FUTE PROJECT

NEEDS ANALYSIS

TABLE OF CONTENT

OVERVIEW

1.0 EUROPEAN LEVEL

DESIGN AS A EUROPEAN POLICY

On the website of the European Commission, the term "design", as we work with the concept in the Future Teaching project (FUTE), is highlighted as an activity to bring new ideas to the market in order to create value and contribute to competitiveness, prosperity, and well-being in Europe.

To accelerate the take-up of design to innovation policies and to create the capacity and competencies needed to implement these policies, the Action Plan for Design-Driven Innovation was adopted in 2013[1]. It defines design as "an activity of people-centred innovation by which desirable and usable products and services are defined and delivered". Thus, the Action Plan sees design as a strategic means of encouraging innovation. Accordingly, the Commission aims to: 1) increase the use of design for innovation and growth across Europe, 2) raise awareness of how design-driven innovation increases efficiency in public services and business growth, and 3) create capacity and competencies to deliver these policies.

The European Union has co-funded the Design for Europe programme to support design-driven innovation across Europe[2]. The programme works closely with public sector organisations across Europe to understand and identify challenges to using design approaches. However, the way we work with design in the FUTE project does – to the best of our knowledge – not exist on European level. The FUTE project develops an innovative teaching and planning tool, based on design thinking, which supports processes to develop engagement among pupils and relevant, and problem oriented teaching .

The useful and adaptable tools on one hand support the design and innovation process among designers and their customers and users, and on the other support learning processes in design and innovation. Project activities and our methodological approach is thus based on design thinking, specifically user-centred design, which is complementary to the EU's initiatives and strategies for design-driven innovation, such as the Action Plan for Design-Driven Innovation and Design for Europe. Furthermore, FUTE ensures that students get acquainted with the methods of their schooling, so their ability to conduct and create design processes in their adult/work life will be improved. This compliments the European policy on using and raising awareness of design-driven innovation.

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1   http://ec.europa.eu/growth/industry/innovation/policy/design_en
2   http://www.designforeurope.eu/about

EU EDUCATIONAL POLICIES TO SUPPORT THE FUTE PROJECT

The aim of the FUTE project is to help teachers to co-create subject content with both colleagues and students in a more efficient way, so it will be possible to develop more engaging, participative, inclusive, cross-disciplinary and experimental course content. The philosophy is that student will be more engaged and interested in learning if they assist and are engaged in the organisation of their learning. The overall hypothesis in the project is that this will lead to fewer school drop-outs, better learning and achievement of skills, more inclusion and a more holistic school trough active citizenship. Thus, the FUTE project supports a number of EU's educational policies, such as the Education and Training 2020 (ET 2020) and the 'Whole school approach to tackling early school leaving' by the Working Group on Schools Policy.

The Education and Training 2020 (ET 2020) is EU's framework for cooperation in education and training, adopted in 2009[3]. At mid-term, results show that the number of early school leavers is decreasing and participation in higher education and the number of adults engaging in education is on the rise. However, more needs to be done. Therefore, the EU and the member states have agreed on six new priority areas for 2016-2020: 1) Relevant and high-quality knowledge, skills and competences developed throughout lifelong learning, focusing on learning outcomes for employability, innovation, active citizenship and well-being; 2) Inclusive education, equality, equity, non-discrimination and the promotion of civic competences; 3) Open and innovative education and training, including by fully embracing the digital era; 4) Strong support for teachers, trainers, school leaders and other educational staff; 5) Transparency and recognition of skills and qualifications to facilitate learning and labour mobility; and 6) Sustainable investment, quality and efficiency of education and training systems. The FUTE project supports these six priorities by emphasizing the relevance of including students in the organising of their subject content, and thereby creating open, innovative and inclusive education trough active citizenship that ideally will create sustainable quality and efficiency in the education systems.

Furthermore, the FUTE project supports the 'whole school approach to early school leaving' developed by the Working Group on Schools Policy[4]. In a whole school approach, all members of the school community should feel responsible and play an active role in tackling educational disadvantage and preventing drop-out. It entails that "The entire school community engages in a cohesive, collective and collaborative action, based on multi-disciplinarily and on differentiation, and aimed at supporting each learner in the most appropriate way". The second key condition for this is learner support: "Learners need to feel ownership of their learning and be given the possibility to voice their views. Being part of the life and activity of the school increases motivation and sense of belonging". This is complementary to the expected impact of the FUTE project, i.e. that students will be empowered to co-create subject content together with their teachers using method cards and their teachers' application of design methodology in daily teaching, which ideally could mean less school drop-outs because the motivation to participate among students will be improved.

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3   https://ec.europa.eu/education/policy/strategic-framework_en

4   http://ec.europa.eu/assets/eac/education/experts-groups/2014-2015/school/early-leaving-policy_en.pdf

RELEVANT EUROPEAN STAKEHOLDERS

A number of European stakeholders can be interesting for the FUTE project to collaborate with in relation to dissemination and exploitation of results:

DG Education and Culture

DG Education and Culture (DG EAC) plays a key role in the implementation of the overall objectives and political guidelines of the European Commission particularly through its contribution to a knowledge-based Europe. In this regard, the DG EAC's mission is among others to foster equity and excellence in modern education systems at schools and in higher education, and to maximise the potential and well-being of young people and their active participation in society and work life.

The FUTE project could thus benefit from collaboration with DG EAC in relation to knowledge-sharing and experiences from earlier projects focussing on primary and secondary school education.

https://ec.europa.eu/info/publications/directorate-general-education-and-culture_en

THE VOICE OF EUROPEAN TEACHERS

The VOICE of European TeacherS (VOICES) network will give schools, teachers, students, teacher trainers, researchers and representatives of other institution in the field of education, the possibility to stay in contact, work together, start new projects and share best practice. Collaboration during projects and reflection on the network's activities are the keys in the learning processes within the network. The overall aim is to implement European Teacher competences and European key-competences for lifelong learning in the curricula of schools and teacher training institutes. Therefore, it could be relevant for the FUTE project to collaborate with the VOICES network in order to disseminate and share knowledge and experiences.

http://www.european-teachers.eu/

ASSOCIATION FOR TEACHER EDUCATION IN EUROPE

The Association for Teacher Education in Europe (ATEE) aims to enhance the quality of Teacher Education in Europe through active dialogue and international exchange of research and practice in initial and in-service teacher education. Collaboration with ATEE could thus be relevant for the FUTE project in relation to exchange of best practices within teaching in primary and secondary schools.

https://atee.education/

EUROPEAN TEACHER EDUCATION NETWORK

The European Teacher Education Network (ETEN) aims to promote a wide range of cooperation, exchange, research and publication possibilities for: University's and institutions engaged in Higher Vocational Education; Local education and social authorities; and relevant associations of teacher and social educators. The ETEN organizes an annual conference on European teaching, which could be an ideal site for dissemination and exploitation of the FUTE project's results.

http://www.eten-online.org/modules/sjt_events/

EUROPEAN ASSOCIATION OF EDUCATION

The European Association of Education (AEDE) aims at being a network of European contacts, ideas and activities, working towards giving the younger generations an education that will equip them to grow into a European society capable of tackling with clear heads and stout hearts the formidable and complex problems that it will have to resolve. At a European level, AEDE functions through its congress, its committee structures, and a programme of international activities. Thus, the AEDE congress could also be an ideal site for dissemination and exploitation of the FUTE project's results.
http://www.aede.eu/site/

EUROPEAN SCHOOL HEADS ASSOCIATION

The European School Heads Association (ESHA) is a professional organisation for European school heads. It is an international community in which experiences, visions and views between the members are exchanged, and new ideas are born. Thus, collaboration with ESHA could benefit the FUTE project in order to disseminate the relevance of co-creating subject content in primary and secondary schools, among European school leaders.
http://www.esha.org/
European Educational Research Association
The aim of the European Educational Research Association (EERA) is to further high quality educational research for the benefit of education and society. The EERA's activities, such as the annual conference, season schools for emerging researchers and publishing, build on and promote free and open dialogue and critical discussion. Thus, the EERA could be used as a forum for dissemination and exploitation of results.
http://www.eera-ecer.de/

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1.1 IDENTIFYING NATIONAL AND INTERNATIONAL POLICY AND STRATEGIES ON CO-CREATION AND EDUCATION.

INTERNATIONAL RESOURCES IDENTIFIED AND THEIR POTENTIAL CONTRIBUTIONS TO THE PROJECT

GOVERNANCE / INSTITUTION	SHORT DESCRIPTION	STRATEGIES	POTENTIAL CONTRIBUTION TO THE PROJECT
Future Classeroom Lab	European project is a network which goals is to rethink teaching and learning, specially trouhgh the creation of new learning zones in european schools. The Future Classroom Lab is formed by six different learning spaces. Each space highlights specific areas of learning and teaching and helps to rethink different points: physical space, resources, changing roles of student and teacher, and how to support different learning styles. Discover the different zones now!	FCL proposes courses, seminars, interactive classrooms expertises, training programm. FCL Regional Network aims at finding new ways to allow for a more active participation by decision makers in regions in pan-European activities.	http://fcl.eun.org/ http://fcl.eun.org/learning-zones http://www.lp2i-poitiers.fr/spip.php?article1703
Service Design for all	French-language collaborative website, to spread service design tools and methodologies, for a large public.	Dissemination of a large number of links and ressources, with an open sources state of mind.	http://www.designdeservices.org/
Maastricht University, Zuyd University of Applied Sciences	Crash course in creative problem solving. CPS is a structured process that involves breaking down a problem into several pieces to understand it, generating ideas to solve it, and evaluating the generated ideas to find the most effective solution. https://edlab.nl/wp-content/uploads/2016/11/CPS-tutor-manual_Honours-.pdf	Highly creative people tend to follow this process without thinking about it. Less naturally creative people, however, simply have to learn to use this process. Creative solutions are characterized by being (1) new: a solution is not creative unless it is new; (2) useful: the solution has to solve the problem; and (3) feasible: the solution has to be implementable in practice (Treffinger et al., 2006). 4 stages : 1. Problem definition 2. Idea generation 3. Idea evaluation 4. Idea implementation	We might learn from the idea of creative problem solving because it is very similar to design thinking. There is already quite some literature and examples of creative problem solving in education, that might inspire us in designing co-creation cards. In the file behind the hyperlink you can find several techniques that are similar to our co-creation cards.

Kennisnet (the Netherlands)	https://www.kennisnet.nl/ diensten-voor-de-school/ innovatieversneller/	« Innovation accelerator » A project that helps schools and teacher in innovating their practice by giving 20 techniques that teachers and schools may use in innovation processes. The techniques are divided in three categories : analysis of needs, analysis and try-out of solutions, and expanding an innovation.	The techniques are similar to the co-creation cards. We could use some of these techniques as co-creation cards because they fit in the 6C-model, and even better, they are linked to an educational context.
The George Lucas Foundation on EDUTOPIA	A selection of three cases detailed in section 2 below.	- Design methods to change your point of view. - Design methods to prototype everything. - Co-creation to involve students in reading choices.	Illustrations of strategies that can be employed to change points of view, of prototyping – failing first time isn't a bad thing. Student involvement in planning process.
Turuna University, Graudu 68 Riga, Latvia in Journal of Education Culture and Society No. 2_2014	Design Thinking in Pedagogy	6 Stages of design thinking for real life problem solving: 1. Identify opportunities 2. Design process 3. Prototype 4. Feedback 5. Scale & Spread 6. Present	A six-step guide that teachers might find useful in their lesson planning process.
Applying Universal Design for Learning to Instructional Lesson Planning McGhie_Richmond, Donna; Sund, Andrew, N. International Journal of Whole Schooling, v9 n1 p43-59 2013	Introduction of Universal Design for pre-service and practicing teachers.	Universal design for learning principles in teacher training programmes resulted in changes in lesson plans that would promote learner inclusion.	To research further and acknowledge and publicise the potential that design methods can have in promoting inclusion in secondary schools in Wales.

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1.1 NATIONAL RESOURCES IDENTIFIED AND THEIR POTENTIAL CONTRIBUTION TO THE PROJECT

- WALES

Successful Futures – A New Curriculum for Wales

http://gov.wales/docs/dcells/publications/150225-successful-futures-en.pdf Accessed 29-03-2018

In Wales, an Independent review of the curriculum and assessment arrangements in Wales was published in 2015 by Professor Graham Donaldson. The document forms a review of the former curriculum and proposed a new curriculum for Wales based on the views of head teachers, teachers, children, young people, parents and carers. The new curriculum signals a change from the previous one in that it focuses on equipping young people in Wales for their future lives and producing well-rounded individuals who can thrive in the face of tomorrow's unknown challenges.
The curriculum looks to develop young people's critical thinking, creativity and problem-solving ability as well as traditional areas of numeracy and literacy. The new curriculum recognises the need to preserve he foundations of traditional education while building on the perceived needs of the present and future.

In summary, the principles of the new curriculum can be summarised as 'evidence-based', 'inclusive', 'ambitious', 'engaging' with an aim to create successful learners who are 'confident individuals', 'responsible citizens', 'competent adults ...covering life skills'. http://gov.wales/docs/dcells/publications/150225-successful-futures-en.pdf Accessed 29-03-2018

The review is important to FUTE because it signals a recognition that the critical thinking and problem-solving skills that design methods and co-creation can bring to the classroom are those skills that young people will need to offer employers in the workplace.

Other relevant Welsh Government strategies include: Wales' economic development strategy, which recognises the key role education has to play in a system that 'gives people the knowledge, skills and confidence they need by the time they reach the statutory school leaving-age, and provides high-quality education and training for employment' in: http://gov.wales/docs/dcells/publications/150225-successful-futures-en.pdf Accessed 29-03-2018

GOVERNANCE / INSTITUTION	SHORT DESCRIPTION	STRATEGIES	POTENTIAL CONTRIBUTION TO THE PROJECT
Welsh Assembly Government Prof G Donaldson	Successful Futures – A new curriculum for Wales	A new curriculum which places increasing importance on creativity and skills to create competent and confident learners.	A willingness from school partners to take part in the FUTE project based on its clear tie-ins with the new Welsh curriculum.

- FRANCE

In the past years, important changes in society have an effective impact on french school system, which forcing to reconsider not only the educational programs but also the teaching profession. To rethink the school spaces and the learnings, to rethink the knowledges, to rethink the links between all the educa- tional stakeholders, to rethink the pedagogical practices : for all those subjects, the design methods and processes could help to question the school today.

Nowdays, there is a real will in the french public policies to transform the school system, from kinder-garten to high school. Some important reforms are under way, others are being discussed by the French Ministry of National Education. These strategic reforms included the teaching methods and the forma- tion of the teachers of various level. They also deal with the place of co-creation and design-thinking in the learning processes.

Few recent exemples underscore the national will to shift the lines within the educational field :

- A **national report** has been ordered by the French government to the CRI (Center for Research and Interdisciplinary) : this report talks about alternative pedagogies, old or new ones, and how they can help us today to transform school in order to have a better inclusion of all young people in society.

- A brand new official website has been created by La Cité du Design for the government, **Archiclasse**, which brings datas, videos and tools on different national experiments that bring a change in learning processes in schools and in all other learning spaces in the community. https://archiclasse.education.fr/

- The obligation in the next 10 years to **renovate** hundreds of colleges all over the french territory,

GOVERNANCE / INSTITUTION	SHORT DESCRIPTION	STRATEGIES	POTENTIAL CONTRIBUTION TO THE PROJECT
Archiclasse	National Website which propose datas, interviews, and lot of pedagogi-cal materials on several experiments that have been made in schools with design thinking methods. Most of them concern the transformation of class-rooms and others spaces in schools.	National dissemination of good practices	https://archiclasse.educa-tion.fr/ Communication of FUTE project on a national we-bsite
CRI (Center for Research and Interdisciplinary)	The Center for Research and Interdisciplinarity (CRI) experiments and spreads new ways of learning, tea-ching, conducting research and mobilizing collective intelligence in life, learning and digital sciences. It was founded in 2005 by François Taddei and Ariel Lindner.	François Taddei is the rector of the CRI Through his different reports ordered by the french government, he influences the natio-nal politics of education. He's last report : https://cri-paris.org/wp-content/uploads/2018/04/Un-plan-pour-co-contruire-une-so-ciete-apprenante.pdf Or in english, one of his late work : https://cri-paris.org/wp-content/uploads/Open-FIESTA-Taddei-Commen-taires-Spring-2014-EN.pdf	Inspiring the FUTE project, through the ideas spread through the CRI activities.

- FINLAND

In the field of Finnish education there are clear interest arising in adapting design-thinking methods into learning and teaching. Two national ongoing projects, one lead by the University of Helsinki and one lead by the University of Eastern Finland, are developing and researching the field of learning practices that elicit 21st century skills and provide inspiriting challenges for students.

In both projects, the university researchers together with the primary school teachers are creating interesting multidisciplinary learning projects for the primary school pupils. The role of pupils is emphasized and they are actively involved in learning. Teachers act as mentors and experts from different knowledge areas are taking a part in teaching. The projects are open-ended and the pupils' own interest guides them. This kind of thinking seems very similar for the FUTE project and the Co-Creation cards could be a useful tool in similar kind of projects.

GOVERNANCE / INSTITUTION	SHORT DESCRIPTION	STRATEGIES	POTENTIAL CONTRIBUTION TO THE PROJECT
Co4Lab University of Helsinki	Project develops and researches learning methods based on collaborative learning, co-designing, co-teaching, and joint regulation of operations. Project is carried out in lower and upper secondary schools by implementing inspirational and creative school projects. Co4Lab produces pedagogical guidelines, models and materials that support teaching and learning to teachers and the pedagogical development of the schools.	The goal of the Co4Lab project is to combine the skills of academic researchers and students to develop learning practices that respond to future challenges and inspire young people studying at different levels. The project explores real world phenomena, integrating the expertise of different disciplines, designing and inventing, testing and constructing various objects and products.	The Co4Lab project in combining the work of academic researchers, teacher educators and primary school teachers and pupils. This is very interesting field for us. The particular interest for us is also what are the concrete tools that has been used in the Co4Lab`s school projects in collaborative learning, co-designing and co-teaching,
Design oriented pedagogy (DOP) University of Eastern Finland, Savonlinna Campus	Design oriented pedagogy (DOP) is developed by the Research Group of the University of Eastern Finland and it aims to promote knowledge and skills that are required in the future society. The program builds pedagogical bridges between the school and its external environments and communities. Learning and development are consequences of interactions with the physical objects, people and the world. Instead of traditional subjects, the school should teach more 21 century skills.	The DOP model engages pupils in learning, takes advantage of outside expertise and seeks to share the information built together. DOP emphasizes inclusive learning, co-development and using technology to support learning.	The DOP program trains primary school teachers that are interested in adapting the DOP model into their teaching and helps them to design and implement different kind of practical multidisciplinary learning projects. The information about the training courses would be interesting.

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- DENMARK

Design has been a central part of Danish research and research politics. In primary school's design processes has primarily been related to the subject: "Craftsmanship and design". Lately design has been connected to elements of innovation and entrepreneurship in all school subjects. In these areas there has been little research related to teaching I primary schools. Though there are developed a number of activities related to the subjects: innovation, entrepreneurship and design. On University level there has been substantial research. All Universities in Denmark has innovation, entrepreneurship and design processes as a central part of their research programs, which we can use as inspiration for teaching design processes and creativity in primary and secondary school.

GOVERNANCE / INSTITUTION	SHORT DESCRIPTION	STRATEGIES	POTENTIAL CONTRIBUTION TO THE PROJECT
Motivation and teaching EVA - Danish Evaluation Institute	A thesis from the Danish Evaluation Institute (EVA) sets up 5 elements that motivates students. The thesis highlights: variation in teaching, student's crea-tivity and to get involved. These three are the most important elements of motivation in teaching		An argumentation for how cocreation and creativity can motivate students.
Aalborg University	The PBL-model Innovative thinking, pro-blem solving teaching	Research in how to imple-ment problem orientated teaching in groups. Practice at university re-sulted in top 10 Engineer University in the world. https://pdfs.se-manticscholar.org /92b1/41a90b4775edd 7c2e28be864eb487d737ff0. pdf http://www.aau.dk/digita-lAssets/62/62748_17212_ dk_pbl_aalborg_modellen. pdf	How and why we should implement problem orien-tated teaching in groups

1.2 IDENTIFYING EXISTING PROJECTS / RESEARCH

YEAR	N0	TITLE/NAME OF THE PROJECT	SHORT DESCRIPTION METHODS AND RESULTS	CO-CREATION LEVEL (consultation, participation or co-creation)	RELEVANT ELEMENTS TO BE USED FOR THE FUTE PROJECT	BOOK / LINK WEBSITE
Since 2015	1	Labschool Network	Research for Project Successful Education. Three goals to this project : think, Inform, Train. Labschool Netwoork try to connect Researchers and Practitioners. They also pilot the Lab School project in France.	All projects and activities are developed according to guidelines established in the research topics that were defined at the creation of the Labschoolnetwork, which use the three levels of collaboration.		http://www.labschool.network/en/
Since 2014	2	To innovate at the school level with design	Series of experiments between designers and schools in the city of Saint-Etienne and around	Co-creation with the pupils of the renovation of their classroom. Participation of pupils in experiments around digital in education...	Lot of elements could inspire the FUTE project. A english translation could be a part of FUTE project.	Book : Innover dans l'école par le design https://www.reseau-canope.fr/notice/innover-dans-lecole-par-le-design.html
2017 2020	3	LéA Sina Safadi	Prospective research and design project to make links between geography, education and territorial development	Consultation, participation, co-creation	FUTE could be a field of research for IFé	http://ife.ens-lyon.fr/lea/le-reseau/les-differents-lea/prospectives-territoire-de-lyon-reseaux-detablissements
	4	Danish Design Center	A source of inspiration related to the many aspects of design	Some	Tools for implementing designdriven developments

Examples of activities of how to implement design processes in teaching | https://danskdesigncenter.dk/da/vaerktoejer |
| 2011 | 5 | The creative platform

Aalborg University | The Creative Platform (CPL) can be used for any processes where you need a group of people to develop new ideas or thoughts - regardless of the task/problem | High | Inspiration for teaching creativity in groups

Tools in English and Danish | http://www.uka.aau.dk/The+Creative+Platform/ |

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2018	6	From design for Europe to Europe by design	9 key learnings when, in general, implementing design-processes	Some	Advises and strategies when implementing design-processes in education	https://danskde-signcenter.dk/sites/default/files/pdf/design-for-europe-nine-key-learnings_1.pdf
2013	7	Design thinking for educators	Output: The Design Thinking Toolkit for Educators: This toolkit contains the process and methods of design along with the Designer's Workbook, adapted specifically for the context of K-12 education. It offers new ways to be intentional and collaborative when designing, and empowers educators to create impactful solutions.	Co-creation	- Examples of schools using design thinking.	https://design-thinkingforeducators.com/
2017	8	Using Design Principles to Build A Culture of Innovation	Exploring the role that design thinking can play in schools.	Application of two design thinking practices	Strategies to change your point of view. Strategies to prototype (almost) everything.	https://www.edutopia.org/article/using-design-principles-build-culture-innovation Susie Wise (2017) Accessed 29-03-2018
2017	9	Design Thinking and Choice in Summer Reading	The importance of student involvement in reading tasks to ensure engagement.	Co-creation, involvement, participation.	To illustrate the value of learner participation in engagement levels. The importance of authenticity for learner engagement. Tethered choice/creativity with limitations	https://adventure-sinhighschoolwo-dkshop.wordpress.com/ Accessed 29-03-2018
2017	10	Design Thinking: Prioritizing Process Skills	How design thinking methods can be used to promote critical thinking, collaborative working and resourcefulness	Design thinking – leading to critical thinking, better collaborative working and more resourcefulness	To illustrate how design thinking can lead to a more qualified workforce. Potential economic benefits.	https://www.youtube.com/watwa?time_continue=87&v=l7-MVYjZYOE Accessed 29-03-2018

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| on going-2016 | 11 | Co4Lab | The project relies on the method of design experiments that involves iterative cultivation of method and practices of knowledge creation at schools.
The school projects take usually 1-2 and the first design experiment started in February 2016. | The Project researchers will explore, develop, and model functional co-inquiry, co-design and co-invention practices together with schools and other stakeholders. | The project produces guidelines, models, and resources regarding knowledge creating learning for supporting teachers and schools in nurturing practices of invention pedagogy. | http://co4lab.helsinki.fi/en/ |
| on going-2008 | 12 | Design oriented pedagogy (DOP) | Schools needs to be change into a participatory learning communities, where the focus of learning is in real life phenomena: aiming to understand them and searching explanations and solutions for them. The project has implemented numerous of multidisciplinary learning projects together with the schools and their surrounding societies. | The DOP has been tested in tens of schools in Finland and the model has been trained for over 100 teachers in Eastern Finland.
The DOP has also been disseminate into seven Europian countries for use in project-based learning (Comenius project 2009-2010). | The researchers has published many peer reviewed articles about the DOP projects. articles are listed in: http://design-oriented.blogspot.fi/p/puplications.html | Jorma Enkenberg`s presestation of Design-oriented Pedagogy https://www.slideshare.net/JormaEnkenberg/designoriented-pedagogy-a-new-framework-for-making-learning-whole-55656146 Case Forest pedagogy https://frantic.s3.amazonaws.com/smy/2015/08/Case-forest-pedagogy_finnishforestassociation.pdf |

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1.2

**MAPPING OF THE PROJECTS
ACCORDING TO THEIR DEGREE OF COLLABORATION
AND SCALE OF THE PROJECT.**

local scale

8 9

9 8 4 2

3

3

3

consultation

co-creation

5

12 11

10

1

10 7 1

global scale

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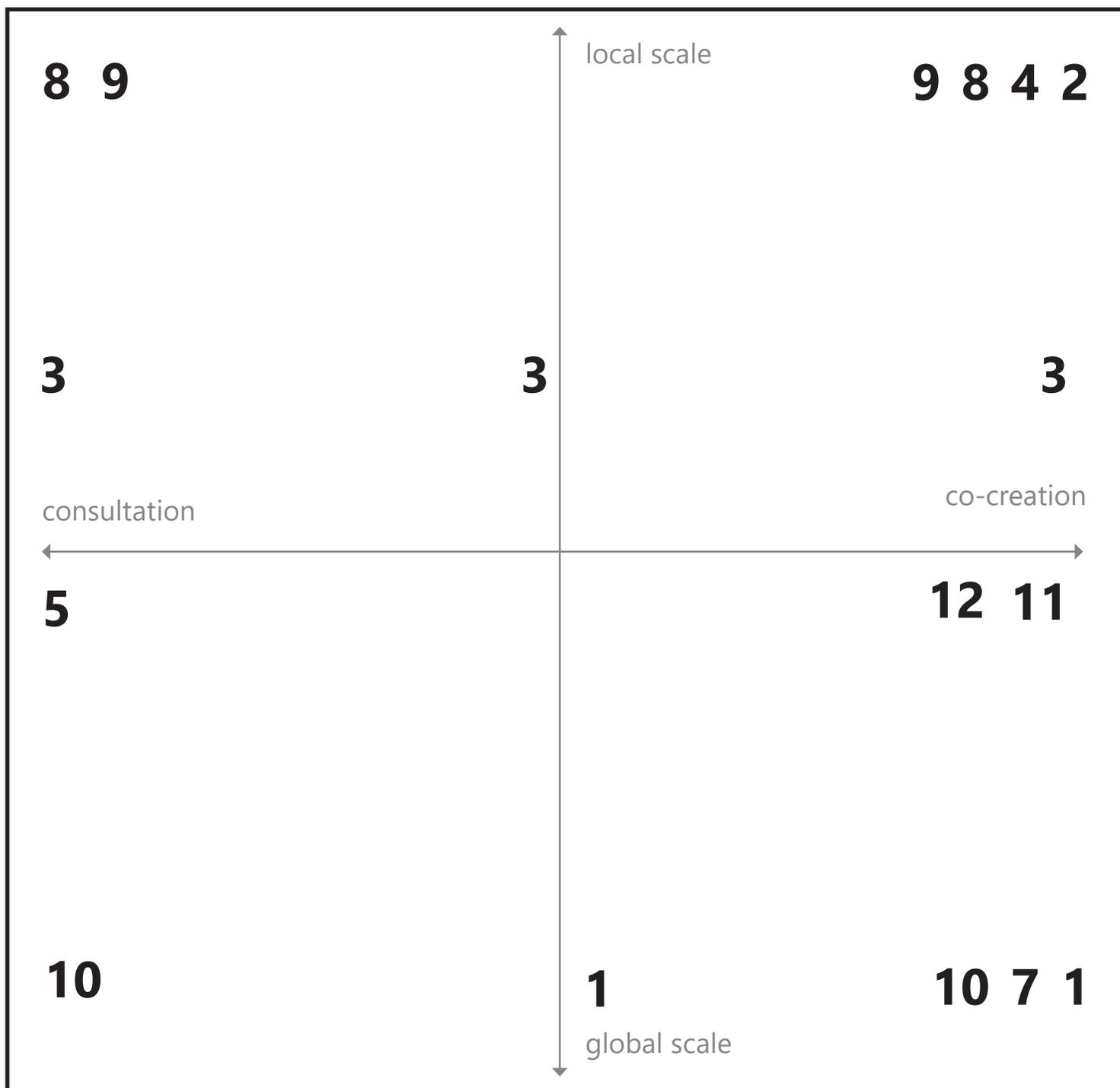
1.3 IDENTIFY THE PEOPLE/STRUCTURES INVOLVED IN THE FUTE PROJECT IN YOUR STRUCTURE (SCHOOLS AND OTHER KEY STRUCTURES)

- WALES

KEY PEOPLE /STRUCTURES TO MOBILIZE ON THE PROJECT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
Welsh Assembly Government –	Throughout.	WAG new curriculum for Wales supports the ideas of collaborative working, co-creation and design methods.
local scale		
Cardiff Metropolitan University –Prof G Beauchamp, Isabelle Adams	Throughout.	Good relationship with partner schools. Reputation for excellence in initial teacher training.
Partner schools – especially HTs and Class Teachers	Throughout.	Schools that choose to participate in our work will be open to all the project can offer.

KEY PEOPLE /STRUCTURES TO SPREAD THE PROJECT AND COMMUNICATE ON IT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
Cardiff Metropolitan University	Throughout.	Potential to reach a national Welsh audience through students and university website.
Twitter	Throughout.	Continue to use and publicise the Twitter account @FUTEteaching to advertise and publicise FUTE events and progress.
Social Media	Throughout.	Consider other social media – such as Facebook or LinkedIn.
FUTE website	Throughout.	Collectively create a dynamic project web presence with help of social media with feedback eg from workshop sessions.
Website link	When available	Consider adding FUTE website link to email signatures.
local scale		
Cardiff Metropolitan University – Prof G Beauchamp, Isabelle Adams	Throughout	To publicise FUTE work through websites and local press where appropriate.
Chosen partner schools – especially HTs and Class Teachers	Throughout	To publicise our work through school communications / social media where appropriate.
Newsletter	6 monthly?	Consider creation of FUTE newsletter to circulate to partner schools including latest updates.

- FRANCE

KEY PEOPLE /STRUCTURES TO MOBILIZE ON THE PROJECT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
Canopé network	Throughout	Dissemination for the mediators, teachers and pupils.
French Ministry of National Education, and its regional branches : http://www.education.gouv.fr/	Second half of the project	Communication, dissemination on a political level.
local scale		
Cité du Design	For some experiments and for dissemination	Co_creation the local projects.
Primary school of La Cotonne and Honoré d'Urfé College	From the beginning and throughout	Co-creation of local projects.
Captain Ludd, designers collective http://cptludd.fr/	Throughout	Design work in local projets.

KEY PEOPLE /STRUCTURES TO SPREAD THE PROJECT AND COMMUNICATE ON IT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
Rectorat / DAREIC : international services of the French Ministry of National Education	Second half of the project	They organize meetings with the national education managers from the different european countries.
Archiclasse	Second half of the project	Communication of FUTE on a national website.
Service Design http://www.designdeservices.org	End of the project	Communication.
National design education website http://designetartsappliques.fr/	End of the project	Communication.
Mailing list of the PREAC Design	Throughout	Organisation of the teacher training module and communication.
local scale		
Cité du design	Throughout	Communication in the network of Unesco Creative Cities of Design (Kolding also belongs to this network now).
Designers association in Saint-Etienne https://www.designersplus.fr/	End of the projet	Communication.

- FINLAND

KEY PEOPLE /STRUCTURES TO MOBILIZE ON THE PROJECT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
University of Turku, Department of Teacher Education, Rauma Unit	Throughout	Teacher education in three major subjects (craft teacher, class teacher and kindergarten teacher). Extensive cooperation network in the field of education.
Lecturers and students in the Teacher education	Throughout	Creating new ways to use the design-thinking model and methods in educational context.
Teachers and pupils in our partner schools	Testing the design-thinking model and the co-creation cards	providing the real school life environment for testing the design-thinkinhg model and the co-creation cards.

KEY PEOPLE /STRUCTURES TO SPREAD THE PROJECT AND COMMUNICATE ON IT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
University of Turku, Department of Teacher Education, Rauma Unit	Throughout	Communication and dissemination of the model, throught the extensive cooperation network in the field of education.
Teachers aroud the nation	Participating the closing seminar of the project	getting inspired about the model and the cards and implementing them in their teaching.
Finnish National Board of Education	Final	Possible partner for the dissemination of the model.
Finnish Educational Union	Final	Possible partner for the dissemination of the model.

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- DENMARK

KEY PEOPLE /STRUCTURES TO MOBILIZE ON THE PROJECT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
EMU - Ministry of education - National educational platform School Authorities (KL) Association of School Leaders (Skoleleder foreningen) Association af teachers (DLF) The fund of entrepreneurship	All step Mid and / or final	Disseminating the revised 6c-model Developing methods of teaching. Developing the cards
local scale		
Local school authorities, Esbjerg Kommune Student and teachers at the teachers at UCSYD (Teacher training) Schools, mainly Bakkevejens Skole and Urbanskolen	All steps, especially in the mapping, developing an testing phases of the project.	Practice and developing me-thod cards

KEY PEOPLE /STRUCTURES TO SPREAD THE PROJECT AND COMMUNICATE ON IT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
Same as key people/structures to mobilize the project		

- BELGIUM

KEY PEOPLE /STRUCTURES TO MOBILIZE ON THE PROJECT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
local scale		
- Teachers in partner schools	All steps	

KEY PEOPLE /STRUCTURES TO SPREAD THE PROJECT AND COMMUNICATE ON IT	IN WHICH STEP OF THE PROJECT	POTENTIAL CONTRIBUTION TO THE PROJECT
national scale		
- Other researchers in similar domains		
local scale		
- Teachers in partner schools		
- Teacher educators		

1.4 USEFULL RESOURCES FOR THE PROJECT

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TITLE OR NAME	SHORT DESCRIPTION	INSPIRING ELEMENTS FOR THE PROJECT	TRANSFERABLE ELEMENTS FOR THE PROJECT
Innover dans l'école par le design, By Canopé and Cité du Design	French book, edited by Canopé Network and Cité du design in Saint-Etienne, which propose reflexions and teaching scenarios on the theme : to innovate at the school level	Lot of ideas in the book could inspire our project	A translation in english of a part of this book could be intersting for our project.
La 27ième Région http://www.la27e-region.fr/en/	La 27e Région conducts action-research programs to test new innovation methods for designing public policy involving all public stakeholders. To this end, it mobilizes the capabilities of multi-disciplinary teams composed of designers, idea generators, and social scientists from many fields (ethnography, sociology, participant observation) and engages in ground-level actions (do-it-yourself projects, adult education actions, etc.). Both these approaches prioritize the concrete experience of users, civil servants and citizens to serve as the starting point for re-examining public policy.	Some projects of La 27ième Région take place in the education field, like « high human quality high school project » : http://www.la27eregion.fr/en/cas-pratiques/high-human-quality-high-school/	Some interdisciplinary processes
Archiclasse	National website around experiments in schools, to rethiink the space or the furniture in the class for exemple. Some pupils are interviewed.		https://archiclasse.education.fr/
Design Thinking for educators, by IDEO	IDEO is an international design and consulting firm. The company uses the design thinking methodology to design products, services, environments, and digital experiences. They produce a very complete document to help teachers in using design thinking methods.	How to transfer design methodologies for the teachers.	Lot of scenario exists in this document, to implement design thinking in education fieldwork. It could inspire us to create the formation that we intend to do.

Danish Design Center	A source of inspiration related to the many aspects of design	Tools for implementing designdriven development Examples of activities of how to implement design processes in teaching	https://danskdesigncenter.dk/da/vaerktoejer
The creative platform Aalborg University	The Creative Platform (CPL) can be used for any processes where you need a group of people to develop new ideas or thoughts - regardless of the task/problem	Inspiration for teaching creativity in groups Tools in English and Danish	http://www.uka.aau.dk/The+Creative+Platform/
Fonden for entreprenørskab i undervisningen (The fund for entrepreneurship in education)	The fund works on implementing innovation an entrepreneurship in many aspects of the educational system	Education materials developed for schools that relates to design processes Inspiration for developing the cocreation-cards for students in secondary schools	http://www.ffe-ye.dk/media/784783/grundskole-brochure-2016.pdf
A virtual crash course in design thinking (Stanford D. School)	https://dschool.stanford.edu/resources-collections/a-virtual-crash-course-in-design-thinking	Inspiration on how to use design thinking in education.	
Design sprint kit (Google)	This is a website that helps anyone who wants to conduct a design process in the way Google does it. «A design sprint is a five-phase framework that helps answer critical business questions through rapid prototyping and user testing. Sprints let your team reach clearly defined goals and deliverables and gain key learnings, quickly. The process helps spark innovation, encourage user-centered thinking, align your team under a shared vision, and get you to product launch faster.»	- 9 steps that could inspire us in designing our model. - case studies of people using a design sprint that could inspire us.	https://designsprintkit.withgoogle.com/
Successful Futures – A new curriculum for Wales	As above – a new curriculum for Wales.	Actively promotes critical thinking and creativity to produce competent and confident young people.	We can make obvious links between FUTE and the new curriculum as a way to establish and maintain contact and interest with schools.

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The George Lucas Foundation on EDUTOPIA	A selection of three cases detailed in section 2 above.	-Design methods to change your point of view. -Design methods to prototype everything. -Co-creation to involve students in reading choices.	Illustrations of strategies that can be employed to change points of view, of prototyping – failing first time isn't a bad thing. Student involvement in planning process.
Turuna University, Graudu 68 Riga, Latvia in Journal of Education Culture and Society No. 2_2014	Design Thinking in Pedagogy	6 Stages of design thinking for real life problem solving: 1. Identify opportunities 2. Design process 3. Prototype 4. Feedback 5. Scale & Spread 6. Present	A six-step guide that teachers might find useful in their lesson planning process.
Co4Lab (presented above)			
Design oriented pedagogy (DOP) (presented above)			

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1.5 RESOURCES ON THE PUPIL'S POINT OF VIEW ON TEACHING.

TITLE OR NAME	SHORT DESCRIPTION	BOOK/LINK WEBSITE
The Design to Improve Life	The Design to Improve Life Compass is an interactive learning tool integrating the concept 'Design to Improve Life' with didactics and process. It helps both students and teachers to keep focus in creative processes.	http://designtoimprovelifeeducation.dk/en/content/compass
The Design path -teaching material	The aim of the design path teaching material is to create a new kind of tool to help solving everyday school problems and challenges in a community. The teaching material describes all the different stages of the design process and offers also many practical method tips. The design path can also be used in different subjects and as a tool for designing phenomenal learning.	https://www.kultus.fi/sites/default/files/tukimateriaali/1030/2016-09/muotoilupolku.pdf (unfortunately only in Finnish)

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2 NEEDS ANALYSIS SYNTHESIS

The following template composed of 5 steps was given to the teams in order to organize the analysis:

1. THE 6C MODEL AND THE GLOBAL APPROACH OF THE CO-CREATION CARDS
2. TESTING THE CARDS
3. THE CO-CREATION CARDS: CONTENTS, FORMS AND WAYS TO USE IT TO IDENTIFY, QUALIFY AND SOLVE PROBLEMS IN EDUCATIONAL CONTEXT
4. PROTOTYPING OF THE "IDEAL" CARDS AND "IDEAL" WAYS TO CHOOSE TOOLS IN AN EDUCATIONAL CONTEXT
5. INTERVIEWING PUPILS

For each step the teams had to describe:
- the group they are working with (number of participants, profile)
- the chosen cards
- the tools they've been using
- the results.

- WALES

GROUPS
2 schools
1 Primary school - children age 4-11
1 Secondary school - children age 11-18

Based on preliminary discussions with the assistant headteacher at one of our identified schools, and based on experience we have gained working on other education-based projects, we concur with many of the observations presented and with the conclusions drawn in section 3. These are namely:

Expectation of a mixed review from teachers.
Some teachers will be very supportive, others will feel they don't have time to engage.
The model needs to provide benefits that are obvious to teachers.
There are too many cards - they will need to be reduced in number.
The cards will need to be tailored for an educational context.
There will need to be a sort of tool to help teachers select the most appropriate card for a task.
Recognition that some teachers are already working with similar tools.
Teachers will need a selection of good quality examples to help them understand how to use the model and to help them see the benefits it could bring.

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- FRANCE

GROUPS

4 groups of various profiles
Primary school La Cotonne : 10 people (teachers and school director)
High School Honoré d'Urfé : 7 people (teachers and school librarian)
University Jean-Monnet : 15 people (teachers, student in learning sciences, and pedagogical innovation's manager)
Engineering school L'école des Mines : 14 people (teachers and pedagogical innovation's manager)

METHOD USED

TEMPLATE OF THE CREATIVE SESSION WITH JEAN- MONNET AND L'ÉCOLE DES MINES
USING THE CARDS TO IMAGINE HOW TO SET UP A PROJECT
1. Presentation of the 6C model.
2. Presentation of the problem we are working on: create a pedagogical project for
a shared education. By choosing among the proposed methods cards, build a
pedagogical project in partnership between the school and local actors.
3. Identifying the different potential partners (classifying
them by categories: company, association ...)
4. Defining a pedagogical project
5. Definition of the different steps for the project
6. Identifying methods for each step by using the cards.
7. Oral presentation of each project and feedback on the use of the cards.
8. Use the card «**Knowledge and expertise map**» to start setting up the project.

TEMPLATE OF THE CREATIVE SESSION WITH LA COTONNE
USING THE CARDS DURING A TEACHER MEETING TO IMPROVE THE WAY THEY WORK TO-
GETHER

1. Expectations
Each participant tells what he wants, what he needs, and what concrete goal does he want to reach.
2. Personnal narrative
Each teacher took a minute to tell us a personnal story about communication in the school.
3. Listing
Together we listed the objects, places, and times associated to communication in the school.
4. Creative constraint:
In order to generate ideas we voted for some of the needs and elements of the listing to gene-
rate creative constraints.
We created 3 groups who worked on one problem each, to imagien ideas.
5. Prototype
The group had to imagine what type of object of communication they would need. What would it look like: what form and what content?
6. Co-collaging
The group had to imagine enhancements in the new school. They had images of different types of objects to communicate they had to place them on the map of the new school.
7. Scenario
The group had pawns and a game board, they had to imagine some scenarios of communica-
tion, situation and protocols that they could encounter in the school.

TEMPLATE OF THE CREATIVE SESSION WITH HONORÉ D'URFÉ
USING THE CARDS TO MAKE TEACHERS CREATE PEDAGOGICAL PROJECT TOGETHER

1. Expectations
Each participant tells what he wants, what he needs, and what concrete goal does he want to reach.
2. Listing (of potential partners)
3. Creative constraint
By picking a need or will, a concrete goal and a partner.
4. Scenario
The group had pawns and a game board, they had to imagine a project about oracy.
5. Informal exchange and questionnaires

RESULTS'S CONCLUSION
Through the work that has been done here are the synthesis that can be drawn from it:
There is an expectation from the teachers to have methods and tools related to co-creation. Although this expectation is not shared by all teachers (some do not perceive the need for change and feel like they don't have time to think about their practise), most of them feel the desire to renew and improve their pedagogical approaches. (an observation made from primary school to university)
It is therefore important to imagine a tool easy to use, and that would be perceived as a time profit.

About the cards : the cards are not made for teachers, they are too numerous too specific. The exemples and choices of cards should be reconsidered according to teachers needs. It could also be a way to reorganize the cards.
Some methodologies particularly interested the teachers (fact ad inspiration finding, expectations...) . And they even realized that they were already using some of them (brainstorming, interview, ...). The teachers would like a limited number of methodologies and more adapted to the educationnal field. Card entries should be oriented towards the expectations of the teaching world.

Their should be a tool to go through the cards and choose the good one. For example, the idea of a table that define more precisly the goal of the cards. It would enable teachers to apprehend the game in its entirety and to choose the right card.

The classification of the cards is sometimes too restrictive, we should think of another classification that allows the cards to have several entries (example: collecte + create).
The cards can also find a more playful aspect. By creating combos and potential associations that respond to a precise pedagogical goal for example.

There is a need of mediation for a better appropriation of cards, the teachers need concrete exercises to see how to use the cards together.

In our experimentations we identified 2 approaches:
The cards were either used to collaborate between teachers and directors to question the way of living the school and working together, either to make educational sequences with students.

Is there a need for two different tools or a tool that allows differentiation?

- FINLAND

GROUPS

We were able to arrange meetings with 13 teachers, to introduce and discuss about the 6C model and the co-creation cards. The first group consisted of seven elementary school craft teachers and the second group consisted of six university lecturers.

Group 1.
1) Craft teacher in primary school (grades 1.-6.), city: Pori (f)
2) Craft teacher in secondary school (grades 7.-9.), city: Pori (f)
3) Craft teacher in secondary school (grades 7.-9.), city: Pori (f)
4) Craft teacher in secondary school (grades 7.-9.), city: Eura (f)
5) Craft teacher in secondary school (grades 7.-9.), city: Harjavalta
6) Craft teacher in primary and secondary school (grades 1.-9.), city: Rauma (f)
7) Craft teacher in secondary school (grades 7.-9.), city: Rauma (f)

Group 2.
1) Professor, PhD (Ed.) University of Turku (f)
2) Adjunct Professor, PhD (Ed.) University of Turku (m)
3) Senior Lecturer, PhD (Ed.) University of Turku (f)
4) University Lecturer, MEd, University of Turku (m)
5) University Lecturer, MEd, University of Turku (f)
6) University Lecturer, MEd, University of Turku (f)

We also interviewed three groups of primary school pupils (in Rauma), by using six modified Co-Creation Cards. The first group had eleven pupils from 6th grade, in age of 12 years (6 boys and 6 girls), the second group had eight pupils from 3th grade, in age of 9 years (4 boys and 4 girls) and the third group had six pupils from 4th grade, in age of 10 years (5 boys and 1 girl).

METHOD USED

Our approach was to present the cards for the group of teachers and reflect with them about the various usability for the cards, together with the whole group. Instead of solving a specific problem through the cards, we examined ten cards, one by one, and discussed how they could be used in different educational contexts.

The structure of the meeting was the same with both groups of teachers (elementary school craft teachers and university lecturers).
As a warm-up exercise, before getting in to the cards, we listed features of a good lesson. The list contained following issues: interesting, motivating, versatile, uniquely differentiating, multisensory, suitable and relevant substance on pupil´s perspective, self-directive learning, open and fair teamwork, helping others, well proceeding process that leads into essential learning experiences. After the warm-up, we started to examine the Co-Creation Cards (10/89), one by one, discussing on each´s possibilities in educational context, in the teacher's daily work. (from primary school to university)

CARD 08: TEAM SPACE

Team space can be a concrete space like a classroom or a school or it can also be something more abstract, like a spirit of a group of classmates, school community, society or even the world. This task is suitable for all ages, from primary school pupils to teacher students and professionals.

CARD 10: KNOWLEDGE AND EXPERTISE MAP

This task was seen as a good way on concretizing the knowledge and skills of teams or individuals.

CARD 15: PHOTO AND COLLECT BOARDS

Smartphones and other electronic devices could be better utilized in learning; pupils could collect photos and information about the world around them with their own electronic devices.

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This data collection could also work in teacher education, making the education studies more concrete by collecting information and photographs directly from the classrooms of the schools.

CARD 32: CLUSTERING

Learning to sort information is needed in many substance. Like it is said in the back side of the card, clusters can be used to organize any type of information.

CARD 38: CHALLENGE FRAMING

Framing problems as interesting challenges is a welcome approach for learners of all ages. Instead of struggling with difficult problems it is easier to think about "How might we exceed this challenge?". For example topics that are woundable in schools, like bullying, exclusion or loneliness.

CARD 63: INFORMING WITH CHARACTERS

It gives new aspects and ideas that can enrich the designing process in a way that cannot be found in other ways. Same kind of approach can be utilized also in other substances. For examples, you will write a different story or a fairy tale for Batman or for Hello Kitty.

CARD 68: PROTOTYPING

Prototyping should be a familiar technique in craft, but often there is too little time or materials for it. A good alternative way to design a product (instead sketching and drawing) is sometimes to build it with Legos or mold it from painted clay or glue it from cardboard.

CARD 80: ROAD MAP

This card was seen as a fun way to make a work plan in any kind of project. In craft, we often expect that the pupils and students makes a plan, timetable and instructions for their product making process. teachers can also use it to plan their work.

CARD 81: LOGBOOK

Logbook is a forgotten method that suits well for documenting and describing the learning during the process.

CARD 82: DATA WALL

It would be amazing to do this kind of data wall about everything that can be made in craft (or any other substance). It would work as a bank of ideas for students and for teachers.

After the card-session, there was a short presentation of the six modified cards that was used in our pupil interviews. The idea of presenting the modified cards was to show the teachers an example of how to make the cards more suitable (easier ad simpler) for the use of elementary school. The six modified cards were **58: Brainstorm, 18: Personal Narratives, 26: Explore Extremes, 36: Day Cycle, 24: Being a Tourist, 67: The Muse**. The problem to be solved with the pupils, through the card, was ***"How to make learning more interesting and fun"?***

RESULTS'S CONCLUSION

Even if the term design thinking is not familiar for most teachers, they realized that they already use some of the methods.

Teachers appreciate in particular the flexibility of the model and the cards, because too often in the readymade teaching materials there are only one, strict way to use it. That kind of inflexibility is often harmful for practical applications.

The primary and the secondary school teachers wondered, that how long it would take to teach the pupils the methods, because there are many approaches in the cards that needs a proper training first for the teacher and after that for the pupils, so they can someday independently use this methods. This requires time and training.

The common opinion in the both groups of teachers were that there should be different cards for pupils and for adults. For a wider usability, the content are probably too design and product orientated and it has to be modified for a more generalized way.

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The teachers felt that the 6C model and the cards would benefit for an effective training course, but realistically the course requires a common time from teachers' busy calendar, so a manual as a book or a video might be easier and more efficient way to familiarize the users to the cards and how to use them.

New approaches that the cards offers are needed in many places. In Finnish educational field the hottest topic right now is probably the new curriculum and the challenges and problems that the teachers have encountered in implementing it. This could be an interesting problem to face with and help of the cards, for example through the method called PNI: what was positive / negative / interesting in implementing the new curriculum?

Design thinking, 6C model and the Co-Creation Cards raised a positive interest among the teachers and they were seen as a welcomed aid for teaching. In order to be a practical tool, cards must be translated into each country's language and they must be transferred into different versions for different age learners.(simplified version) Cards also needs an effective manual and some cheerful visualization. The possibilities of the cards in addition to developing the design thinking are also good in the educational context and the cards provides a fresh perspective on problem-solving in any substance.

Our pupils likes experimental learning, functionality and learning by doing. They would like to do more group and team work and learn more outside the school walls. Pupils want more freedom of choice for their own tasks and they want everybody to feel the joy of learning. For them it is important, that the school is a good place for everyone and they know that the good mood spreads. The methods in the Co-Creation Cards increases the team work and helps as to see things from new perspectives. The cards encourages learners to explore the surrounding world and gather information about our environment. It seems that the exercises in the cards are in the same line with the wishes of our pupils.

- DENMARK

GROUPS
We had planned to conduct two workshops with 10 to 12 teachers from a triple school in Esbjerg («Urban Skolen»). Unfortunately the workshops had to be cancelled due to difficulties in making the workload and the timetable of the teachers fit.
Instead of the originally planned workshops we have :
- Made one workshop with three experienced teachers from three local schools. The teachers were found through the personal/professional network of Rasmus Jensen.
- Worked – shortly – with the Co-creation cards in connection with an in-service course in RE (Religious Education).
- Planned to do two more workshops in May 2018.

METHOD USED
TESTING THE CARDS
One group of teachers from the in-service course, where the co-creation cards were shortly introduced, used the cards to design a sequence of lessons on the issue of justice. The problem, that the pupils should work with, was: «How can we make the school more just?»
Three cards were used:
1. Personnal narrative
First the pupils were to write post-its, where they should write examples of injustices, they had experienced or witnessed during the last couple of weeks.
2. Challenge mapping
Second, the pupils would have to choose one or more of the listed injustices, and the next task would be finding other – and more «just» – solutions by asking how the chosen injustice /injustices could be transformed into something «just».
3. Take another path
Third: The idea was, that «taking another path» would both be a way of identifying, what was «unjust» in the situation, and what could have made the situation «just».

This idea – and the sequence of lessons – was actually developed within a couple of minutes by more or less randomly drawing cards. Initially the cards were used to plan lessons (on a given theme, the theme of justice); but the cards ended up as tools to be used by the pupils.

RESULTS'S CONCLUSION
The teachers pointed out that:
The sequence of the cards needed attention. The question is whether there is an order in the cards.

Using the cards with pupils requires introduction and training. It is important "to make the cards simple and clear enough, so that the students can use them.
The cards could be used both as a tool for planning lessons, and as a tool used by the pupils.
It is important to have clear goals.

The co-creation cards' approach – implies a specific way of understanding teaching and learning, where the focus is on thinking in terms of asking questions rather in terms of finding answers, and that the approach has strong similarities with project work and problem-based teaching.

The kind and degree of management. The teachers pointed out, that it would be a challenge striking the right balance between teacher management and the pupil's self-management, and that not all pupils would be able to work in the way suggested by the cards (that is: problem-based with a high degree of self-management).

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It was suggested that:

The number of cards should be limited to three in each category, if the cards were to be used by pupils. This suggestion points to the interplay between age group, the number and the complexity of the cards presented to pupils,

The number and the complexity of cards should be though in relation to the capabilities of the pupils. The cards should be designed in a way that makes it easy to select carts for certain age groups, for example by marking the cards: 'easy' cards, 'hard' cards and 'expert' cards!

The cards should have less text, the illustration should be prioritized and there should be no examples on the cards.(only how and why)

The cards should be in Danish!
The cards could be supplemented with a track or lane, as in the gameplay "Monopoly".

The purpose of using the method – the cards – should be clear, as there could be several types of purposes involved. The purpose could for example be:
>solving a common problem, identified by the teacher and the pupils in common, taking account of the curriculum,
>solving a 'particular' problem, a problem identified by a group of pupils – perhaps with little reference to core elements of a given curriculum,
>the purpose could also be something else than having the pupils learning some particular elements of a curriculum. The purpose could be learning the pupils to work together.

In our view, Co-cards could be used both by teachers in planning lessons and projects, and by pupils working with problem-based projects. An introduction course would amongst other things have to include:
>A typology of problems – a typology, that could be used to 'evaluate' and refine the character of a given problem.
>A typology of forms of teaching – a typology, that would make it clear, how co-creation method differs from other ways of teaching. There should be workshops, where the co-creation cards are used. It would be central to such a course, that almost everything is done using the Co-method itself.

In a Danish context we will have to use structures and resources, that are already working, for example by collaborating with schools that have PLM-meetings or sessions, and so forth. (PLM = professional Learning miljø].

- BELGIUM

GROUPS

We did the needs analysis in five partner schools of primary and secondary education, involving a total of 39 teachers:

Group A: 6 teachers in a secondary 'hotel school' > preparing students to become cooks, bakers, butchers, ... Teachers of French, physical education, general courses and the headmaster.

Group B: 19 teachers in a secondary school: teachers teaching cross-curricular courses such as citizenship, mini-enterprise, health education, ...

Group C: 4 teachers in a primary school (these teachers are generalists, teaching all subjects to one group of students)

Group D: 5 teachers in a secondary school: teachers of languages and mathematics

Group E: 5 teachers in a secondary school: teachers of languages and mathematics

METHOD USED

PRESENTATION OF THE 6C MODEL

First, we presented the 6C model to the teachers and asked them to reflect on when they already used the six C's in their work.

Second, we divided the teams in small groups and let them try out and critically evaluate some of the Co-creation cards.

TESTING THE CARDS / CREATIVE SESSION

USING THE CARDS TO WORK ON ATTENTION PROBLEMS IN CLASS

card 10 knowledge and expertise map

The participants focused on qualities that you need to tackle this problem: make interesting lessons, understand students' world, understand students' brain, motivation techniques.

card 26 explore extreme

The participants focused on extreme ways to deal with the problem: seal students' mouths, hard punishments, leave the students alone, give them medication.

card 54 inverse brainstorm

The participants focused on what to do if you want to create attention problems in class: don't visualize anything, don't react when students misbehave, talk about irrelevant issues, make the lessons too difficult, never differentiate.

CARDS CONTENT

cards used: 14-16-19-28-29-31-46-49-50-54-60-63-67-80-81

The teachers were given a set of cards in groups of 2 persons. They also received a sheet with the questions (d) that they could fill out. Afterwards we discussed in group their main findings.

PROROTYPING IDEAL CARD

I started using card 58 for this exercise but noticed that it was very hard for the teachers to do this exercise with a particular card in mind. Therefore I changed the assignment, asking them to design the 'ideal' card/tool without having one specific card in mind.

RESULTS'S CONCLUSION

Many teachers indicated they already used some of the C's, for instance in co-teaching, in projects for students or in many kinds of projects with students.

Most teachers considered this to be an interesting and systematic way of working, but indicated that the main constraint that prevented them from always working in such a systematic way was the lack of time, resources and support in their schools.

These are the most important elements that the teachers liked about the cards:
The structure, that was similar across cards, and the clear link to the 6C model.
The systematic way of working.
The creative aspect that stimulates them to think out-of-the-box.

These are the most important elements that the teachers disliked:
In most cards there is no link to the context of education.
Not all cards are innovative, the teachers already knew many of the methods.
The pictures are not always informative.
Not all information on the cards is considered useful.
The structure of the information on the cards is not optimal.

Third, we asked how the teachers would change the cards so they would become very useful for them as a tool to help them plan their lessons.

Most teachers agreed on the idea that there should be an informative picture on the front side.
The back side should include the most important information about the method:
What materials do you need for this method? Which setting?
Diagram explaining step by step (by only using few words) how the method works
Example from education
Where is this method located in the 6C-model
Most teachers preferred the use of a tangible tool (cards), but some also said that it would be very interesting to have a website or a mobile app in combination with the tangible tool. The website/app could then include further information about each card, which allows those who are very interested to consult more elaboration on the methods, while others could only focus on the basic information that is provided on the cards themselves.
Finally, all teachers mentioned that they would really appreciate if the cards would be available in Dutch.

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3 CONCLUSION

The needs for teachers to learn about and use co-creating, design thinking methods:
There is an expectation from the teachers to have methods and tools related to co-creation. It is therefore important to imagine a tool easy to use, and that would be perceived as a time profit.
Some teachers already use some of the methods so they don't perceiv it as innovative. On another hand, it is also a way of reassuring teachers on the use of the co-creation methods. We also suggest to show teachers how to use already known methods in other ways (the same tool and method can be used in many diffrent ways).

The needs about the 6c card game:
For teachers, the form of the cards should be improved and simplified, to be quickly read and understood. The number of cards could be limited and they must be condensed and simplified. The text must be reordered: hilight key words, synthesis of the text, put the «Why» before the example on the cards. (1.Why, 2. How, 3. Example)
The emphasis has to be on visual information. The card must have less text and more visual informations like picture, photo, diagrams, tables.
The classification could be redesigned (collaborate, collect, comprehend, conceptualise, create, communicate).

It it important to adapt the card level to the user, and to help him choose the right card for his level. Therefore, the cards sould be classified in different levels (easy, difficult, expert) which could allow people to choose a card according to the method's level of simplicity. The cards can also be used by teachers and by students, we should think about creating different cards for pupils and teachers. For the pupils, we could make cards with less informations and more visuals. (only «how» not «example» and «why»).

It is also important to consider the different ways to use the cards, teachers can use them to think their pedagogical projects, but also as a tool to create a subject or as a tool to give to the students.

In order to be understood easily, the cards should be simplified and translated in each country's language.
It is also important, to make sens for teachers, to choose examples in the educationnal field and to choose appropriated vocabulary.

The needs about supports to choose and use the cards:
Teachers need tools and training to learn how to use cro-creation tools. It is important to imagine how to create a better appropriation of the cards.

To bring teachers to use the cards as design thinking methods for the educationnal field, the cards have to be perceived as a time profit. We suggest to think a scenario: we can imagine that the teachers will first use the cards with a model (user instructions, guideline, etc) or with a proposal of pedagogical sequences ready to use, and in a second time they would be able to use them in a more free and open way.

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>CREATE STRUCTURED WAYS OF USING THE CARDS
- Create a tool to quickly identify and choose the right card.
It could be an algorithme, a mobil app, a poster with a table, a gameboard...
- Create a track, a lane for a specific goal.
This tool could be linked to pre-defined pedagogical goals/needs.
It would create sequences of cards, and show how to use and combine cards for some specific pedagogical needs.
- Provide pedagogical sequences with predefined associations of cards.
- Provide a tool to clear the classification. (for example a table)

>CREATE RANDOM WAYS OF USING THE CARDS
- We also though about another way of using the tool based on a random approach.

> CREATE A PROTOCOLE
Teachers also need tools to imagine their pedagogical project with the cards, a track or template to organize the project, a protocol to identify the problem on wich they will use the cards. (lots of teachers questionned the game on the order of the cards, how to associate them, how to create a project)

It is also important to think about mediation of the cards. Their's a need to find a way for teachers to get familiar with the methods and learn how to use in their everyday class.

>CREATE TRAINING SESSIONS TO HELP USING THE CARDS
Create training sessions with teachers to show them how to use those methods.
This could be during workshops with teachers, meetings, but also with a book, a video or a digital document. (as it is difficult to find time to organize presential training sessions for teachers)

During the 2nd work package we are going to work mainly on this directions:

- Simplification of the card game (content)
- Creation of examples in the educationnal field
- Mediation and support
- Graphic design, cards forms
- Classification