09.2016.

7. COLLABORATION OF HIGHER EDUCATION INSTITUTIONS WITH ENTERPRISES

Mikhail Nemilentsev, Pernille Christiansen, Peter Storm-Henningsen, Simon Lund, Svetlana Tereschenko and Tatiana Tereshkina

INTRODUCTION

The subject of the present article is collaboration of higher-education institutions (henceforth abbreviated as "HEIs") with enterprises. The article is written as the result of the international empirical research done by the Finnish, Danish and Russian partner HEIs. First, the theoretical aspects of university-business interaction, entrepreneurial universities and teaching entrepreneurship in cooperation with the industry are considered. In the second part of the article, the experiences from collaboration between educational institutions and companies or organisations in Finland, Denmark and Russia is presented and analysed. Conclusions are made in the final part of the article concerning the intensity and effectiveness of the collaboration of higher education institutions with enterprises in the partner countries.

THEORETICAL FRAMEWORK

The characteristics of the university–business interaction

The problems of interaction between universities and businesses are discussed in many countries. It is recognised that the development of each country, in terms of innovation and productivity, is greatly influenced by the character and intensity of such interaction. University–Business Cooperation (UBC) is a relationship in flux, reflecting issues specific to the transition from an industrial to a knowledge society (Study of University Business cooperation in the US 2013, 3). Nowadays, UBC is understood as a transformation from a dyadic university–business relationship, aimed at solving firm problems, sourcing new products or providing an outlet for academic research,

to a triadic university-industry-government relationship that maintains these objectives, while incorporating new features, such as contribution to economic and social development at the national, regional and local levels, responsiveness to societal concerns and new forms of student involvement in entrepreneurial activities (Study of University Business cooperation in the US 2013, 3).

Universities are more and more expected to become the drivers of regional economic development, creating, increasing and spreading knowledge. This impact of universities is found in terms of both economics and knowledge transfer. The main forms of cooperation between higher education institutions and the business community nowadays are: cooperative agreements between private businesses and university departments, growing collaboration in publications, connecting researchers from different organisational contexts, increasing mobility between higher education institutions and industry as well as firms recruiting young people receiving advanced levels of training in universities.

Cooperation between businesses and HEIs is influencing both sides and may increase the effectiveness of their work. Connections to industry can affect the development of HEIs. Such connections greatly influence the educational process through the use of different mechanisms, among which are: the creation of basic departments at the University and research laboratories at the enterprises, organisation of places of practice and the creation of educational laboratories, the participation of business representatives in special courses, offering internships for HEI teachers, and joint development of educational programs for students.

The cooperation between businesses and HEIs can significantly impact the development of enterprises. It increases the level of professionalism of the specialists of the enterprises in two ways: firstly, the enterprise may receive from HEIs more qualified specialists trained with their needs; secondly the continuous training provided by HEIs for the employees of enterprises will help to raise the quality of the human capital of the enterprises.

UBC can benefit various stakeholders in ways described in table 1.

TABLE 1. Stakeholders and their benefits from UBC (Adapted from: Study of University Business cooperation in the US 2013, 5)

№	Stakeholders	Benefits received
1	Students	Access to companies for internship programs. Access to experiential and entrepreneurial education as well as opportunity to have "real" professional-life exercises.
2	Teachers	Access to industrial research funding. Opportunities for organising consulting. Opportunity to define the students' competences in accordance with the industry's needs.
3	University	Improving the quality of education. Flexibility in accordance with the needs of labour market.
4	Business	Opportunity to receive complementary expertise that may be needed in the business. The possibility to hire skilled employees.
5	Community	Contribution to the economic development through events sponsored by businesses and organised jointly between universities and businesses. Job creation, a more thriving entrepreneurial local environment and increased tax revenues are also found to be important benefits to the community.

2.2 Entrepreneurial Universities

Entrepreneurial universities, according to OECD framework (OECD 2012), have been characterised by the following factors: leadership and governance; organisational capacity, people and incentives; entrepreneurship development in teaching and learning; pathways for entrepreneur; university– business/external relationships for knowledge exchange; the entrepreneurial university as an international institution; and measuring the impact of the entrepreneurial university.

In accordance with MacGregor (2015), an entrepreneurial university is an educational entity that practices effective leadership and governance, builds capacity incentives, represents and continuously develops entrepreneurship in teaching and learning, forms a culture of entrepreneurship, develops partnerships with its stakeholders and participates actively in the international market. To start with, HEIs, which include universities, institutes, universities of applied sciences and other educational institutions, focus much on entrepreneurship and enterprise cooperation in their mission or vision statements (OECD 2012). An analysis of the major characteristics of an entrepreneurial university is presented below.

The first characteristic: Leadership and Governance

To be called an entrepreneurial university, the HEI should have entrepreneurship as the key part of its HEI strategy (OECD 2012). However, it is not enough to put such a thesis in the HEI's mission statement: the HEI's various stakeholders should share the general principles of entrepreneurship and facilitate the development of entrepreneurial practices in the study curriculum and the HEI's everyday activities (Barsony 2003). In order to increase entrepreneurial activities across the HEI, the HEI's management needs to ensure the autonomy of its faculties and units. In addition, entrepreneurial universities serve as the locomotives of regional development and as bridge-building organisations between national and international educational organisations (Hofer & Poter 2010).

The second characteristic: Organisational Capacity, People and Incentives

Entrepreneurial universities apply for external funding more often than more traditional HEIs (OECD 2012). As such, the entrepreneurial university's financial strategy focuses more on the external stakeholders and sources of funding. Flexible use of resources helps to develop more intensive activities across departments and even HEIs. Students and non-teaching staff members play a more decisive role.

The third characteristic: Entrepreneurship development in teaching and learning

Apart from organisational changes and financial autonomy, the entrepreneurial university should develop the methods of acquiring entrepreneurship-related knowledge,

skills and competences (OECD 2012). In particular, continuous increase of entrepreneurial mindsets among the HEI's students, teaching staff and non-teaching staff members is considered to be a critical success factor for the entrepreneurial university (Hofer & Poter 2010). Since entrepreneurship education is highly dependent on working life and market dynamics, students, staff members and the whole organisation of the entrepreneurial university need to be validated regularly. Otherwise, their activities risk becoming obsolete and thus being unable to respond to the current needs of working life and markets.

The fourth characteristic: Pathways for entrepreneurs

Pathways to potential entrepreneurship should be created and developed continuously in entrepreneurial universities (OECD 2012). Such a process starts usually from university assistance to its students in opening up businesses and is supported by offering different opportunities for students to increase their knowledge about the entrepreneurship process (Hofer & Poter 2010).

The fifth characteristic: Business and other external relationships for knowledge exchange

Entrepreneurship has to be also developed by the university's external stakeholders providing as such access to industry and the community (OECD 2012). Communication with external stakeholders is to be continuous and open from both ends — the entrepreneurial university and its key partners (Barsony 2003). An entrepreneurial ecosystem can be formed as a result.

The sixth characteristic: The Entrepreneurial University as an internationalised institution.

The university becomes entrepreneurial simultaneously with going international (OECD 2012). While entrepreneurship can develop nationally to some extent, entrepreneurial universities are supported regularly by their international counterparts (i.e. external stakeholders) (Hofer & Poter 2010). The university acquires networking skills by participating in international consortia and its partner networks.

The seventh characteristic: Measuring the impact of the Entrepreneurial University

In order to assess its performance dynamics, the entrepreneurial university should pass audits and external certifications regularly (OECD 2012). The arrangement of internal control is also important for the entrepreneurial university.

Teaching entrepreneurship in cooperation with the industry

According to (Dotrieaux 1996; Huber 2006; Wissema 2008), it is important that higher education institutions allow more complex and uncertain environments to be integrated in their teaching in order to give students the opportunity to work in interdisciplinary teams and expand their network during their studies. Such an approach will give students better competencies within entrepreneurship compared to traditional teaching, in which the frames of teaching are labelled as "certain" and "simple".

One way to reach a more "complex" and "uncertain" environment is through collaboration between higher education institutions, companies and organisations in the local environment, in which students are given the opportunity to experiment and test the theories they have been taught in practice-based activities, while they learn from the companies and organisations. It gives students the opportunity to continuously improve and gain new entrepreneurial competencies and adopt an entrepreneurial mindset. At the same time, students will get the opportunity to not only establish a stronger network with the companies and organisations they work with, but also help solve some of the companies' or organisations' challenges, while they may develop specific "know-how" with the other partners involved (Doutriaux, 1996). This kind of approach to teaching is what Wassima classifies as third-generation universities (Wissema, 2008). Compared to second-generation universities that focus on teaching and research as their main objective, third-generation universities also focus on developing specific "know how".

Such collaboration can, for example, take the form of a real-life workshop with companies that provide lessons, consultancy, training jobs and internships. In turn, the professors at the HEI may arrange specialised university courses to the companies. Such partnership can be of mutual benefit for the companies, educational institutions and the students. (Doutriaux 1996).

METHOD AND DATA COLLECTION

The research method used in the article is mainly qualitative (Saunders et al. 2009, 482–483). A set of questions was developed in a form of semi-structured questionnaire in order to interview enterprise representatives in Finland, Denmark and Russia to clarify the level, intensity and development of university–industry collaboration (Bhattacherjee 2012). The questionnaire questions were developed and translated into the project partners' local languages.

Data were collected by means of the questionnaire designed jointly by Mamk, EAL, FTU and PPU. The first part of the questionnaire aimed at collecting so-called background information about the enterprises, their location, field of operation and business form. In turn, the questionnaire's second part was developed as a joint effort by the partner HEIs for identification of the interviewed enterprises' development needs and concrete details of such collaboration. The partners had the right to amend the list of questions in the second part and make it sounder with the current situation of such collaboration in their countries. Since the level and nature of collaboration between HEIs and enterprises differs in Finland, Denmark and Russia, it was decided that a qualitative analysis of the interview results by each partner HEI would be performed separately. However, the partners shared the same principles of research analysis.

RESULTS AND ANALYSIS

Experiences from collaboration between educational institutions and companies or other organisations in Finland

Eight Finnish enterprises located in the region of Mikkeli were interviewed for the study. All enterprises represent different industries, but they are all located in or near Mikkeli. Next, a short overview of the enterprises and their fields of operation is provided.

- *Tertinkartano* is an enterprise in the field of tourism and restaurant business.
- *Anttolanhovi* is another enterprise in the field of tourism and restaurant business, providing accommodation, restaurant and catering activities.
- *Osuuskauppa Suur-Savo* is the regional member business in a larger cooperative that operates in retail, tourism, restaurant, car, bakery and service business.
- Mikkeli office of *Nordea* bank acts mainly in the financial market.
- Mikkeli division of *Osuuspankki* is another bank that acts in the Finnish financial market.
- *Palkeet* is the government economic and HR service centre providing various services in the economic area.
- *Metsäforest* is a part of Metsä Group that operates mainly in forest procurement and forest services.
- *Kaupunki lahjaksi* ["city as a gift"] is a sole trader located in Mikkeli that produces gift vouchers, marketing, sales and other related services to its customers.

The definition and effectiveness of collaboration between HEIs and enterprises

For all respondents, university–industry collaboration means that students get into contact to working life. In turn, cooperation with universities can be considered as creation of an employer profile and meeting of future employees. For the bank and forest sectors, for instance, it means forming connections with new employees and sharing knowledge of the enterprise with HEIs. Collaboration also means reciprocity. Collaboration is beneficial to both parties: the two banks, for instance, finds skilled and motivated staff for their vacancies and the students of HEIs write their theses and develop products or services as a part of their study process.

All the enterprises stress that the objectives for collaboration with HEIs should be quite concrete and promote regional visibility, awareness and international opportunities. Otherwise, the effectiveness of the collaboration will lower in a long term. In addition, all respondents valued the role of students in developing such collaboration. The objectives for collaboration should be considered from the perspectives of the student, the HEI department and the enterprise. Collaboration is only possible if it is beneficial to both the HEI and the enterprise. In order to improve an existing collaboration, more concrete objectives and forms of collaboration have to be created. All respondents evaluated the level of collaboration with Mamk at the level of 4 or 5, which is very good or excellent However, a broader selection of concrete needs for and a wider scope of cooperation should be considered.

The current and most effective forms of university–industry collaboration

The respondents reflected on different kinds of collaboration practiced together with students of universities of applied sciences: visits of student groups, lectures, job training, student theses, project work, work-related cases, corporate sponsorship etc. A summer job is a form of collaboration well-suited for students who wish to acquire more practical knowledge in the summer term. In conclusion, job training, student theses and projects were selected as the most effective forms of collaboration by the majority of the respondents.

Development of university–industry collaboration

One possible area of development is the timing of job training — high season is a better time for a student to train on the job and, in turn, for an enterprise to give more guidance. Another necessity is to reward collaboration for both students and the enterprise by giving, for example, study credits (ECTS). More assertive objectives and working with limited resources could be used for developing collaboration. HEIs

should react more quickly to different future trends and prepare their students to respond to these future challenges (e.g. software robotics). For instance, collaboration could be developed further by combining studies and work as well as by means of a digitalisation forum.

More concrete measures are required for better collaboration. The most effective forms of collaboration are study exercises, joint projects and work-related cases. It is quite important that the school representative and the enterprise have a common motive. Another critical success factor is the accessibility of human resources and their continuous development. In order to intensify university–industry collaboration, course contents as well as the timing of job trainings need to be reconsidered by the enterprise together with the HEI. One significant driver of better collaboration is studying at work, which provides students with multiple opportunities to develop their learned skills in practice. In order to develop the collaboration, the enterprise should work jointly with the HEI for defining future business challenges and ways to manage them.

Experiences from collaboration between educational institutions and companies or other organisations in Denmark

Four interviews were conducted according to an interview guide. The interviews were conducted with companies and organisations that previously have been or currently are collaborating with EA Lilliebaelt.

- *Izinga* is a company that provides innovative IT solutions.
- *Odense University Hospital* is one of the major hospitals in Denmark.
- *Study Bird* is a former start-up company that existed from 2014 to 2015.
- *Department of education and learning at the Municipality* of Vejle.

Main Results

Based on the interviews, a few of the most interesting findings will be outlined. In addition, some quantitative data from the interviews have been extracted when relevant.

The interviewed organisations have all originated in collaboration with EA Lillebaelt with the main focus on idea generation workshops. The workshops have primarily been conducted with students' input, while the company or organisation representa-

tives have been the clients, and the lecturers have acted as the facilitators of the workshops. An example of such a workshop can be found in Christiansen (2014).

1. A win–win collaboration

Three of the interviewees stressed that it is important that a collaboration benefits the educational institution, their students and the company or organisation.

2. Tunnel vision

In two of the interviews, it was stated that many of the ideas put forward by the students had appeared strikingly naïve, almost as if the students had had tunnel vision and ignored certain challenges, as they were not aware of them. This had also had the positive effect that it had freed them from practical considerations. As a result, it had given the students the possibility to tread new ground and find solutions that would have otherwise remained undiscovered.

3. Inspiration

The purpose of the workshops was primarily to inspire the organisations rather than to achieve tangible results. It is our overall experience that it is important to stress the fact that such workshops do not produce ready solutions, but instead ideas that need further development.

4. Bureaucracy and decision processes

It was emphasised throughout the interviews that heavy decision-making processes at HEIs and at the partner institutions or companies are a serious concern. In general, it was stressed the collaboration should be kept as simple as possible. Thus, heavy decision-making processes related to for instance financial matters and resource allocation, in general, should not reach the level of strategic management.

5. Overall positive experience.

In the four interviews, the organisations stated that the overall experience of collaborating with the HEI had been positive.

In general, they were interested in further collaboration and jointly developing the nature and framework of the joint efforts. An example was given by Mads Bo-Kristensen from the Municipality of Vejle: the students' knowledge could be exploited in the organisation by having the students arrange webinars on current topics of their special field for the employees.

Discussion of the Danish way of university–industry collaboration

The overall positive feedback provided by the interviewees could be explained by the fact that former partners, who have experienced a successful process in a collaboration, would be more inclined to participate in interviews at a later time. Therefore, it would erroneous to assume that the feedback given by the four interviewees can be generalised to apply to all organisations.

The experience reported on students' tunnel vision may obviously be rooted in the lack of experience and competence on the students' part. However, there might be alternative explanations for this impression. First, the way the partner representatives were involved in the workshops might have triggered this belief, as they could have encountered intermediate ideas, which deliberately were expected to be "unrealistic" as part of the creative processes. This feature is referred to by DeBono (1972) as "intermediate impossibles" and has become an overall feature of creative workshops.

Based on previous collaborations between EA Lillebaelt and organisations, it appears crucial to match the expectations of the different parties involved. The importance of a mutually beneficial workshop is the foundation for a fruitful process, in which ideas can be nurtured. Finally, it is of major importance to stress that it is the students and not the employees that participate in the workshops and therefore it is a learning process for everyone.

Experiences from collaboration between educational institutions and companies or other organisations in Russia

For this survey, 19 business representatives from 16 companies of different sizes operating in Russia were interviewed. Four of the companies are large enterprises by the number of employees from 8,500 to 25,000 people. They operate in the fuel and energy sector and housing and communal services. The other companies are small, employing 17–55 persons, and operate in various fields: printing, medicine, production and sales of forestry machinery, manufacture of hygienic products, services etc. Two of the companies returned several questionnaires filled out by managers at different levels.

The analysis of the survey shows that almost all the companies (15 of 16) have previously collaborated with higher education institutions, and the period of interaction lasted 3 years or more. Some firms collaborate with universities since their formation (several decades). The number of universities with whom the enterprises participate varies from 1 to 5. Only one firm, PONSSE, cooperates with 15 universities, situated in different parts of Russia. The companies' understanding of cooperation with HEIs and its possible objectives are presented in table 2.

TABLE 2. The companies' understanding and objectives of cooperation with HEIs

Different activities considered as forms of cooperation with HEIs	Objectives of cooperation with HEIs (in the opinion of the business representatives)
• creation of bilateral contractual relations • scientific activities • exchange of experience • internships and practice of students and teachers • joint training of operators and technicians on logging machinery on the basis of educational institutions trained on use of machinery • recruitment • writing research papers • practice for students • training for personnel	• selection of the personnel reserve • practical training for teacher-users and students • meeting other enterprises • tours and presentations of practical workshops in divisions of the enterprise • mutually beneficial cooperation • preparation qualifier special at enterprise days at HEIs • continuous training for the employees • promotion of assortment logging • new product development • recruiting a full-fledged expert with all necessary qualifications • studying the Finnish experience in forestry, from harvesting to finished products to improve competence of the company • satisfaction with results

According to the analysis of the answers of the business representatives, it can be stated that there are differences in how the companies view cooperation and the objectives of cooperation with HEIs. Very often, however, the answers to these two questions were the same. The frequency of various types of cooperation with HEIs, reported by the business representatives, is shown in table 3.

TABLE 3. The frequency of various types of cooperation with HEIs among the companies

Type of cooperation	Number of companies using the type of cooperation	Share of the companies, %
excursions/visits of student groups	2	12.5
internships	2	12.5
practices	12	75
research conducted for theses by students	8	50
representatives of the company participate in presentation of theses	2	12.5
joint projects	2	12.5
joint scientific research	-	-
representatives of the company lecture at HEIs	2	12.5
working life cases from the companies are used in educational process	2	12.5
other forms	2	12.5

The analysis of the types of cooperation between the businesses and HEIs shows that 75% of the companies are more oriented towards organising practice for students and more than 50% of the enterprises are providing students with material for writing theses. All other forms of cooperation are used by not more than 12.5 % of the enterprises. The quality of cooperation between the businesses and HEIs is estimated by the business representatives as either fairly poor or average (about 2,5) but all enterprises are very interested in continuing such cooperation and developing new forms

of cooperation. The most useful forms of cooperation with Universities by business representatives from RF are presented in table 4.

TABLE 4. The most useful types of cooperation with HEIs according to the business representatives

Types of cooperation	Amount of enterprises using such type of cooperation	Share of the enterprises, %
excursions/visits of student groups	2	12.5
internships	12	75
practices	14	87.5
research conducted for theses by students	7	43.8
representatives of the company participate in presentation of theses	7	43.8
joint projects	6	37.5
joint scientific research	2	12.5
representatives of the company lecture at HEIs	6	37.5
working life cases from the companies are used in educational process	2	12.5
other forms	-	-

From the point of view of the business representatives, the most useful forms of cooperation with HEIs are organisation of practices (87.5%), internships (75%), thesis projects carried out by students (43.8%) and participation of company representatives in presentation of theses (43.8%). Businesses are willing to participate in the educational process of HEIs by giving lectures (37.5%). The share of the companies that consider joint scientific projects as useful both for the company and for the HEI is small (12.5%) but growing.

According to the surveyed business representatives, the development of cooperation between the businesses and HEIs should be based on the development of joint scientific research and joint projects. The businesses in the Russian Federation are ready to offer production and research bases, organise places for practicing students and teachers, and hire more successful students. All the companies that participated in

the survey are optimistically looking forward to continuing cooperation with HEIs. Moreover, they would like to develop this cooperation and to make it more effective.

CONCLUSION

Collaboration of higher education institutions with the enterprise sector in Finland, Denmark and Russia is studied both theoretically and empirically in the present article. The criteria of university–industry interaction, characteristics of developing entrepreneurial universities and aspects of entrepreneurship-driven teaching are considered first in the theoretical framework of the article. The qualitative research method and the major principles of collecting data by means of interviewing sets of Finnish, Danish and Russian enterprises in Finland, Denmark and Russia respectively were given in the second part of the article. Due to the differences in the nature and level of cooperation of HEIs with businesses, research results of the Finnish, Danish and Russian partner HEIs were analysed complementarily. As for the general outcome of the conducted research, cases of effective cooperation between HEIs and the companies were reported in all three countries. However, the development needs in these countries are to be addressed in detail by the educational sector and industry in order to increase the truly effective types of collaboration. The practical value of the article is in its international analysis of university–industry collaboration.

REFERENCES

Barsony, J. (2003) Towards the Entrepreneurial University. *SEFI 2003 Conference*– Global Engineer.

Bhattacherjee, Anol. (2012) *Social Science Research: Principles, Methods, and Practices.* Global Text Project.

Christiansen, P. K. (2014) Innoevent – An approach to World of Work, In, Kakkonen (ed.) *Innovative Teaching and Learning Methods in Multicultural Environments*, Mikkeli University of Applied Sciences, Mikkeli, pp. 78–89.

DeBono, E. [1972] (1990) *PO – Beyond Yes and No*, Penguin.

Doutriaux, J. and Barker, M. (1996) University and Industry in Canada. A Changing Relationship. *Industry and Higher Education*, 10 (1), pp. 88–103.

Hofer, A. R. and Potter, J. (2010) Universities, innovation and entrepreneurship:

criteria and examples of good practice. *OECD Local Economic and Employment Development (LEED) Working Papers.*

Huber, J. and Kohler, J. (eds.) (2006) *Higher education governance between democratic culture, academic aspirations and market forces.* Council of Europe Publishing, Strasbourg.

MacGregor, K. (2015) *Six key elements of an entrepreneurial university*. [Online], Available: http://www.universityworldnews.com/article.php?story=20151106141848199. Referred: 21.10.2016. Updated: 7.11.2015.

OECD (2012) *A Guiding Framework for Entrepreneurial Universities*. [Online], Available: https://www.oecd.org/site/cfecpr/EC-OECD%20Entrepreneurial%20Universities%20Framework.pdf. Referred: 21.10.2016. Updated: 18.12.2012.

Saunders, M., Lewis, P. and Thornhill, A. (2009) *Research Methods for Business Students* (5th Edition). Prentice Hall.

Study of University Business cooperation in the US (2013) Final report. [Online], Available: www.lse.ac.uk/enterprise. Referred: 21.10.2016. No updating information.

Wissema, J. G. (2008) *Towards the Third Generation University: Managing the University in Transition*. Edward Elgar.

PART C
INNOVATION PEDAGOGY
AND
PILOTING OF INNOVATIVE TEACHING METHODS

8. WHAT IS INNOVATION PEDAGOGY?

Peter Storm-Henningsen, Iurii Zementckii and Mikhail Nemilentsev

INTRODUCTION

As innovation and creativity are increasingly introduced in various educational settings, the importance of the question of innovation pedagogy, i.e. how to facilitate learning of the use and understanding of creativity and innovativeness in classrooms, seems to grow correspondingly. However, this issue is complicated by the fact that innovation and creativity might be interpreted differently at various educational institutions and by the fact that there might be significant differences between the didactical practices.

In this paper, some general features of innovation pedagogy are proposed. The proposals are based on some conceptual considerations of innovation and learning, discussed epistemologically and with special attention to an example of the Russian approach. It is argued that there is a significant difference between learning processes and innovative and creative processes, and, finally, a few practical examples of innovation pedagogy processes are provided to illuminate the matter.

INNOVATIVENESS AND CREATIVITY

It has often proved hard to understand the relationship between innovativeness and creativity (Styhre & Börjesson 2006). In many works on the topic, researchers' definitions of innovativeness and creativity are rather ambiguous or based only on some particular approach or point of view (Tuominen 2006). Yet, it might be argued that on an elementary level, there is a consensus that innovativeness is an organisation's ability to produce innovations, taking into consideration the organisation's strategy. It involves both the willingness to innovate as well as the ability to create new and useful

ideas (i.e. *creativity*) and to implement them. Therefore, innovativeness and creativity have the same source or background, and concepts and constructs applied in innovations could be useful in approaching creativity, and vice versa.

It is important to stress that innovativeness implies an ability to utilise innovations, as the concept usually involves value generation by implementing ideas. With this, however, comes a danger to confuse innovations with mere "gadgets". Innovation starts with new ideas and applying new technologies, new methods and new approaches and, in the end, is realised as new techniques and products — the material embodiment of innovation. But this does not imply that whenever somebody uses a new gadget he is an "innovative person" or comes from an innovative organisation.

In relation to the considerations of innovation pedagogy, let us consider two areas of application of innovativeness and creativity that may attract special interest: *management and education or pedagogy.* Firstly, innovation management and innovations in management are closely related but not quite the same. *Innovation in management* stands for anything that changes the way of management, which is different from the traditional modes of organisational forms and seeks to develop the goals of the organisation continuously (Michelman 2007). In turn, *innovation management* can be regarded as the process of managing innovation through the phases of innovation cycle (Downey 2007). Ideally, it is a continuing process, in which innovations in management provide more effective innovation management and conversely.

Classical approaches in most of the theories based on the management or business approach to innovation are commonly related to economical effectiveness (See e.g. Schumpeter 1983 or Christensen 1997). But in the case of pedagogy, this relation is not so obvious. Again, we face the problem that using new tools, techniques, technologies and methods are perhaps necessary but not sufficient to qualify as innovativeness in pedagogy. In turn, learning environments with the continuously changing approaches to learning among educators and learners represent a playground for innovation in pedagogy (Lehto et al. 2011).

Concepts and translation: The case of the Russian point of view.

As any other country, Russia is faced in many scientific questions with the challenge of dealing with competing definitions of the same concept. An example could be a case in which, on one hand, there is an international term or a name, and, on the other, there is a differentiated local or national term for the same concept. In addition, there are also discrepancies in terminology between different languages, organisations and professional contexts.

In the Russian language, there are several words that mean more or less the same as innovativeness and creativity. These terms are very close but not equal and, thus, may

cause misunderstandings. In order to avoid possible misunderstanding, the following internationally acknowledged definitions for innovativeness and creativity are used in the present paper. In accordance with Porter (1990), innovation can be determined as a new commercialised way of doing things. Creativity is considered as the mere ability to come up with new ideas for creating or changing products or services (Amabile et al. 2005).

In Russian Federal law of education there is a separate article about innovativeness in the education system which is inextricably linked with experimental activities (Federal law of education in Russian Federation №273 2016). Also, much attention is paid to innovation in the new Federal educational standard. New trends in the Russian system provide support to innovativeness and creativity. They give teachers new opportunities and new problems and challenges. An innovative approach to teaching, for example, can help to deal with the lack of materials and equipment, new requirements, lack of direct motivation, lack of staff, increase in workload, new terminology etc.

Insufficient materials often lead to a situation in which the very adoption of modern techniques or equipment is associated with innovation pedagogy. For example, some teachers think that using the internet and presentations (Microsoft PowerPoint) during lessons is enough to be innovative. Often a classroom with a projector, internet connection and a SMART board is regarded as the embodiment of innovation. Although the concept of the educational process remains essentially outdated, the increased pressure and limitations create real innovations. With enough will, any teacher could implement innovativeness in pedagogy by using creativity. For many Russian teachers, the true paradox is that the response to increased pressure is to maintain the traditional modes of teaching and a strict framework with a high level of formality. The description given in this paragraph reflects the authors' personal opinions and, therefore, is subjective.

INNOVATION PEDAGOGY

The central issue is to define the nature of innovation pedagogy more accurately. We may begin by pointing out that innovation pedagogy is about learning and teaching innovativeness. It must be stressed that this does not imply that learning innovativeness should be the very same thing as learning *about* innovativeness, at least not in the sense of obtaining information about innovation theories. The reason is that the preferred result of using any kind of innovation pedagogy in practice is not students that have merely acquired some information about innovation or innovativeness on a theoretical level. Instead, the main goal is to have students of innovativeness to acquire a *skill* that makes them able to innovate and promote innovation with others.

Hence, when considering innovation pedagogy, the main question is how people can learn to make innovations, and in turn, what kind of teaching would promote this. How do people build up skills that enable them to create new solutions and create value to their company or organisation?

There is another important, often over-looked point that is essential when it comes to the coupling between the concepts of innovativeness and learning. It has to do with the epistemological design of innovation processes and learning processes.

Innovation is about finding creative solutions and implementing them, whether they be novel solutions to problems or mere fulfilments of tasks or goals. This often involves gaining new understandings of the old methods or perhaps of the identity of the group or organisation, but *it is not the purpose of the processes*! It is, at most, a by-product. For instance, Spencer Silver tried to develop a new adhesive and created a product that could hardly bind several papers together. As a result of his innovative endeavours, the well-known Post-It notes emerged (Kawasaki 2015, 6).

Learning is, on the contrary, about obtaining further knowledge or understanding on a subject matter. This may involve a new way of thinking, as almost any theory of hermeneutics, from Schleiermacher to Gadamer (Porter & Robinson 2011) would predict, but it would not necessarily be *enforcing* substantial novelty of thought as in the case of Gregory Bateson's (1973) categories of transformational learning (learning 2 or 3), where learning involves the unlearning of old knowledge. Hence, even though a new way of thinking and self-understanding might follow from a learning process, *it is not the main purpose of that process*! For example, by asking the specifying question "therefore, what?" it would be possible to develop an original idea further and arrive at much higher levels of understanding with respect to the development problem (Kawasaki 2015, 5).

Hence, we cannot reasonably expect that the process designs of learning (didactics) and innovation should be similar, nor that the processes providing the best new solutions accordingly would be the ones best suited for learning. And the symmetrical hold, that we could on this ground not expect, that the best ways of learning innovation would automatically be the best ways of producing them. It might accidentally be the case, though, as it is not ruled out in advance, either.

As a result, innovation pedagogy must be mainly about acquiring a skill. It should also involve acquisition of information, although the skill itself is not about acquisition of information. Hence, innovation pedagogics can not only involve learning skills by continuous practice, like when a craftsman learns his métier or when we as children learn to walk, but it has to involve an academic side as well.

Alas, we may argue that if these two kinds of learning do not supplement each other when learning innovation, the competencies acquired by the student, would not suffice in making this person able to innovate at any significant level. One leg of this argument is that if you do not have knowledge of innovative processes and group- and organisational behaviour, you are unable to orientate yourself as to deciding which creative tools and processes may take you to the solutions that you need.

The other leg of the argument is that if you are unable to deploy a philosophical attitude of playful imagination, curiousness and empathy, you will be unable to use any of the creative tools adequately, and even less to inspire your fellow group members to do so. Therefore, innovation pedagogy should involve theoretical learning as well as practical training and should, at the same time, be distinguished from the innovation processes themselves. Hence, innovation pedagogy is not an epistemological enterprise in the sense that it is about creating knowledge of what knowledge is and how to obtain it in the first place. In other words, it is about obtaining information about how to do development and changes, and not about obtaining knowledge of knowledge.

Innovation processes, whether conceived linear or iterative, are often conceived as involving several stages or subprocesses in which the focus of the people involved is different from stage to stage and often, but not always, demanding a specific way of thinking. They might be brainstorms, calculations, research, evaluations, role-playing or graphic design of solutions and models. In some of these processes, very different ways of thinking are required. There are several classical ways to distinguish between various ways of thinking, the most famous of which are perhaps Robert Cooper's (2011) distinction between "stages", which are structured processes of development, and "gates", which are merely selection modules and Edward DeBono's, whose theory of the six thinking hats proposes six different temperaments that might be assigned to group members either collectively or individually during group work (DeBono 1999). We might even argue that the presence of strong cultural or ethical values might be an obstacle to the creation of successful innovation processes, as such values could arguably be conceived as actively limiting factors of exercising creativity (Storm-Henningsen 2014).

In any case, gaining control of one's way of thinking is an important skill that must be a primary target in applying innovation pedagogics. Aa key component here, however, would also be the ability to trust that the process you are participating in will take you where you need to go. To help innovators do this, there is very often an appointed facilitator, a skilled person that helps the group to perform the task they were assigned to (DeBono 1999). The facilitator needs to be able to understand and guide the group without directly obtaining the status of the expert in the group, since this would obstruct the idea creation in all processes, as instead of thinking for themselves, the group would simply ask the facilitator about what is right and what is wrong (Gauntlett 2012).

The facilitator obviously observes the innovative process from the outside, while the participants view the process from the inside, a difference in perspective that is very often highly significant and sometimes even incommensurable. It might be argued that facilitating other people in becoming innovative might in fact be an important part of innovation pedagogics for two reasons, 1) a central part of innovation competence is not only the ability to explore your own creativity but to systematically to be able to set up surroundings and conditions that would help other people in becoming innovative as well, and 2) the shift between being part of the innovative process and facilitating it from the outside, would help the student understand the process and the challenges and the possibilities of such processes much better, as these two perspectives from the inside and outside would be complement each other in the learning process.

The final aspect that should be mentioned is understanding the exploitation of the achieved novelty in terms of value creation. Since Joseph Schumpeter's initial definition of innovation in 1934, there has been a focus on exploitation connected with innovation, which we referred to above as the management or business approach. This would to some extent demand the basic insight into how to create a business case or model (in the wide sense of how to generate and exploit value, as all innovation is not business innovation, as Schumpeter would claim).

As a part of this final aspect, making some kind of presentation that would target users or investors' needs or interests would be imperative in learning innovation, as otherwise the innovation competency would be reduced to merely a competency of being creative, which, though important and difficult enough, does not suffice as innovation in the sense of creating novelty and thereby generating value.

To sum up, innovation pedagogy needs to involve the acquisition of a mindset that involves both knowledge of creative processes and the skill to be open to new ideas, even though they might falsify some pieces of previous knowledge. It also involves the acquisition of information and skills to plan, perform, participate in and facilitate innovative processes and finally the ability to exploit and present the novelty of new ideas in a way that meets the needs and interests of users, investors and other significant stakeholders.

INNOVATIVE TEACHING METHODS

A frequently used way to begin adopting an innovative mindset is to let the pupils or students experience creative processes "from the inside". This consists of doing various exercises, but it should be stressed that it is important to combine them with a theoretical introduction and, afterwards, an evaluation that relate to the experienced mechanisms during the exercises. The following part focuses on several innovative teaching and learning methods that foster creative thinking, bring up social, business and technological innovation, and contribute to development work in the setting of higher educational institutions.

Lego Serious Play as an innovative learning method

The core of Lego Serious Play as a method of learning is in its improved team performance and hand-made constructive experience (Heikkinen & Nemilentsev 2014). Development of entrepreneurial capabilities of the individual is one of the method's main objectives (Roos & Victor 1999). The method helps find answers to various design, social, business, technical and other types of issues. Lego Serious Play contributes to development of the individual's improvisation skills, since the expected results of the game often remain unspecified (Brown 2010). In particular, the method is a game in which rules can be changed depending on the followed learning process and the development needs of the involved individuals. Additionally, active learning opportunities — by making rather than by observing or learning theoretically — feature Lego Serious Play. As such, it is the method of "making" the reality (Gauntlett 2012).

In terms of the outlined learning opportunities, Lego Serious Play can be characterised as having multiple advantages, or features that increase the innovative learning capacity of individuals (Heikkinen & Nemilentsev 2014, 21). First of all, the subjective opinions of participants are incorporated in the "constructed reality" by means of connecting Lego bricks into a meaningful story. Second of all, participants are usually put into small (up to 5 individuals) or medium-sized (5–10 individuals) groups, which requires reaching consensus over the construction process. Therefore, group needs regulate the individual needs of participants. Third of all, participants facilitate creation of new knowledge by means of developed prototypes of their ideas, products or services.

Joint Gaming and Fuzzy-goal Games

Games played together by individuals can represent a powerful source of innovative learning, especially when final goals are redefined only in the process of the game (Ne-

milentsev 2014, 58). Individuals can shape the learning environment by themselves (Chong et al., 2014). Ideas that contain a number of game elements and are developed by students in a class environment help them to increase their entrepreneurial capabilities and widen their creative mindset.

Dealing with business, social or technological problems in its connection with the real-life activities of enterprises requires multi-field knowledge and competences from different research areas (Jones & English 2004). Therefore, participation of students from various study programmes as a single group in a creative game process represents a possible solution to the real-life problems.

In accordance with the innovative explorative process, games are described through three consecutive and interrelated stages (Hamidi et al. 2008). The initial stage requires identification of themes, ideas and information. The second stage aims at collecting an evidence base and conducting experiments in order to exploit idea opportunities more deeply (Gray et al. 2010). Finally, at the third stage, the tested ideas are justified and narrowed down by the participants in the joint learning process.

TAMS

The TAMS method is a new method developed in a project involving educational professionals from two Nordic countries (Finland and Denmark) and Russia (Kakkonen et al. 2014). The method helps to develop entrepreneurial behaviour of students further (Gibb 2005). The method is valuable for development of both teaching capabilities of teachers and learning capabilities of students. The method is based on group work (5–7 students in each group) over a business case with the possibility to add necessary descriptive details of the company and its operational environment. The students need to divide managerial roles in the company and build their decision-making to respond to company needs.

The TAMS method develops individual and group working skills, communication capabilities and interdisciplinary learning of the participating individuals. The students and not the teachers become the active source of knowledge (Nugaard et al. 2011). Within the frames of a specific management–leadership task, the participants need to distribute roles to act as a team and then to build a working process of collaboration in order to solve the case problem.

Innovation Camps

Innovation camps are widely used in education as a method of learning and self-development (IDEA Tools. Innovation Camp 2014). Innovation camps are usually driven by some innovation challenge that requires defining the problem, identifying, improving and assessing ideas, facilitating creation of a new business model, finding a proper solution, and self- or peer-evaluating the results. The participants follow guidelines of a facilitator and work on the stated challenge.

A 24-Hour Innovation Event in a Multicultural Environment

Students' international experience, their multiple backgrounds and learning performance can be improved through their participation in an innovation challenge — a camp that lasts one or several days without interruption. Continuous immersion of participants in the context and content of learning tasks at an innovation camp has certain key benefits. The 24-h challenge that involves international groups of students and is organised by Mikkeli University of Applied Sciences can be taken as an example (Paasonen & Torniainen 2014).

Innovation challenges help students improve their networking and communication skills, get familiar with other students' educational and professional backgrounds, work in highly international teams and improve their entrepreneurial and intrapreneurial skills.

Since participants are supposed to work continuously in one selected learning or working environment, careful planning of the learning process, learning tasks and overall infrastructure of the event seem to be critical (Shone & Parry 2010). In the course of time, representatives of the same group start sharing and complementing their intercultural experience, exchanging their life and study experiences with the other group members and promoting an organised and team-oriented way of learning (Moran et al. 2011).

InnoEvent — a method of learning work-related innovations

In order to improve the learning capacity of students and prepare them to work in their industry, the InnoEvent method was created (Christiansen 2014). Development of learning tasks is to be oriented towards meeting diverse business, social, technological and other types of needs (Wissema 2008). InnoEvent is based on the triangulation of the educational sectors — technological and healthcare (Christiansen 2014, 81). However, the method is not particularly limited to the aforementioned sectors:

on the contrary, InnoEvent is about triangulation of fields of knowledge, group approach to learning and creativity performance of highly motivated groups of learners guided by professional educators and industry representatives.

Community needs and company-related issues are taken seriously by the educational institutions in the preparation and implementation stages of the InnoEvent method. In a week, individuals develop social, technological and business innovations for the articulated needs of the commissioning companies (Christiansen 2014, 82). The method aims at developing students' learning and communication skills, re-identification of the social challenges and development of socially driven technological and business solutions.

SUMMARY AND CONCLUSION

The present paper reveals specific peculiarities of innovation pedagogy. Assumptions presented here are based on theoretical sources, practical experience and different approaches. The process of summation information brings new challenges and problems in the frame of structurisation. The logical chain here is conceptual analysis from the application of innovativeness and creativity in general to innovation pedagogy (it's definition, features, reasons and goals) with particular examples of innovative teaching and learning methods received from several countries and tested at different universities.

While much confusion on how to apply innovation pedagogy is due to the vagueness of the use of the central concepts, it is, at least to a certain extent possible to arrive at a sufficiently precise interpretation of such concepts, as to point out certain general characteristics as to the field of innovation pedagogics. First, innovative processes are not to be confused with their products. In this sense, innovation pedagogy should be more about how to be creative than about obtaining the newest technology, what is here termed as "gadget innovation". Second, as innovative and creative processes are epistemologically different from learning processes, learning creativity cannot be done solely by practicing creative and innovative processes. Instead, it should be supplemented by an element of theoretical learning. Third, the practicing leg of innovation pedagogy, where the students are trying out innovative and creative tools and processes, should comprise both the role of a participant, where such processes are experienced from the "inside", as well as the role of a facilitator, where the processes

are experienced from the "outside". Fourth, there are several ways to begin practicing innovative pedagogy. One of the best ways is to arrange workshops or camps, where lecturers and students can get acquainted with the different features and challenges of intensely working with innovation and creativity. Other methods of introducing novel thinking to the classroom include the TAMS method, gamification and tools like Lego Serious Play.

Although we have here offered an interpretation and starting point of innovation pedagogy, there are, of course, many unresolved questions that might present themselves to any teacher or scholar whose occupation touches upon innovation pedagogy.

One of them is the question about differences and joint moments of innovativeness and creativity. How much creativity is there supposed to be in innovation, if any? To this question, many different answers can be found in various textbooks, some of which even vary from the basic definitions proposed here.

Another question is how you can exactly learn and teach innovation. What kind of knowledge and skills should be taught? A central issue here may be the mindset of the students and teachers. What kind of mindset is required?

The last, possibly central question is how the physical and organisational contexts affect learning. Is it important to create special physical surroundings (such as innovation laboratories) in order to teach innovation. And to what degree, if any, do you need a decentralised organisational context, encouraging initiatives and entrepreneurship?

Questions such as these, and many more, are central when further development and implementation of innovation pedagogy are attempted. The answers provided here are, therefore, not definitive but instead considerations to aid future reflections on both the theories and practices of this growing academic field.

REFERENCES

Amabile, T. M., Barsade, S. G., Mueller, J. S., and Staw, B. M. (2005) Affect Work. *Administrative Science Quarterly*, 50 (3), pp. 367–403.

Bateson, G. (1973) The Logical Categories of Learning and Communication, In, Bateson, 1973, *Steps to an Ecology of Mind*, Paladin Books, Frogmore, pp. 250–79.

Brown, S. and Vaughan, Ch. (2010) *Play – How It Shapes the Brain, Opens the Imagination and Invigorates the Soul*. New York: Avery.

Chong, P. S., Chen, M. and Su, X. (2014) Icon: You have access. Comparative Study of Behavioral Mindsets in Team Decision. *International Journal of Educational Management*, 28 (5), pp. 1–21.

Christensen, C. (1997) *The Innovator's Dilemma*, Harvard Business Review Press.

Christiansen, P. K. (2014) InnoEvent – and Approach to World of Work. In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments*. Mikkeli: Mikkeli University of Applied Sciences, pp. 78–89.

Cooper, R. (2011) [1986]. *Winning at New Products*, 4th edition, Basic Books, New York.

DeBono, E. (1999) [1984]. *Six Thinking Hats*, (rev ed.), Little Brown, and Co., Boston.

Downey, J. (2007) *Innovation management.* Topic Gateway Series No. 38. [Online], Available: http://www.cimaglobal.com/Documents/ImportedDocuments/cid_tg_innovation_management_jul07.pdf.pdf. Updated: July 2007. Referred: 10.6.2016.

Federal law of education in Russian Federation №273, *2016*

Gauntlett, D. (2012) *Making is Connecting*. Cambridge: Polity Press.

Gibb, A. (2005) The Future of Entrepreneurship Education – Determining the Basis for Coherent Policy and Practice. In P. Kyrö and C. Carrier (eds.) *The Dynamics of Learning Entrepreneurship in Cross-Cultural University Context*. University of Tampere. Faculty of Education. Entrepreneurship Education Series 2, pp. 44–66.

Gray, D., Brown, S., and Macanufo, J. (2010) *Gamestorming*. O'Reilly Media, Inc.

Hamidi, D. Y., Wennberg, K., and Berglund, H. (2008) Creativity in entrepreneurship education. *Journal of Small Business and Enterprise Development*, 15 (2), pp. 304–320.

Heikkinen, S. and Nemilentsev, M. (2014) Lego Serious Play as an Innovative Method of Learning. In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments*. Mikkeli: Mikkeli University of Applied Sciences, pp. 18–26.

IDEA Tools. Innovation Camp (2014). Tools for entrepreneurship teaching. [Online], Available: http://www.idea-camp.eu/innovation-camp/. No updating information. Referred: 12.6.2016.

Jones, C. and English, J. (2004) A contemporary approach to entrepreneurship education. *Education + Training*, 46 (8/9), pp. 416–423.

Kakkonen, M.-L., Tereshkina, T., and Tereshchenko, S. (2014) Creation of TAMS Method for Education. In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments*. Mikkeli: Mikkeli University of Applied Sciences, pp. 69–77.

Kawasaki, Guy (2015) *The Art of the Start 2.0. The Time-Tested, Battle-Hardened Guide for Anyone Starting Anything.* Portfolio Penguin. The United Kingdom.

Lehto, A., Kairisto-Mertanen and Penttilä, T. (eds.) (2011) *Towards innovation pedagogy. A new approach to teaching and learning for universities of applied sciences. Reports from Turku University of Applied Sciences 100.* Juvenes Print Oy, Tampere.

Michelman, P. (2007) Management Innovation Defined. *Harvard Business Review.* [Online], Available: https://hbr.org/2007/10/management-innovation-defined. Updated: 3.10.2007. Referred: 13.6.2016.

Moran, R., Harris, P. and Moran, S. (2011) Managing cultural differences. 8th ed. Amsterdam: Elsevier/Butterworth-Heinemann.

Nemilentsev, M. (2014) Learning in a Changing Game Environment. In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments.* Mikkeli: Mikkeli University of Applied Sciences, pp. 58–68.

Nugaard, C., Courtney, N. and Holtham, C. (2011) *Beyond Transmission – Innovations in University Teaching.* UK: Oxfordshire. Libre Publishing.

Paasonen, P. and Torniainen, A.-M. (2014) Arranging of the 24h Challenge in a Multicultural Context. In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments*. Mikkeli: Mikkeli University of Applied Sciences, pp. 38–57.

Porter, M. E. (1990). *The Competitive Advantage of Nations*. Free Press, New York.

Porter, S. E, and Robinson, J. C. (2011) *Hermeneutics: An Introduction to Interpretive Theory.* Wm. B. Eerdmans Publishing Co., Cambridge, UK.

Roos, J. and Victor, B. (1999) Towards a new model of strategy-making as serious play. *European Management Journal*, 17 (4), pp. 348–355.

Schumpeter, J. (1983) [1934]. *The Theory of Economic Development*, Transaction Publishers, New Brunswick.

Shone, A. and Parry, B. (2010). *Successful event management: a practical handbook*. 3rd ed. Hampshire: Cengage Learning.

Storm-Henningsen, P. (2014) Innovation, Business Ethics and Green Innovation, In Kakkonen, M.-L. (ed.), *Innovative Teaching and Learning Methods in Multicultural Environments*. Mikkeli: Mikkeli University of Applied Sciences, pp. 100–113.

Styhre, A. and Börjesson, S. (2006) *Innovativeness and creativity in bureaucratic organisations: Evidence from the pharmaceutical and the automotive industry*, Chalmers University of Technology, Göteborg, Sweden.

Tuominen, T. (2006) *Innovativeness and Creativity in Organisations*, Innovation management institute IMI, Helsinki, Finland.

Wissema, J. G. (2008) *Towards the Third Generation University: Managing the University in Transition*. Edward Elgar.

9. A PILOT PROJECT ON GAMIFICATION IN ACCOUNTING

Anna-Liisa Immonen and Kristiina Kinnunen

INTRODUCTION

The purpose of this paper is to describe the piloting of gamification used in accounting in the Department of Business Management at Mikkeli University of Applied Sciences (Mamk). The idea of developing an application and combining gamification with accounting was an outcome of a reflection related to a co-teaching method used in the course of cost accounting taught by the authors. Furthermore, an important objective of using the application as a teaching tool was to better motivate the students to learn this topic as well as to use an innovative method in teaching. The application was made in collaboration between the authors, who work as lecturers at the Department of Business Management, and three interns from the department of Information Technology. So far, the application has been created and tested by the interns and the lecturers, and the introduction in teaching will be in November 2016. All in all, this paper presents the planning, creation and testing stages of the application, describes the collaboration between the different participants of the project as well as introduces the intended use of the application in teaching.

THEORETICAL PART

In the strategy of Mamk (2013), the vision of the year 2020 emphasises fresh openings, experimentation and transcending boundaries as core values related to creativity. Gamification is one way to implement these values in education. According to Deterding et al. (2011), gamification can be defined as the use of game elements in non-game contexts. Further, gamification does not necessarily require software but it can be viewed as an approach to create a game-like experience in practice. Gamified applications usually use several design elements from games but are not built to be full-fledged games.

Gamification is applied in various contexts such as education, finance, health and sustainable development (Deterding et al. 2011). Hamari et al. (2014), state that gamification has shown considerable potential in educational settings as the learning outcomes of gamification have been mostly positive. These results refer to enhanced motivation and engagement in the learning tasks as well as enjoyment over them. However, the effects of the gamification are dependent on the context being gamified as well as on the users using it.

Co-teaching can be defined as a teaching model in which two lecturers work together with groups of students sharing the planning, organisation, implementation, evaluation as well as the physical space in teaching (Bacharach et al. 2007; Wenzlaff 2002). Sandholtz (2000), divides team teaching into three different categories, where the first type covers only slight sharing of responsibilities between two or more lecturers, the second type includes joint planning but separate instructions and the third type comprises shared collaboration in all aspects of teaching. Perry and Stewart (2005), in turn, classify team teaching based on the level of collaboration between lecturers. At the lowest level of collaboration, the lecturers may plan the generic content together, but the courses are taught and evaluated separately, whereas, at the highest level, the collaboration covers joint planning, teaching and evaluation of the course. In practice, team teaching usually occurs between these two extremes of collaboration.

Co-teaching is applied in the Department of Business Management at Mamk in several different ways and the level of collaboration varies depending on the method used. The most commonly applied method is the one where two lecturers teach the same course for different study groups. Other co-teaching methods used are the rotational model and the dispersed model. (Immonen et.al. 2015.)

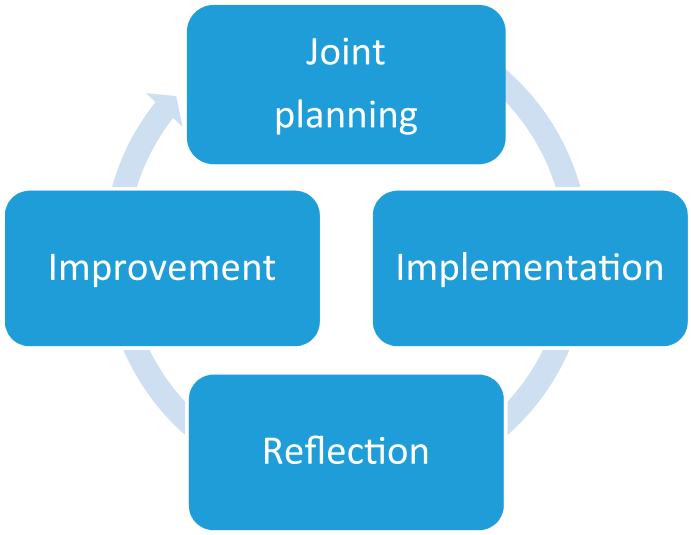

FIGURE 1. The continuous development process of co-teaching.

Figure 1 illustrates the process of ongoing development used in all the courses in which co-teaching is applied. The co-teaching methods used in Business Management education are based on continuous development, in order to enhance the high quality in both teaching as well as learning. All the stages of the process are crucial from the point of view of improving the professional competence of the lecturers, as well as supporting the overall learning outcomes of the students. (Immonen et.al. 2015.)

CASE DESCRIPTION

The idea to combine gamification with the implementation of cost accounting course in Business Management education at Mamk was discussed already during previous academic years. The cost accounting course has been implemented by using a co-teaching method, in which two lecturers share the same teaching strategy and plan the content for different study groups. This co-teaching method was used during two academic years, and, as an output of the lecturers' reflection, they came up with the idea of using gamification as one of the pedagogic methods in the course. The purpose of using an application as a teaching aid was to better motivate the students in learning this topic as well as to use an innovative method in teaching. Thus far, accounting has been taught by using traditional methods, and an application enables teaching in a digital learning environment, which is also emphasised in the strategy of Mamk.

The possibility to develop the application was discussed with a colleague at the Department of Information Technology in the spring of 2016. It turned out that the interns of the IT department were able to include this kind of project in their schedule during the summer time. The joint application project is a new form of collaboration between the Business management and the Information Technology departments, which hopefully leads to similar opportunities between the departments in the future.

The profitability of a company and cost-volume-profit analysis were chosen as the topics of the application. In addition, one of the technical requirements for the application was that it can be used on different devices (PC, tablet device and mobile phone), in order not to be dependent on the learning environment. At the first stage of the development, the business environment was selected, and an imaginary company was created, which was chosen to be a pizza house. The lecturers thought that the students would be familiar with this kind of company and business environment already and, therefore, it would be easier understand and analyse the profitability of such a business.

The next stage was to gain understanding of the business operations of a real pizza house, including detailed information related to location and premises, employees, raw materials, assets and cost structure. It was decided that three different types of pizza houses would be included in the application, of which the first is a luxury pizza house located by a sea, the second a downtown pizza house, and the third a low cost pizza house located in a suburb. The planning continued with the creation of an Excel file covering detailed cost structures in the different types of pizza houses, and a cost-volume-profit analysis was made based on the calculations. As figure 2 presents, the application can be used on PCs, tablets and smart phones.

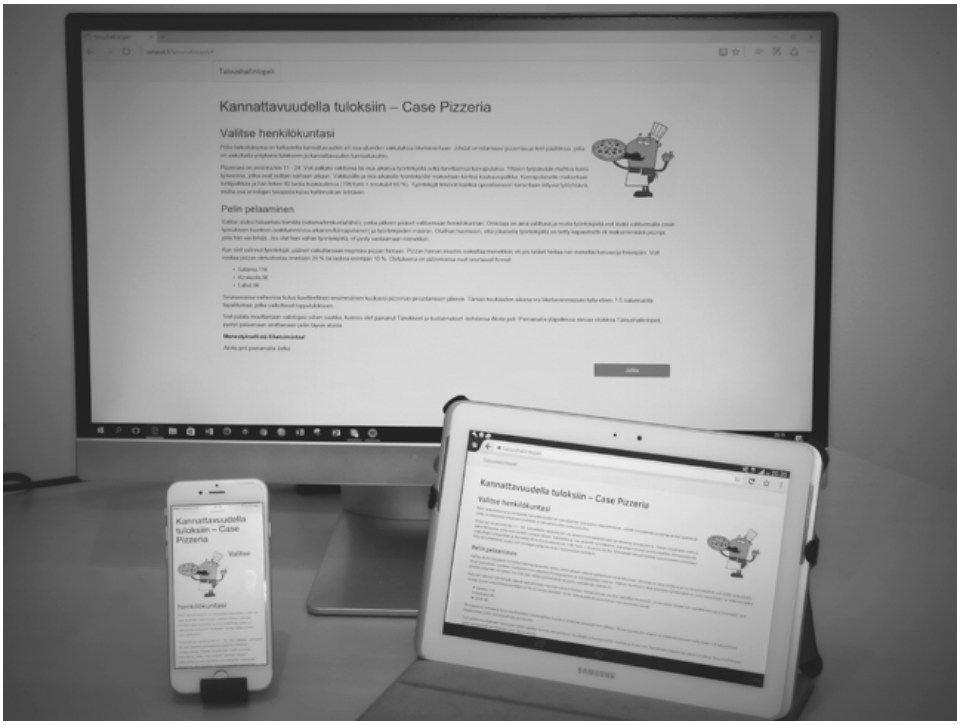

FIGURE 2. The application activated on different devices.

The development of the application started with a meeting with three interns of the Department of Information Technology with the purpose of sharing the idea of the application and going through the Excel file in detail with them. The interns were not familiar with cost–volume–profit analysis and the lecturers did not have the knowledge required to create such an application so it was crucial to arrive at a common understanding of the requirements and possibilities of the project. An open-minded attitude and willingness to try innovative cooperation were needed from both parties. The development continued with regular meetings and discussions between the interns and the lecturers. The original business environment was simplified, as it turned out to be too complex from the learning point of view.

The interns worked with the application in a demo environment and reported the lecturers about progress of the development, after which the lecturers tested the application, updated the Excel file and informed the interns about the needed changes. The visualisation of the application was mainly designed by the lecturers, but otherwise the application was made by utilising the expertise of the lecturers in cost accounting and the coding skills of the interns. All in all, the cooperation was very fluent, informal and efficient during the whole process.

USING THE APPLICATION IN TEACHING

The course of cost accounting runs through the autumn semester 2016, and the topic of cost-volume-profit analysis is taught during the last part of the course. There are two groups of second year Business Management students studying the topic of cost accounting, and the lecturers have planned a common schedule for both groups and use the same assessment criteria in both groups.

According to the teaching strategy of the lecturers, the basics of cost accounting and the theory of the cost–volume–profit analysis are taught before moving on to use the application in learning, as it is important to understand the theory behind the analysis before applying the knowledge in practice. The application is used to deepen the students' knowledge and to achieve better learning outcomes when analysing the profitability of a company.

At this point, the purpose of the application project was to develop and pilot a simple tool to aid students in learning the basics of cost–volume–profit analysis and to test gamification in teaching of cost accounting. There are several stages in the pizza house game, such as orientation, selection of premises, hiring employees, choosing the price of pizzas and information of variable and fixed costs, occasional incidents and the outcome of sensitivity analysis. The player is instructed through the game, and the choices made as well as the occasional incidents affect the sensitivity analysis. The occasional incidents may include, for example, a decrease in sales volume due to a new competitor or extra sales due to a nearby festival.

The application is included in teaching for the first time in November 2016. The purpose is to gather feedback and development suggestions from the students right after the classes in which the application is used in order to further develop the application in a user-oriented way. All the feedback will be used in the development of the application or in similar projects in the future.

CONCLUSIONS AND DISCUSSION

The lecturers are satisfied with the outcome of the project, considering the short time for planning and implementation of the pilot application. Furthermore, in spite of not having co-operated together with the interns before nor knowing each other's field of expertise, the lecturers and interns were able to easily find a common way to communicate. The interns have expressed their perspective of the project in a blog, in which they describe the technique and theme used in the implementation, and, from the learning point of view, they emphasise especially the value of an authentic customer contact and communication.

Although this is a good start in increasing digitality and gamification as a pedagogic method when teaching accounting, the application itself requires further development. The lecturers already have some ideas how to improve the application. The gamification of the application could be increased, for example, by adding more random incidents that may influence business operations outside of the pizza house and by increasing the number of different types of employees and their capacity related to working hours. These kinds of improvements would make the business environment and analysis more complex and closer to the real world. However, the current and easier version of the application should be kept simple for teaching the basics of cost–volume–profit analysis and the changes mentioned above would comprise an advanced level of the application. The lecturers are motivated to continue the development process of the application in case it is possible to allocate resources to this kind of collaboration between departments.

REFERENCES

Bacharach, Nancy and Heck, Teresa Washut. (2007) Co-Teaching in Higher Education. *Journal of College Teaching & Learning*, Vol 4, No.10, October, pp. 19–26.

Deterding, Sebastian., Dixon, Dan., Khaled, Rilla. and Nack, Lennart. (2011) From Game Design Elements to Gamefulness: Defining "Gamification". *MindTrek'11*, pp. 9–15.

Hamari, Juho., Koivisto, Jonna. and Sarsa, Harri. (2014) Does Gamification Work? – A Literature Review of Empirical Studies on Gamification. *47th Hawaii International Conference on System Service*.

Immonen, Anna-Liisa and Kinnunen, Kristiina. (2015) Practical Steps towards Innovative Co-Teaching. *Proceedings of the 10th European Conference on Innovation and Entrepreneurship*, pp. 291–297.

Leavitt, Melissa C. (2006) *Team Teaching: Benefits and Challenges*. [Online], Avail-

able: Stanford University, http://web.stanford.edu/dept/CTL/Newsletter/teamteaching.pdf.

Mikkeli University of Applied Sciences. (2013) *The Strategy of Mikkeli University of Applied Sciences.* [Online], Available: http://www.Mamk.fi/ulkoiset/digipapers/digipaper_Mamk-strategy-en-2017.

Perry, Bill and Stewart, Timothy. (2005) *Insights into effective partnership in interdisciplinary team teaching. System*, [Online], Available: Vol 33, Issue 4, December, pp. 563–573.

Sandholtz, Judith Haymore. (2000) Interdisciplinary team teaching as a form of professional development. *Teacher Education Quarterly*, Summer, pp. 39–54.

10. INNOVATIVE METHODS IN FORMING GROUPS AND PAIRS IN THE EDUCATIONAL PROCESS

Sari Toijonen-Kunnari and Mikhail Nemilentsev

INTRODUCTION

In the present article, innovative non-standard methods in forming student groups and pairs piloted in the Business Management (BM) department of Mikkeli University of Applied Sciences (Mamk) are introduced. For the purposes of the article, a student group is defined as comprising a minimum of three students, while a student pair is composed of two students. First, pair and group formation processes will be considered from a theoretical viewpoint followed by the description of pilots (i.e. practical cases) of innovative methods in group and pair formation organised by the two senior lecturers in the BM department at Mamk. Practical discussion of the two pilots as well as the general conclusions will be made in the final section of the article.

PROCESS OF GROUP FORMATION FROM A THEORETICAL PERSPECTIVE

It should be pointed out that each pair or group can be viewed as a complicated living organism having its specific history, present and future. Formation of pairs or groups is thus a continuous process that does not always follow the principles of linear development (van Villet 2014). By the process of group or pair development, one can consider how a group or a pair works together. In particular, the following areas of such a process need to be viewed in greater detail: communication, structure of the meeting, leadership, decision-making process, and problem solving (Napier & Gershenfeld 1999). Above all, a pair's or a group's development depends on the way its members communicate internally as well as externally.

The degree of openness of communication inside a group, for instance, influences the overall productivity of the group (Oakley et al. 2004). Another critical area is the meeting structure. Both the frequency of group meetings and their efficiency (i.e. possibility to discuss and work on the maximum amount of points on the meeting agenda) are to be evaluated by group members. Leadership is the third important area in group or pair formation. Prior to establishment of a group or a pair, its members have to discuss who will have the ultimate power in decision-making and, consequently, the greatest responsibility for the success of the group or pair. The fourth critical area is the decision-making process itself. In particular, the members of a group or a pair need to agree upon the routines of reaching an agreement and choosing the final decision from a number of alternatives. The fifth and final significant area in the process of group or pair formation is problem-solving, that is, the readiness of members of a group or a pair to face interim challenges and transform them into opportunities (Robbins & Finley 2000).

Being a living organism, each pair or group has several internal boundaries that can be used for analysing the productivity of a pair or a group or comparing groups (van Villet 2014). Pairs or groups can be compared by age, i.e. how long ago they were formed. Long-lasting groups or pairs are generally considered as more stable and more productive (Cartney 2006). Another internal boundary is the experience and knowledge of a pair or a group: members of a pair or a group possess different knowledge and different levels of skills. Groups or pairs can be also analysed by the degree of their openness and competition. Open groups are as a rule less competitive and more willing to establish collaboration with other groups.

The level of intra-group or intra-pair competition, however, does not directly indicate the degree of consensus but rather it may indicate the degree of ambition of all or some members (Robbins & Finley 2000). Open groups or pairs usually express their needs and feelings openly, which is another significant internal boundary (Waite & Davis 2006). The productivity of a group or a team can be also analysed with respect to the homogeneity of its members' skills (Oakley et al. 2004). The nature of group or pair work quickly shows whether the members' skills are complementary (i.e. similar) or contradictory (i.e. different). In the course of group or pair development, members increasingly experience safety and support from one another, which are two other important internal boundaries used for intra-pair or intra-group analysis.

Both groups and pairs go through various development stages. These stages are practically universal to all human kind (i.e. living organism) varying by its duration and intensiveness (Schein 2010). The first stage is called *dependency*, during which the members of a team or pair try to be safe, structured and coordinated. All members primarily feel as necessary to stay with their group or pair, suppress their individual wishes and pursue the ultimate objectives of their group or pair (Cartney 2006). At the next stage, called *counter-dependency*, the members of the group or pair behave like fragments of the previous whole allowing their individual and often contradic-

tory characteristics to become visible (Robbins & Finley 2000; Schein 2010). At the third stage called *cohesion*, the members of the previously fragmented group are once more eager to share every part of their lives with their peers in the group or pair (Waite & Davis 2006). The fourth and last stage of group development is *interdependence*, which entails that all the members work for the collective good rather than towards personal advantages. The stages of group development can be compared to life stages: dependency to childhood, counter-dependency to adolescence, cohesion to early adulthood, and interdependence to maturity (Schein 2010).

PILOTS OF INNOVATIVE TEACHING METHODS OF GROUP AND PAIR FORMATION AT MAMK

Analysis of pair formation at Mamk

According to Bottas (2010), pairs can be formed with the aid of different-coloured, around 1-meter-long twines. Approximately one twine is needed for every pair, e.g. for 40 people 20 twines are needed. A leader is chosen to hold the twines. The leader stands in the middle of the room, holding the twines in the middle. The other students gather around the leader and each catch from an end of a twine. When everyone is holding a twine-end, the leader releases the twines and the students pull gently to see, who is at the other end. After forming the pairs, the students return the twines to the leader.

According to the experiences of those who have participated as leaders in the pilot and the students' comments, the method works best with a small group because the twines don't get tangled as easily and not a lot of space is needed. If the group is large, the method can be difficult to use indoors and in classrooms. The students stated in their feedback that the twines could be thicker, longer and all same colour. They described the method with the following expressions: 'nice', 'fun', 'different', 'exciting', 'confusing' and 'with a large group, it was a little mess'.

This method was used for the new students' "speed dating" at the orientation week. With 20 twines, a pair was found for 40 people. New pairs made two lines. They talked on their speed dates for approximately one minute, after which the leader whistled and the students took two steps forward and started over with a new partner.

FIGURE 1. "Speed dating" of the new students in the orientation week at Mamk (photograph by Mira Saloniemi)

On the orientation week, 20 student pairs were formed with the twine method. With a total of 40 people, this required a large yard area. For a smaller group, this could be done in a class room.

Using pictures to form groups

In another pilot, a group was divided into smaller groups using puzzles consisting of images according to Bottas's (2010) instructions. The pictures were chosen on the grounds of awakening emotions and relatedness to the group members' lives. The images were laminated and cut into three pieces in order to form groups of three. The pieces were put into a basket.

Before the leader started dividing the group into small groups, the leader counted how many students there are and made sure that there are enough pictures. The group's task was to find out which things were unclear to the new students in the end of the week. The group's leader walked in the classroom with a basket and asked the students to take one piece. After everyone had taken a piece, they started walking around the room to find matching pieces. Small groups of three students with matching pieces were formed. After all the pieces had been distributed and all the groups had been formed, the students started talking. In this case, the groups talked about

things that were unclear to them and decided what to ask in the common discussion. After five minutes' conversation, the small groups had the opportunity to ask the group's leader questions.

In this case, the students also wrote feedback on a flipchart. They described the method with the words 'good', 'different', 'effective' and 'prompt'. One major benefit in this method was that it mixed the large group well and helped the students get acquainted with each other.

Forming groups by using animal figures

In this exercise, groups were formed by using animal figures. 40 people were divided into 10 groups of 4, and to achieve this, the leader of the exercise needed 40 figurines of 10 animal species. The figurines were put in a basket, and each student in turn picked up a figurine. Each student looked for the figurines of the same species as theirs and, thus, each species formed a group.

A problem encountered with this method was that some of the species used were too similar. For example, distinguishing between a goat and sheep was challenging. The number of group members was not divisible by four and consequently one group had only two students. In this exercise, however, it was not a problem.

Practical implications of group formation at Mamk

Several innovative methods of group formation were piloted in the study curriculum of the international Business Management programme and interdepartmental work with international students. The following methods will be discussed in greater detail: *team identity, logo, card triangles, silence is golden,* and *machines*. The original ideas regarding the use of such methods in business activities were developed by Miller (2015). However, application of the methods and their further development in line with the learning objectives of the international students at Mamk was done by the author. These methods are well-suited for students that meet for the first time and do not know each other very well. The methods described below help a group to strengthen the group spirit, solidify students and learn the students' personal and group characteristics required for formation and further development of the group.

The first method is called *team identity,* in which the student group was first divided in smaller groups called teams (3–5 members in each team). The task for each team was to make a statement about the team's identity in about 10 minutes. The students were given some examples of how they could make their statement: a short play (no more than five minutes long), picture, series of pictures, song, poem, mime, or any

combination of the above. As a result, some teams presented the statement about their team identity by singing and others by playing a game they had developed.

The second method is called *logo*. Each team (3–5 students in each team) had approximately one hour to design a logo for their team with the following conditions: the design must be unique, any materials available may be incorporated into the design, and the design must be radically different from any previous or present logo.

The third method is called *"card triangles",* and it is about the students' ability to participate in negotiations effectively. The idea is to barter the missing card triangles from the other teams as quickly as possible pursuing the team objectives and strategy developed during a short planning stage. In the pilot, a student group was divided into eight teams of three or four members. Each team received an envelope containing triangles of playing cards of different suits (i.e. clubs, diamonds, spades and hearts). Each card was cut into two equal triangles. The teams had about 5 minutes to check the available card triangles and develop a strategy for bartering (i.e. trading without using money or money equivalents). Bartering itself lasted 10 minutes. The winning team was the team with the largest number of complete cards by the end of bartering. Bartering was considered to be a part of the negotiation process practiced by the student teams. The success of a team can be assessed by the willingness of the other students to trade with the team, by the negotiation tactics used during bartering and by the necessity to change the team's strategy during the game. Each team also needs to understand which skills are the most essential for winning the game. Finally, the students practiced effective use of time, information and resources during a negotiation in a typical work situation.

The fourth piloted method is called *silence is golden*. This method is designed for improving the level of communication between group members, in particular non-verbal communication. The original group of students was again divided into smaller teams. The objective of the teams was to draw a picture illustrating their ideal work or study environment without uttering a word during the whole process. Each team consisted of six participants. Flipcharts were given to all the teams in order to draw a real obstacle a work or study organisation may face. Speaking was not allowed during the task (for approximately 10 minutes). After completing the task, the teams presented their ideas to the rest of the group. The following aspects of the learning process were assessed in the task: common features of all drawings in the group; communication methods within each team; accuracy and productivity of non-verbal communication; and examples of work implications discussed by each team.

The fifth method is called *Machines,* and it refers to an activity in which team members construct human machines. Students learn how to create customer-driven products and be fully involved in a development process. In the pilot, the whole student group was divided in smaller teams of 6–10 members. Within 6 minutes, the student

teams were supposed to design and build a human machine with one important condition: all the members of the team must represent parts of the machine. In the end, each team demonstrated its machine to the rest of the group. The following issues were discussed in the task: how to decide the machine together; how to solve disagreements in the team; how to come out of the comfort zone in order to complete the assignment together.

DISCUSSION AND CONCLUSION

Grouping is a process the purpose of which is to increase the sense of security of members of a new group in different ways. The group leader's expertise is a significant factor affecting the decision how much time can be allocated to increasing the sense of security. The degree of sense of security can be defined on a scale T1–T8. The pursued degree should be defined according to the group's needs. At teaching situations, reaching level T5 (frank) or T6 (accessible) is recommended. The levels are suggestive, and the leader must assess which degree is best to aim at. (Aalto 2000, 69–70.)

Constant positive feedback on a group's performance from the leader is necessary. In a school environment, students need to know the various skills and features by which their performance will be evaluated and scored. There are a lot of aspects on which it is good to give feedback. These include, for example, listening skills, positivity, responsibility, patience and ability to control one's feelings. In facing problems, it is very important to solve the problem properly and to identify and let out negative emotions. This increases the sense of safety and a good atmosphere. The attitudes towards other group members are also essential in increasing the sense of safety. The actions of group members are important when others are opening up and talking about their problems. If someone expresses oneself and others disparage the person, the degree of safety is not very high. (Aalto 2000, 70–76.)

The leader's role in a safe group is important. In a good and safe group, the leader is natural in their role and is appreciated by the members. A good leader can see the needs of the group and change the habits of the group depending on the situation's requirements. Without direction, it is difficult for the group to function. It is the leader's responsibility to lead the way and help the group make decisions. The leader's task is also to acquire the resources required by the group and share his/her knowledge. The leader does not have to do everything by him/herself. With clear instructions, tasks can also be divided. Giving feedback to the group is important. Only by receiving feedback, the group knows where they have succeeded and what needs improvement. When the group knows their mistakes, it is easier for the members of the group to improve themselves. (Kopakkala 2011, 88–89.)

It is natural that a new group is cautious in the beginning. The leader must respond by exploring new environment, setting boundaries and adding members to a group situation. After setting the boundaries, the leader should tune the group to complete tasks. The tuning can be done functionally or, depending on the situation, by giving the members a chance to express their opinions. The leader can use various aids to divide the members into subgroups. The leader is responsible for acquiring the needed resources and guiding their use.

Innovative principles of forming groups and pairs are the subject of the present article. First, group and pairs are considered theoretically as a process with its functions and developmental stages. At the following stages, two lecturers at the Business Management of Mamk present practical observations of pair and group formation using various creative methods. The methods of grouping as well as roles of the leader were described in the discussion section of the article. The findings of the article can be used in higher education across disciplines in order to form productive teams and groups.

REFERENCES

Aalto, Mikko. (2000) *Ryppäästä ryhmäksi* [To cluster as a group]. Ryttylä: My Generation.

Bottas, Outi. (2010) *Kulttuurit tutuksi-oppikirjan opettajan materiaali.* Opetushallitus. [Getting familiar with cultures – the textbook's teacher material. Board of Education] [Online], Available: www.edu.fi/kulttuurit_tutuksi/tutustumis_ja_lammittelyleikkeja/prime101.aspx. Referred: 1.9.2016; Updated: 29.07.2010.

Cartney, P. and Rouse, A. (2006) The emotional impact of learning in small groups: highlighting the impact on student progression and retention. *Teaching in Higher Education*, 11 (1), pp. 79–91.

Kopakkala, Aku. (2011) *Porukka, jengi, tiimi.* [Crowd, gang, team.] Helsinki: Edita.

Miller, Brian Cole. (2015) *Quick Team-Building Activities for Busy Managers. 50 Exercixes Tha Get Results in Just 15 Minutes*. Second Edition. New York: Amacom.

Napier, W. N. and Gershenfeld, M. K. (1999) *Groups: Theory and Experience.* Sixth Edition. Boston: Houghton Mifflin.

Oakley, B., Felder, R., Brent, R., and Elhajj, I. (2004) Turning Student Groups into Effective Teams. *Journal of Student-Centered Learning*. 2(1).

Robbins, H. and Finley, M. (2000) *Why Teams Don't Work: What went wrong and how to make it right*. London: TEXERE.

Schein, Edgar H. (2010) *Organizational culture and leadership*. Jossey-Bass.

van Villet, Vincent. (2014) *Organizational culture model by Edgar Schein.* [Online], Available: http://www.toolshero.com/organization/organizational-culture-model-schein/. Referred: 10.10.2016. No updating information.

Waite, S. and Davis, B. (2006) Developing undergraduate research skills in a faculty of education: motivation through collaboration. *Higher Education Research & Development*, 25 (4), pp. 403–419.

11. PILOTING THE K-W-L-H METHOD

Petteri Tiljander and Marjaana Roponen

INTRODUCTION

We got the opportunity to participate in the Development and Facilitation of Innovative Pedagogy in the Nordic–Russian Context (NORU) project. Our task was to use an innovative teaching method and afterwards report and present our implementation of the method. First we set our main goal for the method; we wanted to do something to motivate and activate our students. We discussed a lot and tried to find a so-called new innovative and activating teaching method. After a couple of days of hard work with methods and theories, we got an idea. Innovativeness is not only something new, it is also a new way of using something old. That was how we found our innovative method: K-W-L-H. The K-W-L-H method is a reading comprehension strategy from the 1980s to help activate students' prior knowledge and to be oriented for future learning. We wanted to apply the method to find out what students already know about a subject, what they want to learn about the subject and which methods they want to use to learn.

We are both lecturers of entrepreneurship at Mikkeli University of Applied Sciences (Mamk). We mostly have similar students, with similar study models. Anyway, we wanted to get slightly different results from implementation of the method and we ended up experimenting with it with two different groups of students. Petteri chose to work with second year hospitality management students in Planning and developing business study module and Marjaana implemented the method in study module Productisation of electric services with third-year students of the Bachelor of Business Administration Information Technology degree programme.

Our article presents two implementations of the K-W-L-H method. The theoretical part of the article concentrates on constructivism and learning, entrepreneurial education and, of course, our teaching method K-W-L-H. After that we shall present how we implemented the teaching method and what kind of results we achieved in these two different study modules. At the conclusion and discussion part of the article, we will try to find the differences between these two implementations and evaluate whether we reached our goals by using the method.

CONSTRUCTIVISM AND LEARNING

In the heart of constructive learning is the individual's way to understand the surrounding world. The theory suggests that humans construct information based on their prior knowledge and experiences. Understanding has an essential role: it is important for a student to become aware of recent knowledge and the areas that still need to be learned. This will help to set relevant goals for future learning. (Rauste-von Wright, Wright & Soini 2003, 162–167.) The student is, therefore, given more alternatives for gaining new knowledge in certain frameworks and held responsible for reaching the objective, which will increase the motivation for learning.

The teacher's role is to create learning environments that raise questions and help students to construct answers by understanding the goals. In a goal-oriented learning process, the teacher has to understand and become aware of the learner's comprehension of a current subject. Learning is always bound to a certain context, in which information is being used. (Rauste-von Wright, Wright & Soini 2003, 167–170.) Teaching is an interactive process, in which mutual understanding between the students and the teacher is essential for achieving good results.

ENTREPRENEURIAL EDUCATION

It has been proved that entrepreneurship and entrepreneurial behaviour can be taught so the main question for teachers of the subject should be: how should entrepreneurship or entrepreneurial behaviour be taught? What are the teaching methods that align to students, environment and objects? Three main focuses of entrepreneurial programmes are: giving entrepreneurship orientation and awareness, development of students' economic self-sufficiency, self-employment and competences for enterprise formation and survival and growth of small businesses. Generally, methods can be categorised into two groups: traditional methods, which are passive, and innovative methods, which are active. The biggest difference between these methods, from the teacher's point of view, is that, use of active and innovative methods requires the teacher to facilitate learning. At the moment, lecturing is still the most used method, so there is a lot of work to do. (Mwasalwiba 2010.)

Mwasalwiba (2010) researched 108 different articles to find out what the definitions and objectives, target groups, teaching methods, evaluation and impact indicators of entrepreneurship education are. The field of entrepreneurship teaching is shifting from a common conceptual approach of teaching basic competences of business and entrepreneurship towards teaching increasingly about entrepreneurial behaviour. Some of the new goals for entrepreneurship teaching are increase of entrepreneurial

attitude or culture and new venture creation. These changes stem from the belief that entrepreneurship can be a solution to some economic problems in our society. Entrepreneurial approach to attitudes, values and culture is driving over the old focuses of entrepreneurship teaching. This development also requires changes to teaching methods. To reach these new educational objectives, use of innovative and active teaching methods must increase substantially. It is generally agreed that traditional methods are not so effective to encouraging entrepreneurial attributes. Theory-based teaching should not be abandoned completely although it is not the way how students can acquire attributes, behaviour and skills to succeed as an entrepreneur. That requires entrepreneurial actions, something practical. We have to give to students an opportunity to question, discuss, investigate and converse. This way we can gain both knowledge and skills and also stimulate students' attitudes.

TEACHING TECHNIQUE K-W-L-H

The reading comprehension strategy K-W-L-H was originally developed by Donna Ogle in 1986 to help activate students' prior knowledge and to be oriented for future learning. K-W-L-H is formed by a group of activities that serve as a model for active thinking (see figure 1). The K-W-L-H stands for:

- K for what I KNOW: stands for helping students recall what they know about the subject
- W for what I WANT to know: stands for helping students determine what they want to learn
- L for what I LEARNED: stands for helping students identify what they learn on the way
- H for HOW I learned it: stands for how we can learn more.

K What I KNOW	W What I WANT to know	L What I LEARNED	H HOW I learned

FIGURE 1. K-W-L-H- technique: a template view (source: Ogle 1986)

In the beginning, students brainstorm what they know and what they would like to know about a topic. Responses are recorded on a chart. Learning activities and readings are presented and the students fill in the chart what and how they have learned. Afterwards, they list sources that can provide them even more information on a certain subject. (Ogle 1986.) In conclusion, the students are aware of intended outcome of a certain task or a study module and will therefore know what to focus on. The motivation for studying will increase and learning will be more efficient.

IMPLEMENTING THE K-W-L-H METHOD

The K-W-L-H-method was implemented at Mamk in the beginning of a fall semester. Two different study modules, Planning and developing business and Productisation of electric services, where chosen as the study modules to experiment the method in two distinctive ways.

Planning and developing business

KWLH method was utilised in the Planning and developing business study module with second-year hospitality management students. At the start of the study module, the content, goals and assessment principles of the studies were discussed thoroughly. Contents of the study module were:

1. What do business and business plan mean?

2. How can business be created from a service or experience?

3. How can a business idea be created for a restaurant or tourism business?

4. What are the requirements for profitable and continuing business?

The main task of the study module was to prepare a business plan and, hence, the main focus of using K-W-L-H was also on the business plan.

The main purpose of using this method was to activate and motivate students to learn by giving them the opportunity to tell what they want to learn and how. From the teacher's point of view, it is useful to gain a better understanding of the students' prior knowledge. I inquired about the effectiveness of my teaching after one month into the course and also what the students would still like to learn by the end of the study module. I also wanted to use activating methods during the process.

K-W-L-H was implemented in four steps. In the first step, I used brainstorming to find out what the students already know about the subject. The next step was to find

out what the students want to learn. For that I used the snowball method. The third step was after one month of teaching and the point of view was based on steps one and two. The main subjects that I taught were: a business idea and models, the structure and contents of a business plan, social capital and networks. The last step was the evaluation of learning in the fourth step. I also wanted to find out what kind of teaching methods the students want to use during the remainder of the study module. For that I used the learning café method with four subjects. These subjects were:

1. How to make a business plan?

2. What have we learned by the month?

3. What I want to ask about subjects?

4. How can we learn more?

All the results were tabulated and discussed with the students.

Productisation of electric services

In the study module Productisation of electric services, the students were third-year Bachelor of Business Administration Information Technology students. At the early stages of the study module, the contents, goals and assessment principles of the studies were discussed thoroughly. The students were informed how the studies will proceed during the fall semester and what kind of materials will be used and received information about cooperation with a business partner and how the individual and group assignments and exam will be evaluated.

K-W-L-H was implemented then in the form of an assignment. The questions were composed according to the K-W-L-H principles and shared via the Moodle learning platform. The students were asked individually and anonymously four questions, keeping in mind the content of the study module, their prior knowledge and personal goals:

1. What do you know about the topic? Try to recall subjects you have studied before.

2. What would you like to learn? Write down 3–5 facts in the form of questions (e.g. how electric services are productised?).

3. What do you still need to learn in order to accomplish the required skills?

4. How and in what ways can you learn more?

All the questions were asked at the same time. The students had one hour to answer all four questions and they returned the assignment in Moodle.

RESULTS

Planning and developing business

The results of the process can be seen in figure 2, which contains a lot of good information about the students' knowledge: what they want to learn, how, and what I have managed to teach them in one month. The students had superficial knowledge about the subject, but they also had an understanding of what they should more about. From that, it was quite easy for me to plan what I should teach next. The last step helped me understand the effectiveness of my teaching and showed that learning by doing is the best way from the student's point of view.

K What we know?	W What we want to find out?	L What we learned?	H How can we learn more?
BP deal with money • BP contain financing plan & calculations BP include: • Basic facts about company • SWOT analyze • What, where, whom, how • Permits, target groups & Cooperation partners • Execution of business idea • Decripe how the company work • Risks Making of BP brings benefits to company, because: • It gives you knowledge about the company and business. • You can use that to get money Every company should have BP. BP is made for company, banks and business angels.	1.Contents **Risks:** Common business risks Identifying of risks Preparing to risks **Financial projections:** Capital requirements Profitability & Sales calculations 3-5 Performance plan **Staff & know-how:** Individuals and team know-how How utilise the know-how Sozial capital Networks 2. Customer segmentation 3. How to compose BP	Structure and contain of BP BP should be compact, pithy and matter of fact Important things are risks, calculatios, marketing plan and backround research Businessmodels and BMC Mapping of know-how Social capital & Networks are important to everybody. How I can increase my networks and how I should behave in my networks. People who have a lot of friends lives happily and longer Outsource bookkeeping You should consider a really carefully to start as a entrepreneur	Learning by doing - Try & Fail - Wonder - Research - Doing demonstrations - Monitoring another students - Doubt Reading theories and stories Discussing with professionals Networking Google Evolution do the work

FIGURE 2. K-W-L-H technique applied to the course "Productisation of electric services" at Mamk (source: Petteri Tiljander)

At the end of the process, we discussed about the method and how the students feel about it. The best feedback was given in that discussion. The students said that the process had brought back their knowledge about the business plan and that they had obtained new knowledge and skills during group work. After this experiment with the K-W-L-H method, I think I will implement it to all my study modules in the future. K at the start to help planning, W a little bit later to get some new focus areas, L to find out the impact of teaching and H to activate the students to learn more and find out the best learning methods.

Productisation of electric services

The K-W-L-H assignment helped gain a lot of useful information. The first question was "What do you know about the topic? Try to recall subjects you have studied before." The results indicated that some of the students had already studied productisation, design management and other areas of service management. In general, the students had little understanding pertaining to the field of actual productisation.

In the second question "What would you like to learn? Write down 3–5 facts in the form of questions (e.g. how electric services are productised?)" the students formed questions in respect to their preferences to learning. The questions (the answers) were mainly related to developing and producing electronic services. In addition, some erroneous assumptions with respect to the topic were brought up. The answers to the third question "What do you still need to learn in order to accomplish the required skills?" were mainly related to the goals of learning. In the answers to the fourth question "How and in what ways can you learn more?", the teaching methods were approved and thought to be suitable and versatile for learning.

DISCUSSION AND CONCLUSIONS

Even though the same method was used, different areas of the same method were emphasised in the two study modules. In the Productisation studies, the first two activities proved to be the most important ones — although all the areas were meaningful as a whole. The assignment was carried out at the early stages of the study module and was a helpful tool in planning. On the other hand, in the Planning and developing business study module, the method was implemented over a longer period and divided in two sections. After the first half, the students had time to learn more, assimilate information and reflect on what they had learned before answering the last two questions.

The biggest differences between these two ways of implementing the K-W-L-H method were the outcomes and benefits of the process. If the whole process is completed at the start of a study module, the teacher receives much information, which can be helpful in the immediate planning of the study module. If the process is used during the entire duration of the study module, the teacher will not receive so much information for planning but valuable feedback from students throughout the study module. It also provides a platform for discussion, and the teacher can evaluate the impact of teaching at the end of the course. In conclusion, the method can be adapted and used in various ways according to study modules and goals.

In these two implementations of the K-W-L-H method, the main goals were to activate and motivate students to learn. In addition, the teachers wanted to form a better understanding of the students' perceptions of their prior knowledge concerning productisation and business planning. These goals and more were achieved.

From the student's perspective, it was useful to recall facts and prior knowledge in relation to the subject at hand. They also had the chance to think about how to adapt previous experiences and information to new information and to approach the studies at hand. The students evaluated the goals and assessment criteria from their own perspective and determined the best means to develop their skills. They set personal goals for themselves. Giving students responsibility leads to better motivation for learning.

From the teachers' point of view, it was very important to gather information of all these areas and to gain knowledge of the students' perceptions of their prior and recent knowledge. The students had the opportunity to make their ideas visible and, therefore, interaction between the teachers and the students was better from the very beginning.

One of the outcomes of using the method was that it gave insight for both teachers into which areas should be emphasised in learning. The answers revealed also some incorrect assumptions concerning business principles. These issues were discussed later and some false presumptions were corrected — so the foundation was laid for future learning.

Working with the NORU project in Denmark also gave us a lot of understanding about our own learning styles. Marjaana´s learning style is more theoretical and reflective and Petteri´s learning style is more active and pragmatic. We think that it may be one reason why we implemented the method so differently. The conclusion from that point of view is: teachers must understand and consider their learning styles and its influence to teaching methods they use. Different learning styles complete each other when teachers are working together. This poses the questions whether learning institutes should test and consider a teacher's learning styles when recruiting the teacher and what kind of a mix of learning styles there are.

REFERENCES

Mwasalwiba, E. S. (2010) Entrepreneurship education: a review of its objectives, teaching methods, and impact indicators. *Education + Training*, Vol. 52 Iss 1 pp. 20–47.

Ogle, D. M. (1986) K-W-L: A teaching model that develops active reading of expository text. *The Reading Teacher*, 39, pp. 564–570.

Rauste-von Wright, Maijaliisa, Wright, Johan and Soini, Tiina. (2003) *Oppiminen ja koulutus.* Helsinki: WSOY.

Weaver, C. (1994) *Reading process and practice: From socio-psycholinguistics to whole language* (2nd ed.). Portsmouth, NH: Heinemann.

12. USING PHYSIOLOGICAL ICEBREAKERS AS A TEACHING TOOL: A REPORT FROM A CLASSROOM EXPERIMENT

Peter Storm-Henningsen and Simon Lund

INTRODUCTION

The classical idea of amending the circumstances in order to provoke creativity appears famously with Wallach & Kogan (1965) and their measures of divergent thinking. This way of thinking creativity builds on the thoughts developed by Johan Huizinga [1944] and is to a large extent equivalent with play. It has, therefore, in this context been natural to involve exercises that involve bodily exercise and gymnastics (Sims 2006).

It is, however, often hard to single out the physiological and kinaesthetic elements from the mere cognitive elements of roleplay, association techniques, changes of environment and other classical tools for facilitating idea generation. The reason is that these different elements are often integrated in the same exercises (for examples, see Gray et al. 2010 or Michalko 2006), and hence it is hard, if not impossible, to distinguish between the effects of the various elements of the creative tools.

In creative workshops as well as in classroom teaching, both cognitive and kinaesthetic elements are frequently singled out, and used in relative isolation as so-called "icebreakers" or "energizers". An icebreaker we may define as a kind of intermezzo, a part of a process that is thematically detached and independent from the rest of the activities or stages of the process in question. It is simply characterised by its appearing out of context to the participants, since it has little or no relevance to the overall goal of the process. However, it is supposed to lead to an increased level of energy and attention, thereby having a positive effect on the engagement and motivation of the participants, and, in turn, on what remains of the process.

Despite its extensive use, both in classrooms and in workshops, this topic on the specific gymnastic (kinaesthetic and physiological) exercises have only rarely been explicitly considered in the literature on creative processes (but see Sims 2006 & Byrge & Hansen 2009) and classroom teaching (an exception is Dennison & Dennison 2010, but see Hyatt 2007), probably because it is supposed to be something extra to the creative or cognitive processes as such. However, due to its frequent use, entire encyclopaedias have emerged on icebreakers of various kinds (Carter 2011, West 1999), but only rarely involving any kind of evidence or theoretical explanation.

We therefore set out to conduct an experiment, in order to observe the effects of using a gymnastic exercise as an icebreaker in a common teaching situation at a Danish high school and in order to obtain some first-hand piloting experience and observations, on which to found later studies in the field. Especially, we were interested in the duration of the energising effect, if any, as well as the effects on the motivation for participating in the succeeding classroom activities. Nonetheless, we decided to also pay special attention to any unexpected effects, physiological as well as cognitive.

METHOD

One of the authors worked as a teacher (Simon Lund) in an elective subject under the heading "Business Studies", at a Danish high school in Herning (Herning HF & VUC), a middle-sized city at the centre of Jutland. Being an elective subject, many of the students were not closely acquainted with each other, which meant that we would limit the effect of any potential strong sub-culture, which is often found with more integrated groups of students. Another parameter for choosing this class was that there is no tradition for using icebreakers of this sort in the school, and we expected therefore that the students would be taken by surprise and perhaps feel uneased.

In order to minimise the unease of the students, and therefore improve the chances that the students would willingly participate, we decided that the teacher should begin by demonstrating the exercise. First, they were supposed to slowly rotate their hips, on the teachers lead, and, second, the pace should gradually be increased, ending up in a joint gymnastics dance.

We then observed two short-term effects, one being the intensity and duration of any energising effect, the other concerning motivation for the teaching that followed the icebreaker, especially related to the activity level of participation. We also decided to observe potential long-term effects, especially on the overall engagement and motivation for the following classes in the following 3–4 weeks.

We therefore decided, that in the case of observing significant or potentially unexpected effects, we would make a follow-up exercise 11 days later, both in order to observe if the short-term effects could be reproduced, and, secondly, in order to find out if we could observe any long-term effects more closely. The second icebreaker would have a close resemblance to the first as it would also be a physiological engagement of the students. Again, they would be required to follow the teacher's lead. Then they would be instructed to swing their right leg back and forth, followed up by swinging the left leg back and forth.

EXPERIENCES

The first and main intervention or icebreaker took place with 14 students on Friday 16 September 2016.

Before the class, the students were informed that the original intention was to teach theory followed by group work to ensure that this would be the expectation the students would have at the beginning of the class. When the teacher arrived, the students appeared as not being motivated. Showing little interest in the tasks presented to them, both verbally and by highly dismissive behaviour, the lack of motivation, some students explained to the teacher, was enhanced by the "fact" that many students had their main focus on the upcoming weekend rather than on the learning activities that were going to take place in the class.

The students were asked to stand up, introduced to the gymnastics exercise and then instructed to follow the teacher's lead. When the teacher began to rotate his hips, all the students were standing up. At first, there was no response other than a sceptical look on many of the students' faces. The facial expressions of the students appeared to signal surprise and unease, but then they slowly began to follow the teacher's lead, until they were fully engaged in the gymnastic exercise. Eventually, the students developed a rather playful mode of behaviour. They began to make up new variations of the exercise and laughed aloud.

This radically affected the following group interaction and significantly raised the motivation for the teaching of theory and group work that awaited. However, as time passed, many went back to their former initial state of lack of focus and lower energy level. We believe that the exercise and mental stress involved in the icebreaker, not only made the students relapse into their former state of disengagement, but also made them display signs of exhaustion and tiredness, or so we believe.

Another unexpected result was that there seemed to be a clearly visible social impact, as the icebreaker seemed to have a teambuilding effect on the group of students. In the classes that followed, the group was clearly more communicating and supportive of each other. There was also an effect on the social penetration in the group of students, which made them perform better in group work. Whether this effect was extended beyond the elective topic to classes in the standard, non-elective, topics, is uncertain.

Despite the fact that there was a significant difference in age with a span of 20 years between the youngest and the oldest student, the difference in age appeared to have little or no impact on the effect of the icebreaker

The second and supporting intervention or icebreaker took place with 11 students on Tuesday 27 September 2016.

The second icebreaker seemed to have roughly the same short-term effects and did not add much to our impression on the long-term teambuilding effects. We did not observe any enforcement of the effects either, neither on the short nor long term. As we would expect the magnitude of the element of surprise to be much less in the students compared to the first time, and as we had already observed major improvements in the group integration, this was a surprise to us, as we would have expected these factors to have a significant bearing on the effect of the icebreaker.

DISCUSSION

There was clearly experienced an energising short-term effect of the use of physiological icebreakers in connection with classroom teaching. However, what was a bit surprising, the energising effect relatively quickly relapsed. In fact, we believe that it could justly be questioned whether this effect would be an improvement compared to many cognitive icebreakers. To illustrate this point, consider the following example:

In his famous video lecture on creativity from 1991, John Cleese repetitively uses light-bulb jokes as a way of sustaining the interest and energy of the audience. The jokes appear irrelevant to the main theme of the speech, but help maintain the audience's attention during the more than 45 minutes of reflections on creativity of research, theory and praxis. Hence, these jokes work as icebreakers, and they do to a large extent provide a "disturbance" to the audience and help maintain and regain attention to the subject matter.

Compared to our physiological icebreakers, it is notable that even though we did get more intensity by deploying the icebreakers, we also noted signs of succeeding exhaustion. Hence it is unclear what would benefit students the most over different timespans. There might be other recommendations to teachings and lectures lasting 45 minutes, compared to course modules of 3 hours etc.

The most remarkable effect of the icebreaker was a permanent improvement of the climate in the class of the elective subject, an effect that was observed consistently in several weeks following the icebreakers. This may in part also be due to several other icebreakers deployed regularly in the class since the two initial experiments. However, it is notable that we did not experience any significant change of effect in this regard when deploying the second icebreaker. The reason may be, then, that the initial effect on the climate and group interaction was due to the fact that the students all got a common experience, a shared embarrassment, that facilitated social penetration and that the following icebreakers did nothing but remind the students of this common ground and then had an effect of maintaining the existing climate, rather that developing it. It is, however, notable that the students in general are more smiling and laughing now than before.

An element in this might be the teacher as a role model expanding the framework of what is admissible behaviour in the class. This might result in a whole new level of interaction. On the basis of the experience from this case, it is recommended that icebreakers be deployed when needed in classroom teaching. Furthermore, it is recommended that larger studies be conducted in order to create more knowledge on the various aspects of uses of icebreakers in classroom teachings.

REFERENCES

Byrge, C. and Hansen, S. (2009) The creative platform: A didactic approach for unlimited application of knowledge in interdisciplinary and intercultural groups, *European Journal of Engineering Education* 34:(3), pp. 235–250.

Carter, J. (2011) *Over 600 Icebreakers & Games: Hundreds of ice breaker questions, team building games and warm-up activities for your small group or team*, Hope Books

Dennison, P. and Dennison, G. (2010) *BrainGym – Teachers Edition*, Revised, Edu-Kinaesthetics, Ventura.

Gray et al. (2010) *Gamestorming – Rulebook for Innovators, Rulebreakers and Changemakers*, O'Reilly, Sebastopol.

Huizinga, J. (1950) [1944] *Homo Ludens. A study of the play-element in culture*, Royal Publishers, New York.

Hyatt, K. (2007) Brain Gym – Building Stronger Brains or Wishful thinking?, *Remedial and Special Education* 28: (2) 117–124.

John Cleese on creativity, Video Arts 1991; Video Lecture, [Online], Available:

https://www.youtube.com/watch?v=5xPvvPTQaMI. Referred 13/10 2016.

Michalko, M. (2006) Thinkertoys, 2nd ed., Ten Speed Press, New York.

Sims, N. H. (2006) How to run a great workshop, Pearson Education Limited

Wallach, M. A. and Kogan, N. (1965) Modes of thinking in young children, Holt, Reinhart, & Winston, New York.

West, E. (1999) The Big Book of Icebreakers: Quick, Fun Activities for Energizing Meetings and Workshops, McGraw-Hill.

13. THE 24-HOUR INNOCAMP METHOD

Anna-Maija Torniainen

INTRODUCTION

The paper describes the 24-hour Innocamp concept that was developed in the "Development of working life-oriented R&D in universities of applied sciences – Open house 2014–2015" project. The project aimed at developing research and development activities at universities of applied sciences by increasing the exchange of knowledge with working life. To achieve the aims of the project, certain activities were organised during the project. One type of activity was the 24-h Innocamp for students.

The 24-h Innocamp is a 24-hour totality, during which the students work on innovative ideas for a real company case provided by a local company. The idea behind the camp is to implement a new way of learning and teaching. The Innocamp gathers students (approximately 15–25) from multiple disciplines. The students from different study fields form multidisciplinary teams that work together for 24 hours to solve the problem of the company and, ultimately, presenting their solution and ideas to the company representative. The first Innocamps were arranged in spring 2015.

At Mamk, the Innocamps were built upon the focus areas of R&D activities, such as digitalisation. The fields of expertise at Mamk are Sustainable Wellbeing; Materials Technology and Environmental Safety; and Digital Archiving and eServices.

CHANGES IN LEARNING ENVIRONMENT

Ways to implement teaching are changing. Learning environments are becoming more working-life oriented and new styles of teaching, such as mentoring, we can read about in the media on a constant basis. In the midst of an environment of rapid restructuring, new kinds of learning environments are needed, and company cooperation has become an essential part of students' everyday studies and teachers' work in universities of applied sciences.

Working-life orientation in studies can be the first contact to working-life challenges for the students. In teaching, working-life orientation points out the needs that are expected of graduating students in working life. According to Keränen and Savolainen (2010, 14), working-life-oriented teaching causes in students the feeling of real learning instead of ordinary theory-based learning. Working-life-oriented studying brings along the responsibility for one's actions and results. In working-life-oriented studying, the needed know-how is achieved, so it is easier to cut away parts of the taught subjects that do not meet the needs of working life. Keränen and Savolainen (2010, 23) articulate that introducing working life to teaching enriches and gives the learned matters a meaning. This enables to motivate students and therefore helps them to become more prepared for working life as professionals.

In Mamk, the degree programmes are implemented in close cooperation with the business community, and actual working-life-oriented learning environments and development needs are constantly present. The strategy of Mamk stipulates that every student has to have the possibility to participate in at least one authentic company project or R&D project during a semester. In practice, this means that the students work on real working-life assignments that form a part of their studies. These assignments can be linked to a single course or be common for all courses within a module. The purpose is to apply theoretical knowledge to practice. Through these real working-life assignments, the students gain better readiness to perform in working life and to network with companies and organisations already during their studies (Study plans: Mikkeli University of Applied Sciences 2015–2016).

Cooperative learning was brought to life in the 1970s. According to Repo-Kaarento (2007, 33–35), in this pedagogical orientation, a large group of students is organised into communicating and working small groups. In the approach, every team member's active participation highlights reaching for the common goals. Competition in the group is intentionally minimised. Cooperative learning aims at developing the students' social skills and intensifying teamwork. Repo-Kaarento (2007, 44) states that the learning method engages students and increases their motivation. In cooperative learning, the guiding role of the teacher is highlighted. The teacher creates a learning environment where the assignments and their cooperative structure promote the learning.

THE 24-H INNOCAMP

The Innocamps were organised to pilot new learning environments that encourage the research and development activities and cooperation with working life in the universities of applied sciences. Other camp objectives included increasing the cooperation of students and teachers with experts from other organisations and developing the research and development capabilities of staff members, students and teachers.

The concept of the 24-h Innocamp

The purpose is to experiment with a new way of learning and to create innovative solutions to a real company problem. The 24-h Innocamp gathers together students (approximately 15–25) from multiple disciplines. Students from different study fields form teams and are assigned a real company case from the partner company. The case can be anything that the company wishes solutions and new ideas for. When working in multidisciplinary teams, the students learn project management and teamwork skills. The teams are assessed on the basis of teamwork, the final presentation or solution and the written group report of 3–5 pages (weighting: 80% presentation; 20% written report). The groups also write a blog about the experience.

Innocamp is organised in suitable premises for the event, such as in the company or at the university of applied sciences. The premises should be suitable for an overnight event. Teachers from different fields of study take part in Innocamp. They guide and mentor the students as a team during the event. One of the teachers acts as a mentor for the other teachers. The mentor teacher coaches the other teachers on this new kind of learning method and is also responsible for the assessment and grading of the students.

The students participate the Innocamp as a course, from which they earn 2 ECTS (24-h Innocamp including presenting the results and reporting). Based on applications received during the application period, the students who are truly motivated to participate in the camp are selected from several disciplines. In the applications, students are asked to tell why they want to participate in the camp. Some of the students may conduct the camp as a part of another course (could be e.g. Project management).

Implementations

The first camps were arranged in 2015. All camps were multidisciplinary, and there were students from multiple fields of studies. The students had 24 hours to create solutions for the company problems. At all camps, the assignments were related to developing services and new products. Digitalisation was crosscutting in the programmes.

The first camp was arranged at the university premises and implemented in the Xinno learning environment, which is a special space for group work at the campus. In Xinno, the students are encouraged for a new type of learning, in which they find solutions for real company cases and assignments. The solutions can be found by combining knowledge and skills from different study fields — students work multidisciplinarily in Xinno. The focus of the "Xinno activity" is on learning and teaching multidisciplinarily with new kinds of exciting methods. The goal is to provide a

meeting spot for students, staff and teachers, companies and other interest groups. (http://www.Mamk.fi/palvelut/xinno). The client was a holiday centre from South Savo region. The second camp was implemented at the company premises. The commissioner was a hotel from South Savo region. The students spent 24 hours at the company premises familiarising themselves with the surroundings and services and created ideas for the company. The third camp at Mamk was arranged in Xinno. The client was Metsä Group Ltd.

Description of the 24 hours

The program is built for the whole 24 hours (see attachment 1). The Innocamp starts with a kick-off meeting. The students do not know the client company before the camp. They are aware that they will be working on the assignment for 24 hours but no details about the case are given beforehand.

In the beginning of the camp, the company representative give a briefing about the company and the assignment for the students to work on. After the case lecture, the students are divided into multidisciplinary teams according to a plan prepared in advance. Some time is used for getting to know the group members. After this, the students will have a lecture about a subject related to and useful for the assignment.

The camp continues with an "idea walk". The students use half an hour to take "idea walks" individually. The students are able to go anywhere in the surroundings of the Innocamp-place. During these idea walks, the students ponder innovative ideas for the case and take notes of their ideas. After the walk, the students share their ideas with their teams. The teams gather together to brainstorm. After sharing every member's ideas, the teams start to proceed and work on their ideas for the company case. There are guiding hours during the camp, when all of the teachers help the group in any matter related to the project. In the evening, the students are also given presentation training, as the students come from different fields of studies and there might be individual differences in presentations skills and experience in performing in front of an audience.

The last guidance hour for the students is 9–10 p.m. After this, the students work independently until the morning. The teams have time until the morning to finish their presentation for the company representatives. At the end of the Innocamp, the students present their ideas to the company representatives, teachers and other teams.

SURVEY

Feedback was collected with questionnaires from all the parties of the two Innocamps arranged at Mamk in the spring of 2015: students, teachers and companies. Two different questionnaires were made for the students, teachers and company representatives.

Results of the survey

Company representatives

The feedback from the company representatives was collected via a Webropol questionnaire and feedback after the Innocamp. Before the Innocamp, the representatives were keen to know what the students' outcome could be and what this type of cooperation can bring to the company. They were interested to find out what the students come up with during the camp.

The company representatives were satisfied with the results of the camps. They were happy with the cooperation and it was mentioned that the Innocamps brought useful new angles and ideas to the business or operations of the company. The representatives also stated that they look forward to similar kind of cooperation in the future.

"We gained insurance for some earlier knowledge grievance, so fixing those will speed up by the fixing process".

Teachers

The teachers that were involved at the Innocamps were asked to give feedback of their participation and experience. Six out of the eight teachers (75%) answered the questionnaire.

The respondents represented different fields: natural sciences, tourism, catering and domestic services, social services, health and sports and social sciences, business and administration.

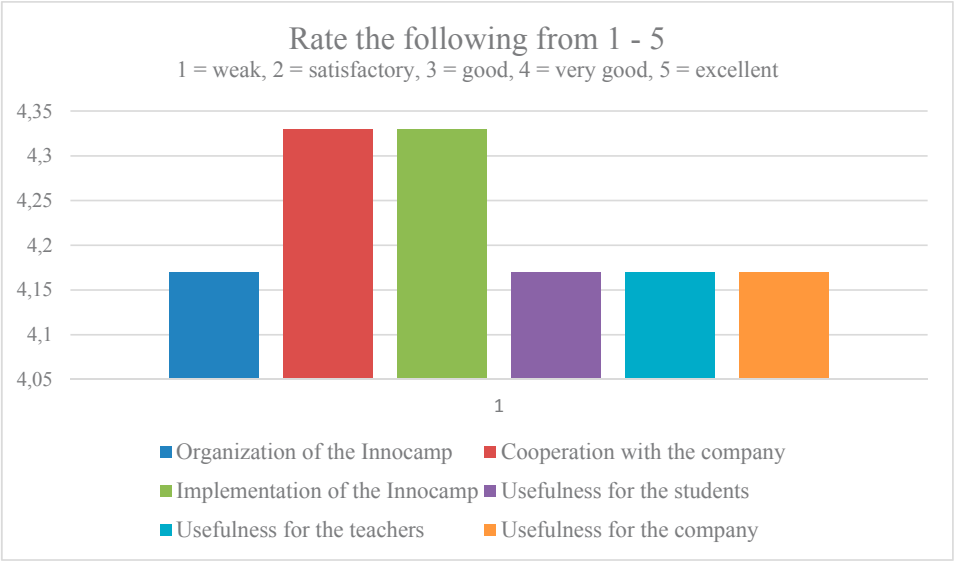

FIGURE 1. Rating factors related to the Innocamp

The teachers were asked to rate certain factors on a scale from one to five (1 = weak, 5 = excellent). The results were the following: organisation of the Innocamp (4.17), cooperation with the company (4.33), implementation of the Innocamp (4.33), usefulness for the students (4.17), usefulness for the teachers (4.17) and usefulness for the company (4.17). The results show that all of the factors were rated as very good. The respondents saw learning environments such as Innocamp as a good way to develop working-life-oriented R&D activities and to increase the R&D readiness of the staff and students.

"Good opportunity for multidisciplinary work, which itself is a good motivation factor. As a teacher, you get to see matters from a broader perspective and cooperate with colleagues."

Respondents were asked to describe the participation from the teaching perspective. The experience was seen as interesting, versatile and different. One of the respondents mentioned that the Innocamp gave many new ideas to implement in courses. It was suggested that the concept of the Innocamp could be utilised also in the Master level and as a Bachelor–Master coeducation combination in the future.

"Multidisciplinarity is a richness and should be utilised more".

"The company representative was very committed, and the approach of the company representatives during the camp was very positive and encouraging".

Suggestions for development

The importance of clear guidelines and duty descriptions between the teachers were mentioned in the feedback. Suggestions were given for the student recruitment process. It was suggested that targeted marketing for "good" and motivated students could be helpful to ensure the results for the client companies.

The teacher mentoring received the following feedback: the mentoring of the teams could be done in a way that the mentoring would be partly done by circling together in the groups. Also, more specific agreements on the teachers' roles and what to point out in the mentoring should be discussed carefully beforehand.

It was also suggested that teamwork could be started by the students even earlier by keeping the introductions shorter and by sending some materials to the students beforehand. Also, the importance of talking with the students about the things they learned during the Innocamp afterwards was stressed in the feedback. A day camp was suggested as a good alternative to the 24-hour lasting camp.

The assignments seemed to perfectly suit the background of the students. Also, the students reached the set goals, and the teams worked in positive and good spirit and were innovative. The cooperation with the company representatives was exciting and forthright. The lecture at the camp was well planned, supported the process and gave good ideas for working with the assignment.

The organisation, teachers' cooperation and atmosphere received positive feedback. All of the respondents were eager to participate in an Innocamp in the future.

Feedback from the students

Feedback was collected from the students via a questionnaire. From the 34 participants of the two Innocamps, 30 (88.2% of the participants) answered the survey. The respondents represented many fields of studies; production and management services, tourism, physiotherapy, business management and environmental engineering.

The students expected the camp to include intensive creative work with new people. Some of the respondents had no expectations for the camp. One of the respondents mentioned the fear of not coming up with any kind of idea during the camp. Some of the matters that the students were a bit nervous about beforehand included how the groups would be divided and how to get through the night without sleeping or with just a little of sleep.

Challenges and benefits of the Innocamp

The biggest challenge was tiredness. It was mentioned that it can be hard to maintain concentration when one begins to feel tired. One student stated that developing the idea and preparing the presentation for the company within the short time frame was a real challenge.

When asked about the benefits of the camp, the students most often mentioned team work, innovation, meeting new people and grouping with them. It was also mentioned that the fact that the camp was such a "tight totality" made it possible to stay fully concentrated on the assignment and prevented one's mind from wandering.

"Full steam from the beginning until the end."

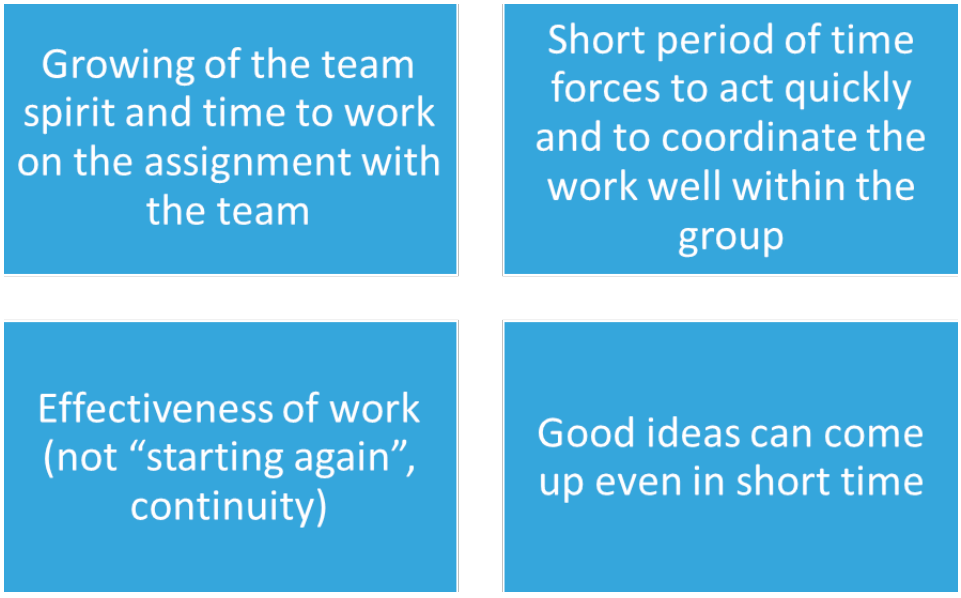

FIGURE 2. Some positive remarks the students listed

Students were asked what they learned and what kinds of skills they learned during the Innocamp. Students learned several things during the camp (see figure 3).

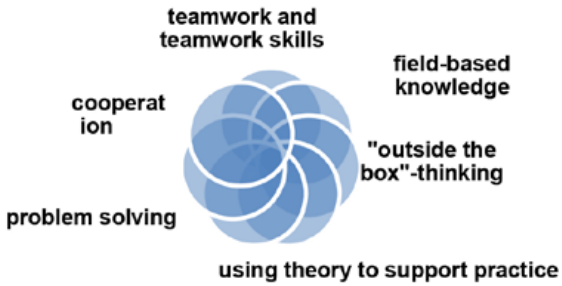

FIGURE 3. Learning outcomes and skills of students in Innocamps

24 hours was seen as a short time. Even longer, 48 hour camps were suggested in the answers. The innovative teaching and learning method and intensive focus on the subject received positive feedback from the students. Also, the social aspects and nature of the event were considered as facilitating teamwork; openness and familiarity within the groups grew as the students worked together intensely for the duration of the camp.

The development suggestions made in the survey were related to technical and practical issues. During the first Innocamp, internet connection had been lost over the night. The students wished that the connection would work for the whole time. Beds were also requested for resting. Students saw the Innocamps as an interesting and different experience. All in all, the Innocamps received positive feedback from the participants.

CONCLUSION

The Innocamp, a fairly new concept, works excellently as a learning environment. It can be proved that both the students and teachers' knowledge of working life grows in these types of events. As a learning environment, Innocamp enables many things: at best, it brings the members of a network together to collaborate on challenges encountered in working life, creates preconditions for multidisciplinary work and helps the teachers and students improve their research and development skills.

Students that participate in these kinds of camps may gain many useful skills that they need in their working life: e.g. tolerance of uncertainty and pressure, problem-solving skills and vital communication skills.

Companies may gain new angles and innovative ideas to develop their activities. Co-operation and interaction between different parties and the availability to work in a real-life context with real companies creates added value to the Innocamp events. When everything goes well an Innocamp benefits all its participants: the companies, students and teachers.

REFERENCES

Mikkeli University of Applied Sciences. *Study plans*: *Mikkeli University of Applied Sciences* 2015–2016.

Repo-Kaarento, S. (2007) *Innostu ryhmästä: Miten ohjata oppivaa yhteisöä*. Vantaa: Dark Oy.

Keränen M. and Savolainen J. (2010) *Työelämälähtöisyyden merkitys opettajalle ja opiskelijalle. Opinnäytetyö.* Tampereen ammattikorkeakoulu. Ammatillinen opettajakorkeakoulu. Kehittämishanke.

APPENDIX 1.

PROGRAM OF THE 24H INNOCAMP

time	event	place
12:00–13.00	24h Innocamp begins *company and case presentation*	Xinno
13.00–14.00	Forming the groups *grouping and getting familiar with each other*	Xinno
14:00 – 15:00	Lecture of digitalism	Xinno
14.30 – 15.00	Idea walk	campus area
15:00 – 15:30	Gatherings the ideas of the ideal walk *Starting the group work*	Xinno
15:30 – 16:30	Guiding hour *mentoring the groups*	Xinno
16:30 – 20:15	Independent group work *working on the teams ideas*	Xinno
21.00 – 22.00	Guiding hour *mentoring the groups*	Xinno
22:00 – 07:00	Independent group work *finishing the ideas and presentations*	Xinno
07:00 – 08:00	Shower/sauna possibility (women)	sauna premises
08:00 – 09:00	Shower/sauna possibility (men)	sauna premises
09:00 – 10.00	Getting ready for the presentations	Xinno
10.00 – 12.00	Presentations *presenting the ideas to the company representatives* *Feedback session and certificates of participation*	Xinno 2
12.00	Innocamps ends	

MAMK
University of Applied Sciences

Publisher: Mikkeli University of Applied Sciences
Publication serie: D Free-form Publications | Vapaamuotoisia julkaisuja | 78