

THE TRANSVERSAL KeyCoNet CASE STUDIES ANALYSIS
SHARED VARIABLES
GROUP A

Topic: “Cooperation of professionals from different sectors in conducting educational activities in classroom environment and/or in initial or continuous professional training of teachers, whose ultimate goal is to foster the development of key competences in the student population”

Features of the initiatives included in Group A:

"Group A" is composed of a set of initiatives pertaining to KeyCoNet multiple-case study noted for the determined and strong professional partnership that different social spheres (cultural, scientific, business, design, etc.) provide to the implementation of various educational actions (programs in the school contexts and/or in teachers' continuous professional development, research, etc.) whose ultimate aim is to foster the development of key competences in the student population.

The initiatives included in Group A are the following:

- a) **GA-CS 1** The *Global Enterprise Project* (GEP) initiative involves students and professionals from different industries into schools. One of the focus areas of the working group was the transition from education to the world of work for young Europeans. The *European Round Table of Industrialists* (ERT) is one of the key partners: it is an informal forum bringing together around 45 major multinational European companies covering a wide range of industrial and technological sectors. ERT's working group on Societal Changes has explored the need to further involve European businesses in educational activities through an initiative that would promote entrepreneurship and raise awareness on globalisation and skills for the future.
- b) **GA-CS 2** The *Science and Technology for All* (STA) initiative has a cooperation agreement with Science and Technology for Children (STC) and it is from STC that STA buys its new themes. Other STA cooperation partners are the National Centre for Mathematics (NCM), technology resource centres, schools and universities such as: Linköping University, The Swedish National Agency for Education, the business community and local cooperation partners. In Sigtuna for example, the local STA organisation works in close cooperation with the “Start an Experiment” programme, which is another initiative that aims to increase interest in the natural sciences and technology amongst children and teenagers. Via STA, schools and the business community obtain better conditions for collaboration -for example through things like a technology day, where both pupils and the business community display projects they have undertaken.

- c) **GA-CS 3** The *Co-Designing Learning Environments* initiative is a theoretical and practical model of the 21st century learning environment. It is part of Work Package 4 (the projects related to the Work Package 4 aim to contribute to the internationally recognised need to update learning environments in order to better support 21st century teaching and learning).
- d) **GA-CS 4** Cooperation universities/research units on the creation of a school science movement: the partnership *Centre for Education Development* (CEO) supervises the project implementation as an intermediate body. However, the guidelines, approach and solutions developed in the implementation process help the introduction of the Ministry's new core curriculum and of the necessary changes in school practice. In addition, the CEO has two other partners that are directly involved in the project implementation: a) The International Institute of Molecular and Cell Biology b) The Polish-American Freedom Foundation.
- e) **GA-CS 5** The *Cultural Rucksack* initiative puts an emphasis on the practical involvement of students in cultural activities with professionals. This will then improve the cultural awareness of all students, both in school and in everyday life (professionals within performing arts, visual arts, music, film, literature and cultural heritage are creating initiatives and offering collaborations with schools). It targets specific areas in the national curriculum and pupils at all levels of education have the opportunity to experience activities of cultural expression.
- f) **GA-CS 6.** *The Entrepreneurial School.* Creating trans-European models for teachers to support the development of their skills and methods in applying entrepreneurial learning to different teaching subjects and to different contexts.

Initiative	Partners	Code
<i>Global Enterprise Project (GEP)</i> 11 European countries: Finland, France, Germany, Ireland, Italy, Netherlands, Portugal, Romania, Slovakia, Spain, Sweden.	- European Round Table of Industrialists - European Schoolnet Coordinator: <i>Junior Achievement Young Enterprise (JA-YE) Europe.</i>	GA-CS 1
<i>Science and Technology for All (STA)</i> Sweden	- The Royal Swedish Academy of Science and the Royal Swedish. - Academy of Engineering Science in cooperation with municipalities throughout Sweden.	GA-CS 2
<i>Co-Designing 21st Century Secondary School Natural Science Learning Environments</i> Finland	- Jyväskylä Teacher Training School - University Properties of Finland Ltd.	GA-CS 3
<i>Students' Academy</i> Poland	- International Institute for Molecular and Cell Biology. - Polish-American Freedom Foundation.	GA-CS 4
<i>The Cultural Rucksack</i> Norway	- Ministry of Culture and Ministry of Education and Research.	GA-CS 5

<p><i>The Entrepreneurial School</i> Europe</p>	<ul style="list-style-type: none"> - JA-YE Europe - European Schoolnet - The European Round Table of Industrialists (ERT) - University of Warwick [UK] - Junior Achievement Slovakia[SK] - Lappeenranta University of Technology [FI] - Junior Italia [IT] - University College Copenhagen [DK] - Fundacja Młodzieżowej Przedsiębiorczości (JA Poland) [PL] - Ungt Entreprenørskap (JA-YE Norway) [NO] - Apreender a Empreendedor (JA Portugal) [PT] 	<p>GA-CS 6</p>
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Scope of the initiatives included in Group A	
Initiative	Code
<p><i>Global Enterprise Project (GEP)</i> European project: Learning-by-doing in a school entrepreneurship educational programme, with practical hands-on activities led by a volunteer business consultant for secondary school students (15-18 years old).</p>	GA-CS 1
<p><i>Science and Technology for All (STA)</i> The initiative has real impact on a systemic level on a national scale. Even though the initiative is a top-down strategy, the main bulk of the work is done at a local and regional level. In this way experience and competence are built from below, rather than as a top-down initiative.</p>	GA-CS 2
<p><i>Co-Designing 21st Century Secondary School Natural Science Learning Environments</i> Theoretical and practical project at regional level.</p>	GA-CS 3
<p><i>Students' Academy</i> Following the introduction of the new national core curriculum, the project aims to improve the development of achievement standards, teaching programmes and additional modules for optional extra-curricular activities.</p>	GA-CS 4
<p><i>The Cultural Rucksack</i> The objective was to combine different regional initiatives into a national initiative targeting the key competence of cultural awareness and expression. (...) The programme is intended to be a unique, but at the same time self-evident, supplement to school activities. A further principle of the initiative is that there should be room for local and regional action, which will ensure local enthusiasm, activity and involvement.</p>	GA-CS 5
<p><i>The Entrepreneurial School</i> Creating trans-European models for teachers to support the development of their skills and methods in applying entrepreneurial learning to different teaching subjects and to different contexts</p>	GA-C6

A1. The initiative is based on previously developed actions (programs, research, etc.) and offers its particularity regarding the implementation of the competence-based model assumed by the curriculum/official program.

- A.** The *Global Enterprise Project* (GEP) initiative has been based on the experience gained during a previous programming period. [*Junior Achievement Young Enterprise* (JA-YE) *Europe* is coordinating this project. JA-YE *Europe* and its members involved in this project have a long standing experience in working with teachers in primary and secondary education around the theme of entrepreneurship, skills for employability and financial literacy] **GA-CS 1**
- B.** The *Royal Swedish Academy of Sciences* (RSAS) and the *Academy of Engineering Sciences* (AES) are important cooperation partners. It was these two bodies that introduced the *Science and Technology for All* (STA) concept to Sweden and which developed the original Swedish model. The initiative runs by the Royal Swedish Academy of Science and the Royal Swedish Academy of Engineering Science, was established in 1997. The positive assessment of a pilot scheme (*Science and Technology for Children*) at a local level allowed the beginning of STA as a significant development concept for the teaching of the natural sciences and technology in schools. That means that STC idea was adapted to the Swedish school system. **GA-CS 2**
- C.** The Finnish national *Indoor Environments* programme and its Work Package 4: *Environments for Learning and Creation of New Knowledge* led by University Properties of Finland Ltd. The main project partners of the *Co-Designing Learning Environments* subproject are the University of Jyväskylä (Agora Center), University Properties of Finland Ltd. and the University of Jyväskylä Teacher Training School. The theoretical framework and research methods employed are based on previous research on ideal learning environments. Learning environments are considered to be multilevel ecosystems that shape the conditions for learning in a specific time and space. The development of all dimensions of space, including physical, virtual, social and personal interrelated and interconnected space, is considered relevant. **GA-CS 3**
- D.** The *Student's Academy* initiative is based on experience of the *Centre for Citizenship Education* (CEO) in implementing projects, especially the ESF-funded *School of Dreams* project **GA-CS 4**
- E.** The *Cultural Rucksack* initiative is part of a national programme established in 2001 by the Ministry of Culture in which the cultural and educational sectors cooperate to provide school pupils with the opportunity to become acquainted with, understand and enjoy all forms of artistic and cultural expression at a professional level. There are several challenges in improving this as a key competence area within curricula and school focus areas, and to overcome the risk of the *Cultural Rucksack* becoming just an extra-curricular activity. **GA-CS 5**
- F.** TES won co-funding from the European Commission's Competitiveness and Innovation Programme (CIP), which aims to promote projects with a high-added value at the European level in education for entrepreneurship. In March 2014, 130 teachers participated in a Workshop for National Trainers. They will train over 4000 teachers in the next 3 years across 22 countries. The full list of the countries is: Italy, Norway, Poland, Slovakia, Denmark, UK Finland and Portugal (in EU Grant) + Belgium, Bulgaria, Cyprus, Germany, Greece, Hungary, Latvia, Romania, Russia, Serbia,

Slovenia, Spain. (...) TES is currently co-financed by the EU through a CIP grant by DG Enterprise through a call concerning models for primary and secondary school teachers to support the development of their skills in applying entrepreneurial learning to different subjects and contexts. (...) DG Enterprise has of course always been concerned by the economic outcomes of entrepreneurship education as much as the enablers and drivers within the ecosystem. In the past years DG Enterprise and DG Education have teamed up on entrepreneurship education policy making—looking hard at the learning outcomes and the indicators. Entrepreneurship is a key competence but it must also be understood from a wider perspective beyond economic outcomes, also from young people's overall competitiveness in the labor market. The timing of this grant was just at the same time as some major policy communications on education and of course just on the cusp of a new cycle within the European Commission where we are seeing entrepreneurship education has moved up to top priority in virtually every policy area. **GA-CS 6**

A2. Initiative focused primarily on competence development of students from secondary level (in different contexts: formal; informal, formal and informal education, etc.).

- A. Secondary school students (all type of secondary schools including vocational education institutions). The first part of the programme is delivered in schools during school hours while the second is delivered after school as an informal education activity. **GA-CS 1**
- B. Upper secondary school: the project is in line with the on-going development of the basic education and upper secondary school curricula in Finland. **GA-CS 3**
- C. Formal education: Lower secondary school (students aged 13-16). **GA-CS 4**

A3. Initiative focused on competence development of students from different education levels

- A. The STA programme has been adapted to suit Swedish preschool up to the last (9th) year of primary school (7 to 16 yrs). That is, from pre-school to the end of compulsory education. **GA-CS 2**
- B. The *Cultural Rucksack* initiative has been important in creating a national development of 'cultural awareness and expression' among children and youth throughout their schooling. As of 2007, the initiative covers the whole of school education in Norway, from primary to upper secondary schools (formal and non-formal education). **GA-CS 5**

A4. Curriculum cross-cutting and key competences

- A. The model for the school's curriculum development is first and foremost directed towards biology, physics, chemistry, technology and mathematics but experience has demonstrated a spread effect to other subjects and key skills and competences. **GA-CS 2**

- B. The *Co-Designing Learning Environments* initiative is a cross-curricular project (visual arts, physics, chemistry, mathematics, ICT, mother tongue and literature, English and Spanish) but is conducted mainly as a part of the visual arts course. **GA-CS 3**
- C. [An challenge was] how to combine subject- based teaching practices with the development of cross curricular key competences such as scientific reasoning, problem solving, and team work. The project aims at introducing new elements from the core curriculum into school practices: these elements are based on key competences, primarily competences in science and technology, mathematical competence and learning to learn. The project focuses on biology, chemistry, physics, and mathematics. **GA-CS 4**

A5. Participatory organization of the initiative with the cooperation of institutions from different professional fields.

- A. The three main partners worked together, under the lead of JA-YE, to define the main activities of the project. There are four components to the GEP programme: Website and Quiz (online); GEP Classroom Visit (in school); Mini-Companies (in school); Challenge (outside school at national and European Level). **GA-CS 1**
- B. Close liasion between schools, municipalities, the business community and high schools/university. (...) A well-grounded foundation is an aspect of the organisation's structure that has made a highly positive contribution. A successful launch to STA work in any area requires a firmly grounded anchorage for all the parties involved – from politicians to teachers/pedagogues. (...) Very useful factor in the promotion and development of the STA initiative has been the STA's own organization: STA Enterprise Partnership for the Development of the School Curriculum, which advices and supports schools on working methods and materials; the members' local STA-organizations; and a science committee staffed by the RSAS and AES. (...) In each region there is a committee that evaluates the requests from different artists to participate in the *Cultural Rucksack*; in particular, the committee assesses the quality and relevance of their descriptions and background. **GA-CS 2**
- C. In this initiative there has been a mix of bottom-up and top-down approaches internal and external stakeholders along with the main users and the administration were invited to join the participatory, democratic and user-centered design process. (...) The educational researcher participating in the project stated that working in a multidisciplinary team [different internal stakeholders -administration, teachers, student teachers and students- and external stakeholders -researchers, University Properties of Finland Ltd., constructor, designers, companies, etc.- in the design and development of new spaces.] that aims to take into account the needs of profoundly different user-groups and to create a holistic view of 21st century learning spaces has made it relatively difficult to define the main approaches, contents and objectives of this project. Frequent, open and democratic discussions have been needed to overcome these difficulties. **GA-CS 3**
- D. The Project has different partners at different levels of management, for example, scientists working at the International Institute of Molecular and Cell Biology provide activities for the teacher training courses, propose sample experiments and problems to be solved, help to identify examples of good practice, and asses the work of students presented at Sciences Fairs. **GA-CS 4**

- E.** A great majority of cultural institutions and a number of related institutions are involved in the content of the programme. The partnerships are organised by regional administration officers that are responsible for schools. There is a national network of people working in regional offices related to the *Cultural Rucksack* initiative and each region has a network for its municipalities. Over the years these networks have increasingly established better working approaches as well as definitions of the quality and substance of activities. These networks have played an important role in the development of the initiative over time and they also create a very strong feeling of ownership of the initiative at the local level. Everybody feels that they have a vested interest in the initiative, and this sense of ownership is often expressed in the media coverage of different activities. (...) The main obstacles to the implementation of the initiative are related to connecting the cultural and educational sectors at the local level; this is something that varies greatly in different municipalities. (...) Many of the decisions are made on local level and not on the national level. In many ways the national secretariat does serve as an advisory and coordination unit. **GA-CS 5**
- F.** The consortium is composed of stakeholders who already had a role in entrepreneurship education and European wide networks that could work as a multiplier effect. JA-YE Europe and its members involved in this project (JA-YE Norway, JA Italy, JA Poland, JA Portugal and JA Slovakia) have a long standing experience in working with teachers in primary and secondary education around the theme of entrepreneurship, skills for employability and financial literacy. The Centre for Education and Industry of *Warwick University* has expertise in assessing and supporting schools in their entrepreneurship courses through their CEI35 and CEI10 Quality Frameworks designed to assist schools through a developmental process. *Lappeenranta University* has developed a *Measurement Tool for Enterprise Education* is a self-assessment for teachers in primary, secondary and vocational school and had given teachers the possibility to evaluate and develop one's own entrepreneurship/enterprise education and that of the school community. *University College Copenhagen* has a strong expertise in primary school education. European Schoolnet had a long standing experience in supporting teachers on ICT in schools and a wide network of Ministries of Education across Europe. (...) The other major contextual enabler is the participation of employers: there has been a real desire from employers to foster the entrepreneurial skills of their employees liked to the fact that they are shifting more and more their CSR activities into education to give back something to society but also to invest in education to prepare a better workforce for tomorrow. Several business sector partners are involved in the consortium: the *European Roundtable of Industrialists* and the two co-financing partners: *Accenture* and *Intel*. **GA-CS 6**

A6. Fluid and cooperative coordination: connection of experiences, knowledge, work lines, resources, etc.

- A.** The coordinator plays a central role within the STA. The coordinator acts as the mutual contact point for teachers/pedagogues within the organisation. He or she is also the link between the local development group and daily operational tasks. The coordinator also acts as the link between regional and national branches of the organization. **GA-CS 2**
- B.** The coordinators' work was also seen as crucial in keeping the project manageable. The stakeholders interviewed thought that the roles and division of tasks were clear, that cooperation was fluent and effective, and that it was relatively easy to reach consensus between partners. **GA-CS 3**

- C. Regional cultural and education departments are responsible for coordinating the programme in their own regions, and individual programmes are also designed by the municipalities. This assignment of responsibility to local authorities promotes enthusiasm and a sense of ownership among all parties involved and provides room for local variation. **GA-CS 5**

A7. The involvement of universities and/or initial teacher training institutions in the dynamics and rationale of the initiative.

- A. After the co-design and redevelopment of the space, support will be offered to teachers and students for the implementation of new practices. The evaluation of the impact will be mainly based on qualitative data (e.g. user perception, user experiences and video ethnography). (...) the focus has been on designing spaces with the school administration, teachers and student teachers, while further design work is being carried out by design professionals. **GA-CS 3**
- B. (...) awareness of the initiative in teacher training colleges needs to be improved. **GA-CS 5**

A8. Institutions from outside the education system (with scientific, cultural, business, etc. nature) engage in activities with students.

- A. The classroom visit brings professionals from different industries (ERT Member Companies) into schools, where students can interact with them directly. These employee volunteers are not just role models, but also provide expertise in their chosen fields. The volunteers lead a 1-2 hour learning activity and discussion around the global issues that businesses are faced with every day. (...) This [students create and manage their own real enterprises, develop enterprise ventures with peers in other countries, strengthen their entrepreneurial know-how and apply their academic skills in new ways] is achieved with the support of teachers working closely with business professionals who will share their experience, expertise and raise awareness of the variety of career opportunities that exist in today's global environment. **GA-CS 1**
- B. The material carries a basic and continuous thread, which encourages confidence in the teaching process, engages the pupils and arouses their interest for natural science subjects Having both the material and guidelines delivered makes things much simpler and saves time for the teachers/pedagogues. **GA-CS 2**
- C. The diversity of the program is both a strength and a challenge, since the core substance is so varied. One consequence of this variation is that some municipalities become more systematic in their approach to integrate the project, connecting schools and cultural organisations to each other, while other municipalities have not managed to do this. By approaching the initiative in a more systematic way, municipalities can ensure that all pupils at a certain level are involved in such activities (e.g. visiting a library or watching a play in a theatre). The point of the initiative is that it is not established or developed by the teachers or the school, but is a service provided to the school by the cultural sector; furthermore, this service is provided for everybody and is not dependent on one teacher. **GA-CS 5**

A9. Scientific, cultural, business, etc. institutions support teachers in the task of facilitating competence development of students.

- A.** GEP initiative aims to teach teachers how to use innovative and entrepreneurial processes in the classroom. To help educators shift from the role of traditional teacher to facilitator/coach and project-based learning. **GA-CS 1**
- B.** *Science and Technology for All (STA)* offers conceptual courses to school principals for the development of the school's curriculum. The model for the school's curriculum development is first and foremost directed towards biology, physics, chemistry, technology and mathematics, but experience has demonstrated a "spread effect" to other subjects and key skills and competences. All those working with STA are obliged to participate in its training course. **GA-CS 2**
- C.** The changes are designed in harmony with the school's vision and mission, and social practices and the new infrastructure are simultaneously co-designed and co-developed with internal and external stakeholders. Changes have been designed based on the shared, recent understanding of 21st century teaching and learning, but the aim is to build upon existing curricula and good practices, without fully abandoning tradition. Due to the specific function of this school, the dimension of teacher-training has been naturally included in the project. **GA-CS 3**
- D.** The *Students' Academy* is based on the assumption that to introduce any change to schools it is necessary to have adequately prepared teaching staff; as such the online courses for teachers make up an important part of the project: a) Experimenting and Peer Learning; y b) Educational Projects of the Students' Academy. (...) Every teacher taking part in the project will attend two courses offered entirely on a online platform that can provide interactive communication (2 semesters). They can share and exchange their experiences, comment on works of other teachers, ask questions, explain and communicate with their mentors. **GA-CS 4**
- E.** "The *Cultural Rucksack* is one of the largest programmes in the world that aims to bring professional arts and culture to children. It has been very successful at reaching all parts of the country, despite the obvious geographic and climatic challenges. (...) Children as cultural consumers and audiences is a concept that is taken very seriously in Norway, and artists who work with children are often of a high standard." (information from External Evaluation Report). **GA-CS 5**
- F.** Prior to this call [CIP grant by DG Enterprise] the European Commission issued several reports talking about obstacles to a successful implementation of entrepreneurship education. In those reports teachers training and the issue of addressing teachers was top of the list among the things that needed to be fixed to improve activities in this area. Then in 2011 they organised a conference in Budapest focused on teachers: initial teacher training as well as in-service training for teachers. Right after the conference the Commission issued another report entitled *Entrepreneurship Education: Enabling Teachers as a Critical Success Factor*. The report refers to research which says that core skills and values linked to entrepreneurship education are seldom a priority in initial teacher education programs and approximately 90% of in-service teachers say that they would like to receive some further training on creativity. **GA-CS 6**

A10. The teaching team constitutes a learning community dedicated to analyzing methodologies that facilitate the development of key competences in students

- A.** STA is firmly anchored within the teaching community. The majority of teachers/pedagogues working with STA believe that it plays a positive and entertaining role. Also, apart from the fact that it is fun to work with, teachers/ pedagogues find that working with STA is a great time saver. They receive notes on working methods and material delivered to them and also continuous help in assessing what the pupils have learned. **GA-CS 2**
- B.** (...) Spaces have traditionally been designed for one purpose only and the space intuitively directs people towards specific behaviours. (...) [Currently it is required] spaces that are designed to support 21st century ways of working instead of fostering traditional patterns of behaviour. (...) The project aimed to diminish possible resistance to change as well as the possible gap between official goals and the goals as understood by teachers or students. She also stated that the integration of co-design activities in the curriculum and ordinary schoolwork was an excellent way of conducting the sessions as participants did not perceive co-designing as an extra burden, but as an opportunity to influence their own working environment. (...) There has been constant informal formative self-evaluation, internal peer-to-peer evaluation (students, teachers, student teachers and administration) and also feedback from external experts **GA-CS 3**
- C.** An individual module programme helps to build teachers' confidence, enabling them to gradually hand over more and more tasks and responsibilities to their students. (...) A cooperative network of teachers who know each other and respect each other's accomplishments, and who are linked and united by the conviction that student activity is a prerequisite and source of success, and not a source of trouble. **GA-CS 4**

A11. The relationship between the tasks that students solve and the development of their competence profile.

- A.** In GEP, secondary school students between the ages of 15 and 18 from several European countries learn about various industries in the context of the global economy, create and manage their own real enterprises, develop enterprise ventures with peers in other countries, strengthen their entrepreneurial know-how and apply their academic skills in new ways. This is achieved with the support of teachers working closely with business professionals who will share their experience, expertise and raise awareness of the variety of career opportunities that exist in today's global environment. (...) All students are required to take an online quiz about globalization prior to the classroom activities. The quiz gives an overview of important aspects of globalisation: the economy, the environment, demographics, labour markets and skills, and technology. **GA-CS 1**
- B.** The STA model is designed so that pupils at all times can perceive the problem they are working with. These problems have to be contextually grounded in activities that can be easily grasped by the pupils. It is from this overall context that certain elementary scientific generalisations and concepts can be subsequently drawn. (...) But perhaps the biggest reason for STA's continued development and growth is what happens in the classroom, when the enthusiasm of the pupils becomes apparent – this creates a very positive atmosphere in class. The pupils are given very thoroughly researched material

and encounter the natural sciences and technology at a professional level. Natural science is linked in a very clear way to the pupils' own reality, so that it feels real and recognisable. The key point is that experiments are linked to facts in a light handed way. Both teacher and pupil gain from this. **GA-CS 2**

- C. (...) The pedagogical head of the upper secondary school explains how the use of ICT in classrooms has already increased participation, communication, involvement and peer-to-peer learning in classes in comparison to traditional natural science classes, where often about 5 students out of 25 tend to participate actively while 'the rest just nod their heads'. **GA-CS 3**
- D. Three successive classes of students will take part in the programme and will be engaged in its implementation throughout their three years of education in the *gimnazjum*. (...) The activity scenarios and teaching materials are grouped into four sections: experiments; projects; peer learning; and cross-curricular activities. (...) Students go out of school, make observations, explore phenomena and use various sources of knowledge. **GA-CS 4**
- E. The *Guide* is a very flexible tool that can be used in different contexts and in different situations. Individual teachers can decide to use a tool or apply a method in their classroom as well as teachers' trainers can decide to use it in their initial or in-service trainings. **GA-CS 6**

A12. Peer learning (students)

- A. [GEP initiative includes among its objectives cultivating] entrepreneurial and intercultural skills as key competences, through developing students' business and enterprise acumen, building projects with peers in other countries and coaching them about work in a globalised workplace. The Global Enterprise Challenge is a one-day innovation workshop focused on fostering young people's problem-solving, idea-creation and presentation skills. Students are given a challenge to solve together in a team, and the topic of the challenge is designed and presented by industry experts. Employee volunteers are involved as facilitators for the teams.(...) **GA-CS 1**
- B. Some of the key factors behind the successful collaboration were identified as the clear definition of the roles of each stakeholder from the beginning of the project, as well as the mutual trust in each partners' expertise in their field. Pre-existing relations between different stakeholders have also helped in establishing fluent collaboration between the different partners. In any case, there is a need for frequent and regular meetings with different stakeholders.**GA-CS 3**
- C. In the *School Science Clubs* [the students] work in small groups with minimal intervention from teachers. (...) **GA-CS 4**

A13. Relationships between curricular and extra-curricular activities

- A. The international activities for the GEP mini-companies are crucial. Several actions have been and will be put in place to find solutions to this problem:
 - a. Schools will be peered at the beginning of the year and students will work with a peer GEP school in another country from the very beginning of the school

year; they will develop their ideas, products, production and marketing strategy in a joint venture approach together with their teachers and cross-border volunteers.

- b. Language teachers will be asked to help with the international activities.
- c. The platform will be fully revised and the teaching materials made more user-friendly for students. **GA-CS 1**

- B.** In order to link the knowledge acquired through these courses to school practice, teachers supervise extracurricular activities –*School Science Clubs*– while still involved in the training process and apply the methods they have learned during their ‘normal’ classes. (...) This exemplifies an important principle of the way in which the Students’ Academy works: methods and approaches experimented in the extra-curricular *School Science Club* activities are transferred to ‘normal’ classes. In this way, scientific research methods are disseminated and all students carry out (and not only watch) experiments and work in teams on their own projects. (...). **GA-CS 4**

A14. Tutorship project designed to help students, teachers and/or others involved in the initiative.

- A.** GEP relies on the voluntary activities of the sponsoring companies. Business volunteers from partner companies deliver the class activities, act as advisors in the classroom and mentor students throughout the programme. **GA-CS 1**
- B.** There has been constant informal formative self-evaluation, internal peer-to-peer evaluation (students, teachers, student teachers and administration) and also feedback from external experts **GA-CS 3**
- C.** Every participant receives individual assistance from a mentor (an experienced teacher trained beforehand by the project) (...) In exchange, the CEO provided teachers with remuneration for conducting additional classes, access to online courses, individual mentorship, and participation in traditional courses **GA-CS 4**

A15. School spaces that promote competence-based learning.

- A.** Learning environments are considered to be multilevel ecosystems that shape the conditions for learning in a specific time and space. The development of all dimensions of space, including physical, virtual, social and personal interrelated and interconnected space, is considered relevant. (...) The main objectives of co-designing the secondary school natural science classroom and hallway at the University of Jyväskylä Teacher Training School are 1) to transform the natural science classroom and its closely connected hallway into a space that enables diversified learning and the adaption of all key competences, and 2) to involve members of the school community in the design of the space through user-centred co-design and development. From a research perspective, the first objective is related to developing substantial design principles regarding the optimal 21st century learning spaces, while the second objective is related to developing procedural design principles for user-centred co-design projects. **GA-CS 3**

A16. The Website as communication context and monitoring of the proposals.

- A. The *Global Enterprise* online platform is the virtual home of the project. It is a lively community where participants can meet, collaborate and receive training. **GA-CS 1**
- B. The project's website plays a key role; it is divided into the following two sections: a) a section only accessible to project participants; b) a section that is open to the public. The site is also a place for teachers to consult their mentors and a forum for broader discussion and sharing of experience. (...) Every teacher taking part in the project will attend two courses offered entirely on a online platform that can provide interactive communication. **GA-CS 4**
- C. The *Virtual Guide* is a practical and useful tool for teachers in primary, secondary and vocational schools that want to mainstream entrepreneurial education in teaching methods and learning processes they set up in classroom every day. (...) The *Guide* is a very flexible tool that can be used in different contexts and in different situations. Individual teachers can decide to use a tool or apply a method in their classroom as well as teachers' trainers can decide to use it in their initial or in-service trainings. **GA-CS 6**

A17. Publication (online or printed) of materials, guides, videos, examples and other supporting documents aimed at promoting the competence-based learning and assessment

- A. The objective of The *Entrepreneurial School* (TES) project is to make it easy for teachers to apply entrepreneurial learning in any subject area and for any age group. Schools will have access to a quality framework and assessment tool that helps educators set milestones and assess progress. Schools will have access to a quality framework and assessment tool that helps educators set milestones and assess progress. In addition, the project has collected good practices from several countries. These good practices are meant to plan how to implement and to improve entrepreneurial learning in schools (...) A forth area is a collection of the most recent European policy documents on entrepreneurial learning, together with strategy and research documents published by national governments and other institutions. **GA-CS 6**

A18. Involvement of families in the development of student activities

- A. *School Science Club*: students and parents participate at school meeting to present successful experiments, developed posters, teaching aids. **GA-CS 4**
- B. There is still a challenge in making people more aware of the initiative and its aims, particularly parents who know little about what the initiative really implies. Furthermore, awareness of the initiative in teacher training colleges needs to be improved. **GA-CS 5**

A19. Online tools for teacher training in relation to the development of competences by students

- A. The *Entrepreneurial School* (TES) project will produce a *Virtual Guide* to Entrepreneurial Learning as well as self-assessment tools for teachers and schools. The guide will include 75-100 entrepreneurial tools and methods. (...) The guide contains more than 100 tools and methods to support entrepreneurial teaching and learning, good practices and framework documents from 85 different schools in 10 countries. It also includes self-assessment and review tools for teachers and schools who want to assess how much entrepreneurial their learning process are and to review their progress on a regular basis. **GA-CS 6**

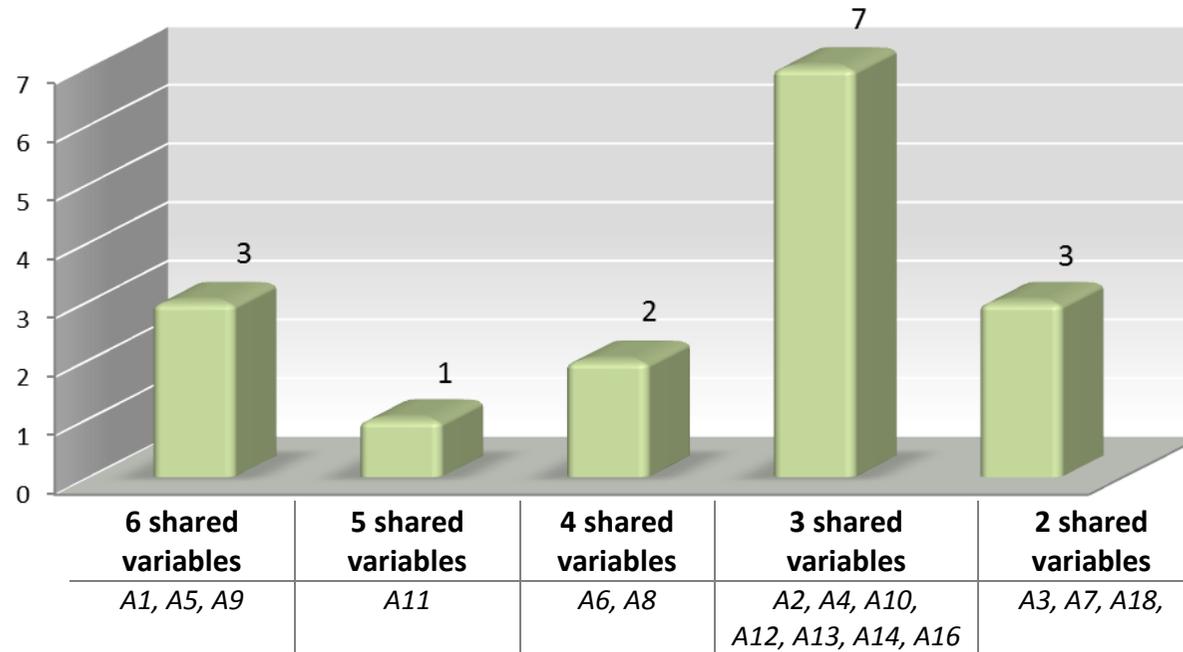
**Summary: variables selected in Group A (6 initiatives pertaining to KeyCoNet multiple-case study):
Initiatives code: GA-CS 1; GA-CS 2; GA-CS 3; GA-CS 4; GA-CS 5; GA-CS 6**

GA	Variables identified	Shared frequency
A1	The initiative is based on previously developed actions (programs, research, etc.) and offers its particularity regarding the implementation of the competence-based model assumed by the curriculum/official program.	6
A2	Initiative focused primarily on competence development of students from secondary level (in different contexts: formal; informal, formal and informal education, etc.).	3
A3	Initiative focused on competence development of students from different education levels	2
A4	Curriculum cross-cutting and key competences	3
A5	Participatory organization of the initiative with the cooperation of institutions from different professional fields.	6
A6	Fluid and cooperative coordination: connection of experiences, knowledge, work lines, resources, etc.	4
A7	The involvement of universities and/or initial teacher training institutions in the dynamics and rationale of the initiative.	2
A8	Institutions from outside the education system (with scientific, cultural, business, etc. nature) engage in activities with students.	4
A9	Scientific, cultural, business, etc. institutions support teachers in the task of facilitating competence development of students.	6
A10	The teaching team constitutes a learning community dedicated to analyzing methodologies that facilitate the development of key competences in students	3
A11	The relationship between the tasks that students solve and the development of their competence profile.	5

A12	Peer learning (students)	3
A13	Relationships between curricular and extra-curricular activities.	3
A14	Tutorship project designed to help students, teachers and/or others involved in the initiative.	3
A15	School spaces that promote competence-based learning.	1
A16	The Website as communication context and monitoring of the proposals.	3
A17	Publication (online or printed) of materials, guides, videos, examples and other supporting documents aimed at promoting the competence-based learning and assessment	1
A18	Involvement of families in the development of student activities.	2
A19	Online tools for teacher training in relation to the development of competences by students	1

GROUP "A"

N = 19 variables - 6 initiatives



Variables non-shared: 3
(A15, A17, A19)