THE TRANSVERSAL KeyCoNet CASE STUDIES ANALYSIS
SHARED VARIABLES
GROUP C

Topic: "Support programs for teaching staff in the process of changes towards teaching practices that integrate key competences included in the current curriculum alignments: a back and forth transition that is projected in the competence performance of students and feeds from the contexts of teacher continuous professional development"

Features of the initiatives included in Group C:

"Group C" consists of a set of initiatives pertaining to KeyCoNet multiple-case study that, from their respective proposals, focus on the development of programs that guide and direct the teaching teams in implementing the changes related to planning and development of teaching practices posed by the curricular integration of key competences. In any case, they are initiatives that, taking as reference the student competence assessment, are organized in context of continuous training and/or orientation of teachers pretending to strengthen the professional development of teaching staff and understanding the diversity of tracks in this field.

The initiatives reported in Group C are the following:

1. **GC-CS 12** *Key Skills of Junior Cycle*
   This is a system-wide initiative aimed at embedding key skills within the curriculum and all teaching and learning in the context of introducing a new junior cycle programme for 12-15 year old students in all schools in Ireland in 2014. This is a national initiative that will impact upon all teachers and students at lower secondary level over time.

2. **GC-CS 13** *Project Maths*
   Mathematical proficiency and the five key skills of the National Council for Curriculum and Assessment (NCCA). Framework of Key Skills (senior cycle) are also embedded in the curriculum. These are: information processing, communicating, being personally effective, working with others, and critical and creative thinking.

3. **GC-CS 14** *Curricular Integration of key Competences Programme* (COMBAS)
   The focus of the Spanish case study is Spain's national project, ComBas: *Proyecto de consolidación de las competencias básicas como elemento esencial del currículo* – project for the consolidation of key competences as an essential element of the curriculum.

4. **GC-CS 15** *Programme for the Curricular Integration of Key Competences* (PICBA)

Scope of the initiative reported in the Group C	
Initiative	**Code**
National initiative *Key Skills of Junior Cycle*	**GC-CS 12**
National initiative *Project Maths*	**GC-CS 13**
National initiative ***Curricular Integration of key Competences Programme* (COMBAS)** Spain	**GC-CS 14**
Regional initiative ***Programme for the Curricular Integration of Key Competences* (PICBA)** Andalusia (Spain)	**GC-CS 15**

Initiative	Partners	Code
Key Skills of Junior Cycle Ireland	The Department of Education and Skills, State Examinations Commission, Teachers' Unions, School Management bodies and other stakeholders in education are supportive of this initiative.	**GC-CS 12**
Project Maths Ireland	This project constitutes a *united front* and the collaboration between policy stakeholders: – National Council for Curriculum and Assessment (NCCA) – Department of Education and Skills (DES): a. Maths Inspectorate b. Teacher Education Section (TES) (includes the *Project Maths* Development Team) – State Exams Commission (SEC)	**GC-CS 13**
Curricular Integration of key Competences Programme (COMBAS) Spain	Ministry of Education, Culture and Sports, educational authorities of 15 autonomous communities.	**GC-CS 14**
***Programme for the Curricular Integration of Key Competences* (PICBA)** Andalusia (Spain)	Department for Education of the Regional Government of Andalusia (Spain)	**GC-CS 15**

C1. The initiative is inserted into the network of European and/or national actions related to student competence assessment and its connection to teaching practices.

A. The key skills are based on the competences set out in the European Framework for Key Competences for Lifelong Learning, but are adapted to suit the Irish context. (…) The implementation of key skills in junior cycle has been part of the systemic review of junior cycle from the outset. (…) All levels of school education in Ireland are at various stages of curriculum reform and the development and embedding of dispositions and competences are viewed as central to these reforms. (…) The *National Council for Curriculum and Assessment* (NCCA) [-agency of the *Department of Education and Skills* (DES) in Ireland-] advises the *Minister for Education and Skills* on curriculum and assessment in early childhood, primary and post-primary education. (…) The *Key Skills of Junior Cycle* framework is influenced by international research and by the NCCA's work with a network of schools that focused on the development of five key skills within senior cycle education (2006-2011). (…) The new junior cycle is the most significant reform of the formal curriculum in Irish education for decades and key skills is a major part of that. The embedding of key skills within a new junior cycle programme is a very ambitious project. A range of supports are currently being developed to enable teachers to begin exploring how they can develop these key skills within their classrooms. **GC-CS 12**

B. Following a review of post-primary mathematics education in 2007, the National Council for Curriculum and Assessment (NCCA) prepared a strategy, *Project Maths*, for the phased implementation of syllabus change in mathematics over a four-year period from September 2008. This change involved the review of mathematics syllabuses at both junior cycle and senior cycle and a complete change in the approach to the teaching and assessment of mathematics. The focus has been on the development of mathematical competence, while the five key skills (communicating, working with others, critical and creative thinking and information processing and being personally effective) have also been embedded in the curriculum. (…) *Project Maths* was planned as *a system-wide reform of mathematics education in* post-primary schools. It involved all maths teachers and the changes were introduced at both junior cycle and senior cycle. (…) The heart of the initiative is helping students develop mathematical proficiency (all students of mathematics in secondary schools) (…) [On the other hand,] explicitly addressing the transition from primary school to post-primary school with a *Bridging Framework* which connected syllabus areas in upper primary with the new strands, and a *Common Introductory Course* for all first year students were identified by the majority of interviewees as an effective strategy. **GC-CS 13**

C. By including key competences in the compulsory curriculum in Spain through the Organic Law of Education (LOE) in 2006, a need was created to make this curricular change a reality in educational practices within compulsory education in a decentralised country with 17 autonomous communities. In view of this challenge, the *Atlántida Innovation Group*, a non-profit organisation that has been working in the field of educational innovation in Spain since 1998, has searched for possible answers at a regional level, generating a working model1, and creating collaborative spaces between curricular integration proposals put forward by experts and practice in a group of schools. The achievements of this model in various regions led to the *Ministry of Education* accepting it as the official approach in 2010/11, developing a pilot model in collaboration with autonomous communities. This was how the *Curricular Integration of Key Competences Programme* (COMBAS) came about, focused on teacher training and evaluation in schools. (…) Five thousand teachers from 150 primary and secondary

schools participated in its first edition, within a national collaboration frame between the central administration and the educational authorities of 15 autonomous communities. (…). The programme continued during the following school years, and currently similar initiatives are being developed also at a regional level by many autonomous communities. (…) The commitment of the various political parties to follow European recommendations has not faded regarding the need to promote the integration of key competences into the curriculum. This commitment has been encouraged by the recommendations of the *European Commission*, by the impact of national and international competence tests, by the importance of internal and external evaluation, by the international profile of COMBAS and by the passionate defence of continuity made by the responsible politicians from the various autonomous communities. **GC-CS 14**

D. Once Organic Law 2/2006 on Education incorporated key competences into educational curriculums, defining them as an integral part of the curriculum, the *Department for Education of the Regional Government of Andalusia* decided upon a holistic approach of partnership (human resources and curriculum elements) between all the educational agents of the government. The competences were also established as a reference for the evaluation of students at the relevant times for the promotion and recognition of key competences through qualifications after their integration into the relevant curriculums in compulsory education. Diagnostic evaluation tests for the 4th year of primary education and the 2nd year of secondary education (in which Andalusia is a pioneer in Spain by applying them across the region since the 2006-2007 academic year) were also used as a measuring instrument, as well as the ANDALUSIA SCALE test, which is used in the *Autonomous Community* in the 2nd year of primary education. (….) Therefore it became necessary to carry out initiatives aimed at schools for the consolidation of key competences and consequently, help teachers with the task of transforming the teaching and learning dynamic by helping them overcome possible problems. With this objective, the Department for Education of the *Regional Government of Andalusia* decided to participate, with 25 Andalusian and a further 125 schools from other regions in Spain, in the *Programme for the Curricular Integration of Key Competences, COMBAS*, organised by the Ministry of Education within the framework of the Regional Cooperation Programme with autonomous communities. At the same time, the *General Educational Planning and Evaluation Department of Andalusia*, through the *Evaluation Service*, set up, by virtue of the duties assigned to it, the *Programme for the Curricular Integration of Key Competences, PICBA*, in Andalusia, based on the *COMBAS Programme*, although it soon gained its own identity, becoming an ambitious, innovative holistic initiative dealing with curriculum organisation, evaluation, supervision/inspection, training, respect for diversity, family participation, curriculum materials etc., in which around 4,000 teachers have participated. **GC-CS 15**

C.2 The initiative builds on experiences and resources from programs previously carried out on the integration of key competences in teaching and learning: what works in the classrooms?

A. Previous work in senior cycle was another enabler for the introduction of key skills in junior cycle. The NCCA launched an initiative with a network of schools in 2006 to explore how key skills could be embedded in teaching and learning across a range of subjects in senior cycle. This initiative helped to build up a body of professional practitioner-based knowledge of 'what works' in the embedding of key skills. While the initiative was initially designed to support curriculum development work at senior cycle, it also greatly influenced policy, curriculum and assessment in the review of

junior cycle. Teachers from the initiative had direct input into the development of the set of key skills for junior cycle. Reports from the initiative helped shape how the key skills are presented and how their implementation is supported. Probably the most powerful output was the resources developed with and by teachers, and particularly video footage of teachers in classrooms showing what the key skills are all about and demonstrating the benefits for students. The findings and outputs from the initiative were shared and made public. This helped to build an awareness of the key skills and an understanding of how they might be embedded in the curriculum and become an important part of teaching and learning in the classroom. (…) The pilot project provided convincing evidence of the value of embedding key skills within teaching and learning, and demonstrated the benefits both for teachers and students. (…) The implementation of key skills in junior cycle has been part of the systemic review of junior cycle from the outset. (…) More recently, an extensive consultation on the future of junior cycle education took place (2010- 2011) and participants affirmed the importance of developing these key skills. **GC-CS 12**

B. Recognition by all stakeholders that something needed to be done to raise the mathematics standards in Ireland was seen as an enabler to the *Project Maths* initiative. This recognition was brought about by a series of reports and studies that highlighted undisputed problem areas in mathematics education in Ireland. **(**Lyons, M., Lynch, K., Close, S., Sheeran, E., and Boland, P. (2003) *Inside Classrooms: a Study of Teaching and Learning*. Dublin: Institute of Public Administration). **GC-CS 13**

C. COMBAS programme did not implement a pre-designed model of educational intervention, but rather generated one based on continuous interactions between schools and experts. (…) Working procedures focused on the interrelation between various teams: this guaranteed the continuous review and improvement of materials produced. (…) The theoretical framework regarding the curricular integration of key competences provided by the *Atlántida Innovation Group* was prepared in close relationship to various educational practices carried out in schools: based on these practices, the theoretical framework was re-designed and, as the practical experience was analysed, this re-design was progressively improved. This methodology for the construction of knowledge, although complex for taking general decisions, continued to be developed during the COMBAS pilot project in order to make the individual adjustments that the high diversity of participating regions and schools required. (…) Several contextual factors supported its implementation, among them "Experience related to the inclusion of COMBAS coordinators in the dynamic of each school": with advice from the *Atlántida Innovation Group*, they contributed their experience to the implementation of COMBAS: a network of 30 schools based around a permanent teacher training centre in Alzira, in the *Autonomous Community of Valencia* (2009); various networks coordinated by the regional authorities of the Canary Islands, Zaragoza, Huelva and Extremadura, reaching a total of 250 schools (from 2007); a network of 23 *La Compañía de María* schools, a private educational organisation (2008); and a local network in *El Hierro* (the Canary Islands) with the participation of all the schools on the island, family associations and the civil community as a whole (2009). **GC-CS14**

D. The PICBA programme encourages various processes of reflection and action that facilitate decisions regarding the curricular integration of key competences within the regulatory framework. This has been successfully achieved using the general approach of the COMBAS programme for developing proposals and investigating new possibilities in the educational context of Andalusia. From the collaborative synthesis between the two programs, the following actions have arisen:

- ✓ Development of *professional competence* through training in which school coordinators are the common thread between the proposals received in class training sessions and the dynamics of school teaching teams.

- ✓ *Coordinated participation of all sectors* of education involved in the integration of key competences in curricular development: the *core team and PICBA provincial teams, schools, Andalusian Agency for Educational Evaluation* (AGAEVE), *and educational inspectors.*
- ✓ *Criteria evaluation model* that responds to official indications: weighting process for each of the evaluation criteria, as well as disaggregated indicators in the areas of knowledge and/or key competences for student qualifications.
- ✓ Consultation and feedback from *various integrated teaching units* (ITUs) produced by teaching teams: a) *curricular development* (definition of educational objectives through objectives for areas of knowledge, content, and evaluation criteria); b) *teaching conversion* (conversion of academic knowledge to teaching knowledge through tasks and activities in various scenarios or contexts during a set period); and c) *learning evaluation* using evaluation indicators and technical and evaluation/information tools.
- ✓ *Computer s with databases* so that each teacher can, in conjunction with the teaching team, prepare useful curriculum maps, integrated teaching units, and track student progress.
- ✓ *Collaborative work between families and schools* in strengthening the development of key competences *(comprehensive curriculum).* GC-**CS 15**

C.3 Reports on social and professional requirements to which the European citizen faces facilitate the implementation of initiatives that enhance competence development in students

A. All levels of school education in Ireland are at various stages of curriculum reform and the development and embedding of dispositions and competences are viewed as central to these reforms. (…) there was a general conversation among employers, parents and the general public about what is important in education and about the different kinds of skills that young people need in today's world. Discussions surrounding all of this research continually reverted to the same theme: the need to improve teaching and learning at junior cycle in order to improve student engagement and to develop the skills students need to learn, to live and to work. **GC-CS 12**

B. The new syllabus was focusing on more than the mastery of content and the examinations were assessing key competences in maths. (…). In the years leading up to the development of *Project Maths* there was a strong recognition from all parts of the system that reform was needed. (…) The heart of the initiative is helping students develop mathematical proficiency. **GC-CS 13**

C.4 Need for different sectors to rethink teaching and learning according to the competence-based approach

A. The NCCA is a partnership council, on which parents, teachers, higher education, school management bodies, business interests, Irish language interests, the State Examinations Commission and the Department of Education and Skills are all represented. Many of these organisations and others were consulted during the development process. In addition, teachers and school leaders who worked with the NCCA on the development of key skills commented on the importance of the partnership approach between the national agency (NCCA) and schools. They felt that this was important in terms of building trust in the process of incorporating key skills

into classroom practice and confidence in the evidence base of the key skills. **GC-CS 12**

B. This new model required a reconceptualization of mathematics, teaching and learning by all the stakeholders in mathematics education: teachers, students, parents, inspectors, examiners, text-book authors.(…) These [the reform was needed] included third level colleges, industry, politicians, employers' groups and various other educational institutes. (…) **GC-CS 13**

C. (…) The lack of a culture of collaborative innovation within the Spanish education system (both in private and public schools, and universities) could be considered to have hindered, to some degree, the wider implementation of the first year of COMBAS in view of the fact that: the presence of different theoretical-practical approaches hindered the understanding of the COMBAS approach, and the legacy of the various educational reforms that have taken place in the last two decades have struggled to differentiate themselves from each other rather than find shared points of view that would facilitate the educational consensus demanded by Spanish society. **GC-CS 14**

D. The lack of experience in education in addressing holistic curriculum development required coordination and collaboration between all the professionals involved in curriculum management and evaluation, supervision and inspection, teacher training, family involvement, the organisation of teaching materials and resources, etc. (...) Several factors contributed to the PICBA initiative achieving over the last three years a widespread in the field of teacher training and demonstrating that the development of key competences is the responsibility of the community (given that the process is enhanced by integrating formal and informal learning situations, and resolving tasks in various contexts). (…). **GC-CS 15**

C5. The implementation of the competence-based model at school level requires a change in mindset of teachers: a shift from a body of organized knowledge and evaluated linearly to another focused on problem solving

A. [It is also considered effective] the embedding of the key skills into the curriculum and into assessment. In the initial work with schools on the senior cycle initiative, teachers were working with subjects that did not have key skills embedded into the curriculum and which were tested in the traditional high stakes examination. While teachers still found the use of the key skills in their classrooms to be very effective in improving learner engagement and teaching and learning generally, some teachers did find it difficult to marry the key skills with the requirements of the curriculum and its assessment. While the embedding of the key skills in the junior cycle curriculum is only under development at the moment, the expectation that subject specifications will be different and that there will be a completely new approach to assessment has already created a sense that key skills are a necessary part of these changes. **GC-CS 12**

B. A change in mind-set was required, from a view that mathematics education is a teacher-centred endeavour with teachers covering a fixed body of knowledge in a linear way with their students, to a view that it is about challenging students and engaging them with an interconnected body of ideas and reasoning processes collaboratively with their teacher and peers. (…) It was strongly argued by teachers that the new assessment model, with its perceived unpredictability, that assessed concepts and skills as well as contexts and s did not support the development of the desired competences. The

structure of certain questions was criticised and it was noted that students *could get the wrong answer* despite the fact that they knew the mathematics. **GC-CS 13**

C. (…) Integration requires a change in teachers' mentality. As this is difficult to achieve because the institutional framework prevents transformations in educational practices, it was understood that it could be achieved through cooperation between schools and experts, jointly reflecting in order to enable teachers to prepare their own innovative procedures. (…) COMBAS programme was clearly committed to promoting a change in mentality, taking great care to negotiate resistance from teachers. Clearly, any change in mentality is very slow and, due to its unpredictable nature, very difficult to measure. The replies of the interviewed teachers made it possible to identify three phases in this change among participants: (1) of resistance to change (defining key competences as bureaucratic aspects that would hinder teaching), (2) of growing awareness of the link between competence-based elements of the curriculum and current teaching, and (3) of appropriation of the theory of key competences to support practice. **GC-CS 14**

D. In accordance with the framework that supports the COMBAS program, PICBA assumes that the development of a competency model requires collaboration between schools and other institutions in the educational community (especially the family) to generate a *comprehensive curriculum*. This collaboration took place in some schools spontaneously during the early stages of PICBA, and this experience was the basis for designing a new plan for the curricular integration of key competences. The plan counts on the support of families and associations that represent families. **(…)** It was needed to implement educational processes that include key competences in the development of curricula, as well as generating materials to accompany this process. **GC-CS15**

C6. The education authority reflects on how to support teachers in interpreting the curriculum reform in their teaching practices and in the assessment of student learning

A. While curriculum and assessment reforms are centrally led, schools are encouraged to develop competences in ways that work best for them and the NCCA has worked closely with schools and teachers in the development of the key skills frameworks. (…) Many of these organisations and others were consulted during the development process. (…) The NCCA, Department of Education and Skills, *State Examinations Commission*, teachers' unions, school management bodies and other stakeholders in education are involved in this reform, and work in the area of key skills has drawn particular support. (…) The NCCA is a partnership council, on which parents, teachers, higher education, school management bodies, business interests, Irish language interests, the *State Examinations Commission* and the *Department of Education and Skills* are all represented. (…) **GC-CS 12**

B. The unified responses from the system to the needs of teachers were particularly lauded. (…) The change in role of the NCCA, from being mainly advisory to a much more hands on role, as a significant enabler to implementation. Visits to third level colleges by NCCA personnel, direct contact with both the initial schools and those in the national roll-out through phone calls and emails were seen as being particularly helpful in supporting the system to change. (…) [The initiative organized was *Project Maths*. It] was unique in Ireland in that it placed teachers at the centre of the curriculum development process. Teachers' experiences and feedback informed refinements and subsequent revisions as the new curriculum was being rolled out. This initiative has now been mainstreamed in all Irish schools. (…) **GC-CS 13**

C. In order to make legislation a reality, teacher training actions were required and that, in order for these to work, it was essential to improve leadership in schools and promote collaborative networks around them. **(…)** The legal framework of regional cooperation concerning education between the central government and autonomous communities enabled the implementation of COMBAS. (…) Connecting general actions was a very difficult challenge, because despite the fact that there is a legal framework to help reach regional cooperation agreements, educational competences are very decentralized. (...) Coordinated work between teams from different educational organisations (the *Ministry of Education*, regional educational authorities and schools) facilitated shared responsibility in order to achieve COMBAS objectives. **GC-CS 14**

D. [The earlier generations PICBA programme] is being successfully implemented. (…) This is reflected in the various processes of evaluation incorporated in the programme, including the external evaluation that took place after the first two versions of the programme (including 130 schools with about 4,000 teachers) that was conducted jointly by the *University of Seville*, the *Andalusian Agency for Educational Evaluation*, and the school inspection service. The evaluation concluded: "The PICBA programme is recognised in general as a suitable instrument for facilitating processes linked to teacher training with respect to including key competences in the curriculum as required in the current regulations." (…). **GC-CS 15**

C7. The initiative consist of an official program designed ad hoc to foster the integration of key competences in teaching practices and assessment of learning

A. A range of supports are currently being developed to enable teachers to begin exploring how they can develop these key skills within their classrooms. (…). An integrated approach is taken to these skills, with the competences embedded into the learning outcomes of the formal curriculum and assessment. Emphasis is placed on their role in teaching and learning approaches employed in the classroom. A broad consultation with teachers, parents and other stakeholders on the junior cycle emphasised the importance of basic and key skills and drew particular attention to learning to learn, developing confidence and effective communication. **GC-CS 12**

B. While the overarching brief of *Project Maths* was to change the syllabus, assessment and teaching and learning of maths, the more specific aims can be summarised as:

- ✓ changing the culture of the classroom, shifting the emphasis from drill and practice to problem-solving, reasoning and sense-making;
- ✓ making maths more relevant to the lives of young people improving students' attitudes to maths; and
- ✓ developing teacher competency in relation to mathematical content knowledge and pedagogy. (…) **GC-CS 13**

C. The first year of COMBAS programme became meaningful in view of the situation that, despite the fact that key competences were included in the *Organic Law of Education* some years earlier, there were still no curriculum guidelines for their development in classrooms. Therefore, it was able to provide solutions to this absence and, to some degree, to a certain culture of complaining and conservative criticism that characterized educational reforms in Spain. (…) The main COMBAS programme strategies are:

- ✓ *A model for the integration of the curriculum under constant review based on the vision provided by the work in and with schools*. Priority was given to integration arising from the monitoring, by experts, of processes and products generated in the participating schools to obtain approaches.

- ✓ *Training focused on the collective solving of tasks***.** Based on training meetings, the interaction between members of the same group and between representatives of different groups led to the production of materials. This process fed back into the programme actions and justified student groups as the object of learning.
- ✓ *Top-down training, including the role of a COMBAS coordinator in each school*. **GC-CS 14**

D. The PICBA organisation does not precisely determine the conditions that schools should satisfy in terms of competence training in order to join one of the three training phases (initial, advanced, or in-depth). Therefore, each school chooses its formative phase in light of the resources available, as well as its knowledge and experience. This situation causes difficulties in monitoring the training and work developed by schools. From now onwards, the starting characteristics required for each phase will be defined more precisely.

C8. Initiative focused primarily on competence development of students from secondary level

A. This is a system-wide initiative aimed at embedding key skills within the curriculum and all teaching and learning in the context of introducing a new junior cycle programme for 12-15 year old students in all schools in Ireland. **GC-CS 12**

B. *Project Maths* was planned as *a system-wide reform of mathematics education in* post-primary schools. It involved all maths teachers and the changes were introduced at both junior cycle and senior cycle. (…) The heart of the initiative is helping students develop mathematical proficiency (all students of mathematics in secondary schools) (…) [On the other hand,] explicitly addressing the transition from primary school to post-primary school with a *Bridging Framework* which connected syllabus areas in upper primary with the new strands, and a *Common Introductory Course* for all first year students were identified by the majority of interviewees as an effective strategy. **GC-CS 13**

C9. Initiative focused on competence development of students from different education levels

A. COMBAS initiative is focused on the first year of the aforementioned programme, in which 150 primary and secondary schools have participated. **(…)** Of the 150 participating schools, 87% were state schools (45% nursery and primary, and 42% secondary) and 13% were subsidised private schools (including nursery, primary and secondary schools). **GC-CS 14**

C10. It is convenient to start external support programs for teaching teams before secondary education level (connections between primary and secondary)

A. The key competences are referred to as key skills, and frameworks for key skills have been developed for lower and upper secondary education. (…) There are arguments for and against introducing key skills at any particular phase of education: primary, junior cycle or senior cycle. Due to the integrated approach of embedding the key skills in the

curriculum and in assessment, they needed to be introduced as part of the curriculum reform. Some time was spent developing key skills for senior cycle, but as reform of the curriculum at this level was slow, their impact has so far been limited. However, a major reform of junior cycle provided the opportunity to introduce skills at that level. Hence, the approach in Ireland has been to seize the opportunity where there is a move to reform the curriculum and assessment at a particular level and then to integrate key skills development with that reform initiative. **GC-CS 12**

B. Explicitly adressing the transition from primary school to post-primary school with a *Bridging Framework* which connected syllabus areas in upper primary with the new strands, and a *Common Introductory Course* for all first year students were identified by the majority of interviewees as an effective strategy. **GC-CS 13**

C11. Provide school culture a reference framework that allows to connect assessment to the competence approaches assumed by the curriculum reform

A. The key pillars of the Framework for Junior Cycle are: [a] The Principles for Junior Cycle Education; [b] Statements of Learning; [y c] Literacy, Numeracy and Key Skills. (…) Following consultation, engagement with schools and research, five key skills were identified: information processing, being personally effective, communicating, critical and creative thinking and working with others. (…) The identification of the six key skills was also influenced by the schools that participated in the work at senior cycle. (…) The process of identifying the skills and communicating the rationale for introducing them was supported by the experience of the work with senior cycle schools. Stakeholders are now familiar with the language of key skills and have a commitment to them. **GC-CS 12**

B. One of the most significant aspects of the design of the initiative was the alignment of the assessment to the aims of the syllabus. It was seen as essential that the final assessment examined key competences in maths, that students would be required to problem-solve, to deal with real world s and to show conceptual understanding in mathematics. This was achieved by all parts of the system working very closely together. **GC-CS 13**

C12. Provide school culture a reference framework that allows to connect the official curriculum with classroom reality: levels of curricular integration of key competences in the processes of planning and development of teaching practices

A. In view of the distance between the official curriculum and the reality in classrooms regarding the competence model, COMBAS proposed generating alternatives that would make it possible to turn legislation into reality in classrooms. The substance of the model consisted of five levels of curricular integration of key competences:

- ✓ in real classroom situations, such as the completion of tasks;
- ✓ in curriculum elements like curriculum specification;
- ✓ in methodologies;
- ✓ in evaluation;
- ✓ in formal, informal and non-formal education. **GC-CS 14**

B. In official documents relating to curriculum development there are few indications of the relationships to be established between the elements (objectives, content, competences, evaluation criteria, etc.); and few methodological guidelines for creating and applying comprehensive curricula. Therefore, it was necessary to organise specific counselling sessions for teaching teams to analyse the curricula proposed by the programme. **GC-CS 15**

C13. Collaboration between different bodies of education authorities and, in turn, between them and schools, facilitates the achievement of the objectives of the initiative

A. While curriculum and assessment reforms are centrally led, schools are encouraged to develop competences in ways that work best for them and the NCCA has worked closely with schools and teachers in the development of the key skills frameworks. (…) Many of these organisations and others were consulted during the development process. (…) The NCCA, Department of Education and Skills, State Examinations Commission, teachers' unions, school management bodies and other stakeholders in education are involved in this reform, and work in the area of key skills has drawn particular support. (…) The NCCA is a partnership council, on which parents, teachers, higher education, school management bodies, business interests, Irish language interests, the State Examinations Commission and the Department of Education and Skills are all represented. (…) A national network of 48 schools (representing all school types) has been established to work directly with the NCCA. In addition, other school networks are being established by our education partners. These 'beacon' schools are generating classroom activities and examples (including videos) which will be shared with teachers within the wider system. (…) The NCCA is also working with other networks that have been established by partner organisations. Providers of pre-service and in-service professional development for teachers are also targeted. **GC-CS 12**

B. This [to deal with real world s and to show conceptual understanding in mathematics] was achieved by all parts of the system working very closely together. (…) The united front and the collaboration between policy stakeholders played a significant enabling role (NCCA; DES y TES; y SEC). Traditionally these various bodies have worked relatively independently, with a linear progression: NCCA prepares the syllabus, DES implements, and SEC examines. This linear progression and limited coherence in policy development was cited as a possible obstacle to previous reform initiatives. (…) Beginning with an initial 24 (phase one) schools, the *Project Maths* (…) placed teachers at the centre of the curriculum development process. Teachers' experiences and feedback informed refinements and subsequent revisions as the new curriculum was being rolled out. This initiative has now been mainstreamed in all Irish schools. (…) Schools applied to become involved in the initiative and a sample of 24, which was representative of all schools in Ireland, was chosen. The new syllabus was introduced in three phases to this group. While the work in the initial schools was developmental, many aspects of the model were replicated to the wider system. (…) The intention of the strategy [beginning the initiative with an initial group of schools] was that teachers in the phase one schools (24 schools) would receive intensive support and their experiences and refined materials would then be available to provide more effective professional development for teachers in the other, non-phase one schools. (…) Learning from the experiences of the teachers in the initial schools and the availability of resources developed for these schools were viewed as positive factors in the up-scaling of the project**.(…)** Initial schools had a direct contact person from the professional development team and received in-school training which was relevant to the school context. (…)The allocation of a *Regional Development Officer* (RDO) to the

phase one schools meant they received intensive support over five years. (…) This kind of intense support was seen as being an enabler to the effective implementation of the initiative with the phase one schools, but would have been difficult, and very expensive, to replicate on a system-wide basis. **GC-CS 13**

C. The core of the programme was collaborative action between various administrations and an innovative educational movement based on the continuous review of training approaches, depending on the results obtained by schools. (…) COMBAS programme provides (…) teacher training through a *top-down* process between national evaluation, in situ monitoring and adaptation at a regional and local level and the *horizontal* coordination of teachers for the fulfillment and delivery of the proposed tasks. (…) The strategy of the initiative consisted in the training of one coordinator per participating school, who received instruction in a monthly meeting in Madrid and afterwards acted as school coordinator, facilitating his or her colleagues' learning and organizing their group activities. This *cascade* approach with *horizontal* expansion at school level was perceived as very helpful to support teachers in the incorporation of key competences in their teaching. **GC-CS 14**

D. An annual call by the Andalusian educational authority for participation in the PICBA programme enables schools to indicate their intention to participate with the support of teachers (a basic condition as the training programme requires that teachers work in integrated teams). Once a school is accepted, a PICBA coordinator is chosen to specify the *cascaded training sessions*. All school coordinators receive classroom training (including specific advice, information, proposed tasks, materials, and an activities schedule), and this information is then shared with the teaching teams in each school (horizontal expansion). This process implies that each coordinator is responsible for monitoring the actions and practices performed by the school team and then relaying local achievements to the PICBA training team (for subsequent feedback as part of the training process). A teaching team training in their respective schools. **GC-CS 15**

C14. Coordination between education authorities of different governmental level (national/regional, regional/provincial/local)

A. Coordinated work between teams from different educational organisations (the Ministry of Education, regional educational authorities and schools) facilitated shared responsibility in order to achieve COMBAS programme objectives. (…) The first participation level included, with the coordination of the Ministry of Education, a management team (management and coordination between the Ministry and autonomous communities and cities), a consultancy team (face-to-face advice and online support, through the participation of training coordinators and representatives of regional teams), and a team of experts (with training support duties). **GC-CS 14**

B. A *core team* for the PICBA programme is formed by a group of departments and services responsible for aspects of the regional government education authority programme and its delegations in the eight Andalusian provinces. This team is responsible for analysing the various actions undertaken within the programme and making decisions with respect to: a) *Curricular planning and organisation of schools*; b) *Evaluation of teaching material*; c) *Supervision of schools (educational inspection*); d) *Preparation of curricular material and textbooks* (state administration and educational book publishers); e) *Teacher training* (training network); f) *Family participation*; and g) *Attention to diversity.* (…) Achieving a collaborative, systematic, and continuous performance by the administrative bodies involved in the development of PICBA was a complex task. An initial lack of awareness of the aims and objectives

of this initiative and a lack of experience in collaborative work between various bodies could be among the causes of this difficulty because more efficient support was obtained from all services as the programme progressed. **GC-CS 15**

C15. Fluid and cooperative coordination: connection of experiences, knowledge, work lines, resources, etc.

A. NCCA personnel working with school staff to support them in taking an approach that worked best for their own school [was a particularly effective strategie for the implementation of key skills]. This combined approach of teachers taking the centrally-designed key skills framework and making it their own in their own classrooms, with the support of the national agency, was seen as very powerful. **GC-CS 12**

B. It was noted that the developments under way at junior cycle with its emphasis on learning and key skills development and a move away from high stakes testing in all subject areas will help teachers greatly with their reconceptualization of mathematics teaching and learning. *Changes at junior cycle assessment will have a huge beneficial effect they [teachers] can spend time in 1st year and 2nd year teaching through a different lens Changes at junior cycle assessment will have a huge beneficial effect they [teachers] can spend time in 1st year and 2nd year teaching through a different lens…* [DES inspector comment]. **GC-CS 13**

C. The second level of participation was composed of regional technical and educational coordinators and their respective support teams. This included those responsible for political decisions regarding the regional structure of the programme, its monitoring and the institutional support regarding its legal, practical and financial aspects. The regional coordinators connected this network with the central administration and then with the respective school networks. Its role (just like that of school coordinators) could be conceptualised using the metaphor of a knot: the coordinators acted as knots between the different levels of networks and the strength of these knots depended on political, organisational and personal factors. (…) The diversity of figures in regional coordination**:** although the effectiveness of this coordination depended on strong personal commitment, the sources stated that, when coordination was assumed by an executive from local educational authorities or inspectors, there were greater advantages for COMBAS because of the power of these positions, and when it was assumed by directors of in-service teacher training centres, there were advantages in terms of teacher training support**. GC-CS 14**

D. Standing committee on PICBA training: this commission is responsible for developing, selecting, and organising materials for the programme. This committee includes teachers and training advisors with experience in the development of COMBAS and PICBA programmes and is advised by a group of specialists. (…)This [top-down training] was key in order to drive the programme: coordinators attended the monthly training meetings to receive explanations about the proposed learning tasks and the materials that accompanied them (texts, activities, examples etc.), analysed the information received and shared it with the management team, identifying the best proposal for the training process being followed in their schools. They organized the monthly schedule for the carrying out of the relevant tasks and coordinated and facilitated their execution through face-to-face and on-line meetings and were responsible for sending the products of the tasks executed by all teachers to the general coordination of the programme for them to be evaluated and returned with relevant comments**. GC-CS 15**

C16. The teaching team constitutes a learning community dedicated to analyzing the curricular integration of key competencies

A. A national network of 48 schools (representing all school types) has been established to work directly with the NCCA. In addition, other school networks are being established by our education partners. These 'beacon' schools are generating classroom activities and examples (including videos) which will be shared with teachers within the wider system. (…) The NCCA is also working with other networks that have been established by partner organisations. Providers of pre-service and in-service professional development for teachers are also targeted. (…) The key skills of junior cycle will be mainstreamed to all schools from September 2014 as part of the reform of junior cycle. The systemised approach will help to ensure that key skills are a feature of the curriculum in all subjects in all schools. However, there are likely to be challenges in this mainstreaming process. **GC-CS 13**

B. The new syllabus was introduced in three phases to this group. While the work in the initial schools was developmental, many aspects of the model were replicated to the wider system. (…) The intention of the strategy [beginning the initiative with an initial group of schools] was that teachers in the phase one schools (24 schools) would receive intensive support and their experiences and refined materials would then be available to provide more effective professional development for teachers in the other, non-phase one schools. (…) Initial schools had a direct contact person from the professional development team and received in-school training which was relevant to the school context. (…) The teaching and learning resources which were produced were used more effectively in the initial schools. This was attributed to the fact that the one-to-one link with a *Regional Development Officer* (RDO) ensured the resources were used as they were intended, whereas in the national roll-out these resources were either not used at all or not to their full potential. (…) The DES inspector observed that the level of professional dialogue around mathematical education is significantly higher in the initial schools. Research carried out by the *Educational Research Centre* in to the experiences of teachers who participated in PISA 2012 revealed that those involved in the pilot group were using ICT to greater effect, employing collaborative group strategies and perceived improvements in their students understanding of maths to a greater level than those in the other schools. **GC-CS 13**

C. (…) The programme demanded that each school have the support of the majority of teachers (although active participation was limited to only some of them). **(…)** Regarding the motivation that led these teachers to agree to participate in the programme, we have the following data: the majority of teachers participated due to intrinsic motivation (belief in the relevance of the key competence work or interest in innovation) and 37% because of extrinsic motivation (because teaching through competences was considered as compulsory in the official curriculum, because the school administration had decided that all teachers from the school should participate, or to obtain a certificate). **GC-CS 14**

D. The presence of an individualistic culture in schools required teaching teams to be offered help in converting personal initiatives into shared projects. (…) The adoption of a training model that operates in vertical and horizontal dimensions has enabled the direct training of a large number of teachers: the training standing committee coordinates meetings of school training coordinators (vertical) and these coordinators, in turn, offer training in their respective schools (horizontal). (…)A large number of schools began making independent decisions and went on to develop (in a contextualised manner) curricular maps showing the programming of the school,

departments, years, and classes; as well as the profile of the competences and areas – and the interrelation between them. **GC-CS 15**

C17. Pedagogical coordination at each school: important link between school and training proposals provided by external teams

A. In each school there is a person who serves as the liaison between the school and the NCCA, keeping the school in touch with what is happening on a national level and in other schools. This liaison is also responsible for motivating other staff members to incorporate the key skills and to reflect on and share their practice. (…) It will be important for the professional development process to support teachers and school managers to build competence and confidence in working with the key skills. Schools will need to be encouraged to develop leaders within the school who will drive the process. Replicating this model on a national level may be challenging, particularly at a time when financial resources are scarce. **GC-CS 12**

B. (…) Initial schools had a direct contact person from the professional development team and received in-school training which was relevant to the school context. (…) Teachers in these schools engaged in a higher level of debate about mathematics, teaching and learning. (…) It has been recognised by all stakeholders that more teacher support is required if the aims of the initiative to be fully realized. (…) Teachers interviewed reported that their ability to help students achieve the syllabus aims, has improved with time and experience. **GC-CS 13**

C. The third level of participation [organized by COMBAS programme] was focused on the teachers' network established in each school, led by the management team and, through delegation, by the individual teachers that accepted responsibility for the coordination of the programme in schools. (…).The proposal could be conceptualized as a *cascade training with horizontal expansion* at school level, as it was organized around two interrelated axes: one, focused on the figure of school coordinators, who functioned as a "transmitting chain" about the training they received in training meetings, and another focused on horizontal analysis and production that each school contextualized, with the help of the coordinators. Both fed back into the process and closed a training circle with the support of the various documentary and communicative resources offered by COMBAS, both in hard copies and on-line. **GC-CS 14**

D. Consideration of school coordinators as cornerstones in the PICBA formation model and, consequently, development of their ability to lead with creativity and innovation in the task of training the teaching team.(…) School coordinators study the materials and resources provided in the formative phase; and adapt, reorganise, modify, and redesign the material according to the needs and possibilities of the teaching teams. (…) Certification of teacher participants in PICBA for 30 hours of training per year, and 50 hours per year for school coordinators. These merits are to be taken into account in the awarding of salary incentives and certifications. **GC-CS 15**

C18. The culture of collaboration in school "everyday" (departments, courses, etc.) helps to understand the integration of competences in teaching, learning and assessment.

A. The role of the maths department in schools changed as a result of the initiative. (…) This did move their business away from purely administration issues to sharing ideas

and experiences. (…) Collaboration among teachers was reported as being an enabler to adopting the new approaches recommended by the syllabus. This was observed as a regular practice in the phase one schools. Teachers cited this collaboration as being extremely valuable and as something that developed as a direct result of being a phase one school. This kind of support and discussion was identified by the Inspector as being one of the major differences between the working practices of the phase one schools and those involved in the national roll-out (non-phase one schools). [DES Inspector comment: *The initial schools have reached a much higher level of debate about mathematics and what constitutes a good mathematics lesson*]. **GC-CS 13**

B. The initiative enabled, based on training meetings, interaction processes, the communication and production of materials between the members of the same group and between representatives of different groups and always providing support from various networks. These, in addition to feeding back into the actions of the programme, also justified using groups as the objects of learning: learning to solve tasks that would enable the exchange of different points of view and approaches to educational work**.. (…)** The initiative improved interaction with various support teams in the central administration and autonomous communities to ensure the circulation of information between its members through the various strategies. It therefore promoted the role of schools, through approaches aimed at enabling teachers to assume a central role in the organisation of their own learning based on the use of their organisational capabilities. **GC-CS 14**

C. PICBA programme provided some teachers with better organisation in their lesson plans and a different perspective of the national curriculum, better coordination with other teachers, and a more objective assessment. For those teachers with more experience in problem-solving or project-based teaching, it provided a structure that made it possible to channel their prior curricular advances and to self-evaluate their methodological advances. **GC-CS 15**

C19. Sustained support for teaching teams by an external team fosters collaborative learning and enhances professional development.

A. In many schools the work was started through a core group of teachers in each school who implemented the key skills in their planning and classroom practice. These teachers then shared their experience with the rest of the school staff. This strategy of teachers providing professional development for their colleagues, based on their own experience in their own classrooms, worked very well. The support of a designated external facilitator (from the NCCA) was seen as essential to this process in order to build confidence, help provide ideas on strategies and tactics, establish the research background, motivate the core group when there was a sense of falling back to old ways and support teachers in providing professional development for their colleagues. **GC-CS 12**

B. Teachers in these schools [initial goup] engaged in a higher level of debate about mathematics, teaching and learning. (…) It has been recognised by all stakeholders that more teacher support is required if the aims of the initiative to be fully realized. (…) Teachers interviewed reported that their ability to help students achieve the syllabus aims, has improved with time and experience (…) Evidence suggests that teachers in the phase one schools have made more progress on the continuum of teacher competence needed for the implementation of the new approach to mathematics than in the non-phase one schools. **GC-CS 13**

C. One of the most important factors in the development of ongoing teacher training programmes is connected to the continuity of innovation experience and to the profitability of these joint efforts carried out by institutions, schools and teachers. (…) COMBAS programme improved interaction with various support teams in the central administration and autonomous communities to ensure the circulation of information between its members through the various strategies. It therefore promoted the role of schools, through approaches aimed at enabling teachers to assume a central role in the organisation of their own learning based on the use of their organisational capabilities. **GC-CS 14**

D. Reflection by teacher teams on the various issues related to the competence model; stimulation of the search for solutions to problems and activities that accept differentiated responses that may suppose restructuring; and the incorporation of various approaches in the central axis of programme development. (…) Recommendation that school coordinators study the materials and resources provided in the formative phase; and adapt, reorganise, modify, and redesign the material according to the needs and possibilities of the teaching teams. **GC-CS 15**

C20. Integrating key competences in teaching practices and student assessment requires teachers to be competent in the discipline of the subject and in pedagogical topics

A. There is sometimes a perception that key skills are soft skills and that working with them can result in a 'dumbing down' of subject knowledge. Experience with the school networks has shown that this is not the case; moving to a key skills approach means that teachers need to be very competent in their subject discipline and comfortable with the issues that students may raise. Teachers will therefore need support for content knowledge in their subjects as well as for pedagogy (…). In response to requests from teachers for additional support in content knowledge, a series of workshops focusing on content were designed, these workshops were complemented by a range of optional evening courses, run in local Education Centres, which dealt mainly with mathematics topics (content) and/or with using ICT in the teaching and learning of mathematics. (…) Teachers were critical of the workshop model and reported that in the translation of the syllabus ideas to the teachers on the ground there was something missing. They reported that the workshop model meant that isolated topics were exemplified which was fine but there were many other sections that weren't. **GC-CS 12**

B. The research recommended that, in order for real change to happen, the syllabus, assessment and the teaching and learning of maths had to change in tandem. A number of enablers (…) include teacher professional development and support from third level, a more hands-on role for the NCCA, joined up thinking within the system, in particular the alignment of the assessment with the syllabus and the link between the new syllabus and the primary maths curriculum. (…) All stakeholders identified the provision of professional development for teachers in the area of mathematical content knowledge and maths methodology as a crucial lever in bringing about the proposed changes. It became apparent that extra courses were needed to help teachers improve their content knowledge and as a result modular evening courses, provided by local facilitators were held throughout the *Education Centres*. **GC-CS 13**

C21. Teachers go through the process of integration of key competencies into their teaching and/or evaluation of students practices with different rhythms and approaches

A. (…) teachers feel somewhat overwhelmed by the extent of the changes that they are expected to implement. Not only do they need to make the move to key competences, they will also be faced with changes to the curriculum, assessment, school planning, organisation and more. While some schools have already had some experience of key skills through working with NCCA school networks, others are starting from the beginning. **GC-CS 12**

B. While teachers still found the use of the key skills in their classrooms to be very effective in improving learner engagement and teaching and learning generally, some teachers did find it difficult to marry the key skills with the requirements of the curriculum and its assessment. While the embedding of the key skills in the junior cycle curriculum is only under development at the moment, the expectation that subject specifications will be different and that there will be a completely new approach to assessment has already created a sense that key skills are a necessary part of these changes. **GC-CS 13**

C. It was difficult to organise, with a degree of harmony, a response to the curricular integration of key competences that could be used by a group of very different schools (because of their respective experiences in the field, internal organisation, approach to educational innovation etc.). (…)The transfer of knowledge within each school has not proved to be as effective as desired, in contrast to what was achieved at group level by regional and school coordinators. In addition to resistance to change, the transfer depended on the leadership capabilities of each coordinator, understanding the prior ideas and educational skills of their schools in order to support their learning by establishing relationships between theory and practice, and by promoting methodological changes without hurting professional pride**. GC-CS 14**

D. The objectives that guided the PICBA programme from the beginning have been kept in sight throughout the process, although not all the participating schools have reached the same level at the same speed. **GC-CS 15**

C22. The school management team has a decisive role in the processes of change that the integration of key competencies in teaching practices and student assessment involves

A. Partnership between the school principal and the mathematics department was seen as a key enabler. Teachers reported that sympathetic principals would find ways to help them with their immediate challenges which was hugely supportive. **GC-CS 13**

C23. Collaborative work between schools and education inspectorate

A. An important partnership that needs to be formed is a positive relationship between the Inspectorate and the schools. Schools need to become comfortable inviting inspectors to their classroom and engaging in dialogue with them around issues of teaching and learning. Thus seeing the inspectors' role in the system as *supporting* teaching and learning rather than simply *evaluating* it. **GC-CS 13**

B. The PICBA key practices directly reach teaching staff through teacher-coordinators of the programme. Their work is essential to disseminate PICBA approaches by overcoming theoretical boundaries in order to reach real classroom situations through the educational projects of schools. To carry out this work, they have the support of the educational administration in the figure of the *Inspection Agency*, of training consultants and coordinators and, to a greater degree, of the managers of the programme in the Evaluation Service, which is the central hub between the sectors involved. **GC-CS 15**

C24. The Website as resource centre and communication context.

A. Online materials are under development by the NCCA and are being made available to teachers in all schools, providing them with continuous professional development materials, practical ideas for their classroom and examples of what other teachers have found successful. (…) While web-based platforms providing background information, video materials and online social networking platforms for teachers to share practice were seen as important and supportive, they are not a replacement for the personal contact with an 'expert facilitator'. It is noted however, that while this strategy has worked very well for the relatively small number of schools in the school networks, there will be significant challenges in replicating this model when the initiative is rolled out to all schools. (…) There is some evidence that teachers are reluctant to engage with the virtual environment, particularly the online social networking platform, in order to access and share information around the key skills. However, this aspect will be important to the strategy over time, as it enables teachers to support each other and share resources. **GC-CS 12**

B. COMBAS programme provides a platform including: a document database with bibliographic analysis by teams of experts; and a digital portal for the exchange of documents, materials, proposals and tasks and to raise the visibility of good practices and useful initiatives. (…) This provided an information bank (information about the programme, texts, activities, PowerPoint presentations, examples of good practices, a "press magazine" and technical information) and a communication tool (internal e-mail, forums, chat room), a self-evaluation tool (self-evaluation questionnaires for each activity and for the end of the training action), an evaluation tool (administration of "satisfaction" questionnaires) and an expansion tool (with links to a bibliography on key competences and to blogs by various schools). **(…)** The large number of participating teachers hindered all the teachers from being able to enter the COMBAS portal where all the working and reference materials were, with only the school coordinators being able to enter. The interviewed respondents agreed by indicating that this situation represented an obstacle for the dissemination work of materials to teachers, as it made it necessary to use different technological resources, including the design of a specific portal for each school. **GC-CS 14**

C25. Online tool that supports teachers in the task of integrating key competences in the teaching and assessment of student learning

A. There is a computer program specifically designed to prepare integrated teaching units and evaluate key competences, following the approach of the COMBAS digital tool and putting it into the context of Andalusia, as has been done with other materials produced by COMBAS. This new, innovative tool helps nursery, primary

and secondary teachers with the tasks of integration, evaluation and marking of key competences in line with the guidelines proposed by COMBAS/PICBA. **GC-CS 15**

C26. Solving tasks in teacher education: professional development

A. The initiative was founded on the interaction of groups of teachers resolving pedagogical tasks: identifying shared principles in schools and understanding that teaching decisions do not belong to the individual but mean a responsibility that cannot be reduced to personal efforts and that requires collective work in keeping with the principles of an educational project. It was planned that the search for materials and document modules would culminate in the production of educational resources "by the school for the school". It was planned that the products provided by the participating schools as a product of their own training process, related to the activities proposed by the programme, would be characterized by informing, explaining, describing, defining, re-designing and illustrating to other schools about their own experience regarding possible alternative approaches to integrating key competences into the curriculum. **GC-CS 14**

B. It is necessary to carry out initiatives aimed at schools for the consolidation of key competences and consequently, help teachers with the task of transforming the teaching and learning dynamic by helping them overcome possible problems. (…) Facilitation of the process for accepting and tracking tasks resolved by the school teaching teams and assessment of the involvement of coordinators. (...) **GC-CS 15**

C27. The curricular integration of competencies requires a review of class times, methodologies and learning spaces.

A. In order to implement the key skills effectively, schools will need to make changes to how they structure the school day and in some cases to the structure of their physical classrooms. Most schools operate on a 35-40 minute class period. Teachers and school managers have reported that it is very difficult to engage in creative and collaborative methodologies in that time. Likewise, tradition traditional classrooms may need to be reorganised to allow for collaboration and different ways of conducting research and presenting work. **GC-CS 12**

B. **GC-CS14** [It was effective] understanding that the development of student competences does not require one sole methodology, but requires a combination of a set of methodologies was difficult for the participating teachers. **(…)** COMBAS approach (…) fosters the lesson planning and improvement plans of schools. The changes in lesson planning proved to be easier for teachers with more teaching experience in problem solving and projects, than for those who based their teaching on textbooks. Regarding the improvement plans, there were four representative approaches for curriculum change:

- ✓ Temporary: lesson planning based on competences would be introduced for a limited time, making the most of occasions such as cultural or similar weeks when teachers are used to taking a break from their normal way of lesson planning.
- ✓ Progressive: school teachers would plan their lessons based on competences, which would then be used by other teachers in the following years instead of textbooks, becoming more or less a permanent part of the repertoire of the school.
- ✓ Defined by areas: replacement of textbooks only in certain subjects.

- ✓ Defined by academic years: as an experiment for certain groups or levels.

C. In schools: departmental structuring by areas of knowledge, in which a model of individualistic work focused on learning content still predominates. (…) In the educational environment in general: the lack of specific training for teachers and the scarcity of reference models for developing models for teaching competence. **GC-CS15**

C28. Teachers believe that the integration of key competencies in teaching and/or the assessment of learning is very time consuming

A. Any discussion about making changes in schools inevitably reverts to the lack of time to engage with the changes. Lack of time for planning, for reflecting, for changing direction and for building up new resources have all been cited as issues. Schools feel pressured and find it difficult to build in time for practices that they value, such as reflective practice, team planning and moderation. **GC-CS 12**

B. Spanish schools organizational schemes that provided teachers with time for curriculum coordination facilitated teamwork for the fulfilment of COMBAS tasks. However, some teachers say that there is no time to harmonise all the works. **GC-CS 14**

C. A reflection on the different teaching paradigms that guide teaching practice was not addressed by all the teams and some teachers reported not having time to do tasks requiring deep analysis. **GC-CS 15**

C29. School textbooks: need to be compatible with competence-based model

A. Published textbooks do not usually present learning situations based on the resolution of projects, tasks, etc., that facilitate the development of competences. On the contrary, published textbooks usually encourage the simple absorption of contents. Consequently, contacts have been initiated with publishers to encourage the publication of books and other materials that facilitate the implementation of the competence model in the classroom. **GC-CS 15**

C30. Publication of materials, guides, videos, examples and other supporting documents to accompany the processes for continuous training of school team

A. A framework has been developed for the six key skills, which sets out the elements and learning outcomes for each skill. The skills are embedded into the curriculum and assessment as each subject is being revised and as new courses are developed. Support materials (including toolkits, videos, etc.) have been made available online for schools and teachers. Key skills are included in the continuous professional development provided for teachers to support the implementation of the new junior cycle reform. Because the key skills will be embedded in the curriculum they will also be evident in both formative and summative assessment. (…) Other school networks are being established by our education partners. These 'beacon' schools are generating classroom activities and examples (including videos) which will be shared with teachers within the wider system. **GC-CS 12**

B. In an effort to ameliorate this negative media interest [in curricular reform], the NCCA published a paper *Project Maths*: Responding to Current Debate and embarked on a series of information sessions in 3rd level institutions nationally to provide accurate information and to address the criticisms. **GC-CS 13**

C. **GC-CS 14** COMBAS programme was based on the evaluation of teacher training within schools themselves, in order to facilitate the preparation of materials that would offer experience in order to convert the nominal incorporation of key competences into the official curriculum.

> COMBAS *Guide* published by the Ministry of Education, CNIIE, in cooperation with the 15 regional governments. It provides material for the development of a valid alternative curriculum that integrates competences (modules) as practical experiences in schools.
>
> [Previously that COMBAS Guide was published, a training materials was available but its use] did not reach the desired standards in some schools, because of their scope and a lack of time for teachers. (…) the coordination of the programme dealt with this situation by organising a guide, including activities that, by being related to the five levels of curricular integration analysed in the provided educational material and in turn, being compared with practice in pioneering schools, facilitated the theoretical-practical debate about the COMBAS model and its contextualization.

D. **GC-CS 15:** The PICBA programme in interaction with the COMBAS programme has produced a set of materials and resources for the curricular integration of key competences, as well as producing validated and reliable reference models of innovative teaching practices that encourage the development of competence. These resources have facilitated the transfer of experiences to other educational contexts:

- "*Guide to good practices for the integration of key competences in the curriculum' Andalusian Regional Government*
- Report on a pilot PICBA computer being developed with the participation of 150 schools (including some 1700 teachers, 350 consultants from the teacher training network, and 50 school inspectors).
- Methodological strategy for the development of Integrated Teaching Units (ITUs), as well as the computerised evaluation of their development.
- Final report on the most recent leavers in schools participating in the PICBA programme (year 2012-2013).

C31. Involvement of families in the initiative development.

A. Three groups have been identified as requiring further attention as partners in the development of the curriculum generally and in the integration of key skills, [among them parents]. They need to be communicated with through a number of different channels, as they can be quite apprehensive about what the changes mean for their children and concerned that they might be in some way disadvantaged by the new approach. Parents understand the status quo and need regular information on what the change entails so that they can support their children and schools in this different approach to learning **GC-CS 12**.

B. Sharing with families and other community institutions the activities and tasks that foster competence development. (…) There are several Andalusian PICBA/COMBAS schools that have given priority to the participation of families during the

implementation of these programmes through the relevant organisations: the school council and the parents' associations (AMPAS). This access has not been limited to sharing experiences at an informative level, but in some cases has led to active participation in the educational programme, by attending training meetings and collaborating in the setting up of some of the activities carried out. In short, it is about promoting the involvement of families for the development of learning also outside of the educational context. Associations for primary and secondary education managers, parents' associations and schools that, although they may not have participated in this programme, have taken innovative actions for the integration of key competences into the curriculum, have all been part of the key practices, the achievements and advances made in the integration of key competences attained through the PICBA/COMBAS Programme. **GC-CS 15**

C32. Certify the development of the fundamental skills that students reach

A. The decision to introduce bonus Central s Office (CAO) points (for entry to higher education) for A-D grades for Higher level *Leaving Certificate* maths was effective.(…) These points are awarded to students based on their achievements in the *Leaving Certificate* examination. (…) This incentive attracted many students who wouldn't normally have considered engaging with higher level mathematics. **GC-CS 13**

B. The *National Education Act* (LOE, 2006) describes the basic curriculum for compulsory education in Spain and this legislation raised the need for new curriculum guidelines and methods for applying this model. The regional legislative of the LOE was the *Andalusian Education Act* 17/2007, which states that the education system must facilitate as a priority: 'conditions enabling students to reach the key competencies established for compulsory education.' The *Andalusian Education Act* introduced key competences in the curriculum and determined that the promotion and certification of students should take into account the level of competence displayed by each student. **GC-CS 15**

C33. It is important that students are actively involved in their learning through key skills.

A. It is important that students are actively involved in their learning through key skills. For this reason the key skills of junior cycle have been written in a language that learners of this age can engage with. (…) Evaluation of the earlier initiative on key skills in senior cycle showed us that the key skills and the language used to communicate them should be accessible to students as well as teachers. This resulted in a rethink of how to present the skills in a way that is easily understood. **(…)** Students are probably the most challenging group to inform, particularly in advance of the change. (...) Schools can certainly play a role in this communication, but appropriate materials should be made available to support them in stimulating discussion with students about what is happening. **GC-CS 12**

B. External evaluations validate this concern [Director of Curriculum and Assessment said: (…) *we don't see the evidence in the classrooms and the classroom practice that would have been intended at the outset*.], highlighting that while students report being involved in activities which are in line with the revised syllabus, traditional teaching approaches are still widespread. Likewise, the processes promoted by the revised

syllabus aren't yet evident in the students' work, suggesting that at the moment teachers are focusing on the new content to a greater extent than the mathematical processes. **GC-CS 13**

C34. Difficulties in relating curricular changes to the assessment of student results

A. Teachers in the phase one schools viewed their involvement in syllabus development as a positive aspect of the reform. However, these teachers also reported that the real-time changes to the syllabus caused confusion as to the required learning outcomes for different cohorts of students. It is worth noting that teachers in the non-phase one schools may not have the same sense of inclusion in the curriculum development process. This indicates that significant teacher buy-in can be gained by adopting a developmental approach to curriculum development, which is informed by the experiences of the classroom. (…) The focus on the last PD workshop was on making connections across the strands. Now that all the strands are being implemented in all schools teachers are beginning to see the connections across the strands but find it difficult to exploit these links in their teaching. **GC-CS 13**

B. Self-evaluation of teachers and the development of techniques for evaluating the competence development of students required an effort from all involved. However, the training offered for designing and using procedures, techniques, and competence evaluation instruments is insufficient and it is believed that substantial change will require more work and time. **GB-CS 15**

C35. Teachers show insecure facing competence assessment: need to enhance their professional development in this field

A. The six key skills of junior cycle form a key pillar for these reforms, and the skills will be embedded in the curriculum and assessment specifications of all subjects for all schools over a timeframe that will extend from 2014 to 2020. (…) There were a number of points of concern with the current junior cycle, including the dominating effect of the *Junior Certificate* examination on teaching and learning practice and on school organisation and structures, as well as a sense that the curriculum was overcrowded and inflexible and that the approach to assessment was very narrow. **GC-CS 12**

B. Teacher readiness for change and maths teachers' qualifications were seen as obstacles to the mainstreaming of the initiative. (…) The high stakes nature of the exam and the fact that the assessment was now supporting teaching approaches which focused on competency development meant that new approaches had to be adopted. (…) The perception of the syllabus through the lens of the exam paper was problematic and teaching to develop mathematical competences as well as procedural fluency and computational accuracy was perceived as a huge challenge. The reconceptualization of what maths teaching and learning should involve was perhaps easier to espouse than to adopt in the classroom. (…) [It is important to note that the reluctance to change is one of the main] obstacles to the successful implementation of the initiative. **GC-CS 13**

C. The process of weighing the various indicators for each learning area/subject or competence, and producing evaluations based on the corresponding headings for competence evaluation, presented difficulties as this process requires teaching staff to

share a relational framework and common minimums for each indicator, and this was an objective that was not always easy to reach. **GC-CS 15**

C36. The continuation of the double assessment of students (performance assessment, on the one hand, and competence assessment, on the other) slows the adoption of an integrated assessment model.

A. This [the pervasive emphasis placed on the high stakes *Leaving Certificate* examination] was probably the biggest obstacle constraining reform efforts. The pervasive nature of the final examination and the link to college entry were identified as key barriers to change. Major changes to the final assessment in maths were a contributing factor to the aversion to the reform at school level. Research carried out by the NCCA with teachers in the initial schools highlighted that teachers were reluctant to change as they felt outside of their comfort zone. **GC-CS 13**

C37. The deep roots of the performance assessment culture slows the shift to competence assessment

A. Changing the focus from a strong attachment to the Junior Certificate examination to a focus on quality teaching and learning will take time. There is a sense that the way in which the education system, and society in general, has defined and rewarded the 'good teacher' to date has not helped the journey towards quality teaching and learning. Good teaching has been defined as getting students to perform well in an examination that was quite narrow in scope. Letting go of this system and redefining the role of the teacher is seen as a big challenge for teachers, and indeed for the general public. The model of continuous professional development to support the changes will be crucial to helping teachers make these changes. **GC-CS 12**

B. The move from a perceived predictable high-stakes exam to one which assessed problem-solving and was cited in the interviews as a huge factor in the resistance to change. Many teachers felt outside of their comfort zone, lacked self-efficacy and some reported gaps in content knowledge. (…) Although the emphasis of the initiative was on the development of mathematical proficiency, teachers were having difficulty seeing beyond *getting the students through the exam* and they perceived mathematical proficiency as procedural fluency. (…) Teaching reasoning and problem-solving skills significantly challenges teachers used to preparing students for what they feel is a predictable examination. It puts additional time pressure on those who feel they need to cover all eventualities and teachers lack confidence in their students' ability to solve problems that they have not covered in class. (…) Teachers view the [reform] syllabus through the lens of the previous examination and find it vague and unhelpful. (…) [It is important to note that the reluctance to change and the new assessment instruments are some of the main] obstacles to the successful implementation of the initiative.
GC-CS 13

C. The regulations governing the evaluation focus on content, and this focus has caused problems in designing a framework consistent with the competence evaluation proposed by PICBA (systematic observation of work in process, registration protocols, portfolios, peer evaluation to facilitate learning from reflection, and self-evaluation of difficulties, etc.). **GC-CS 15**

C38. Debate in different social environments (students, families, teachers, administrative managers, etc.) around the assessment model that integrates objectives and competencies

A. While these stakeholders [those involved in the design and implementation of the syllabus] recognised that the aims of implementing a revised syllabus and assessment on a phased basis and the provision of continual professional development has been achieved, there were questions asked as to whether the aim which is at the heart of the initiative—helping students develop mathematical proficiency—has yet been realised. (…) Seeing their role [the teachers] in this way, as that of exam coach, places mathematical authority with the exam looming in the future rather with teachers themselves. Positive aspects of the reform such as the closer alignment of the assessment with the syllabus aims are viewed negatively by teachers. **GC-CS 13**

B. [Between the future actions of the PICBA programme are the following:] a) regulate student evaluation in an appropriate framework that follows the competence model approach; and b) widen the participation of families, and associations that represent families, in the framework of a school-based plan that enhances the development of competence skills in children and adolescents from the perspective of a comprehensive curriculum (formal and non-formal learning) and the new assessment approach. It is understood that this plan meets the needs of families regarding information and training on how to participate in the educational change proposed by the competence model. It is also intended to produce a assessment guide that reflects experiences that can serve as a reference for the community. **GC-CS15**

C39. Different social sectors see the reforms based on the competence-based model as a thread

A. As with any initiative for change, special interests can be over-represented through national media and create uncertainty and fear within the system. Those responsible for the changes need to ensure that clear information and key messages are being consistently communicated through a number of channels. **GC-CS 12**

B. Often these groups [‘grind schools’, textbook authors and publishers] were very vocal in the media, especially in the run up to state examinations and they campaigned tirelessly to block the initiative. The counter argument was often not heard by the general public. [Moreover, it is important to note that the vocalism of those with vested interest in preserving the old system is one of the main] obstacles to the successful implementation of the initiative. **GC-CS 13**

C40. The importance of informing the features of the competence-based model using a clear and accessible language for the different members of the education community (mainly about teaching practices and student assessment).

A. There is a sense among partners that the key messages of the reform and of the key skills need to be well communicated to all stakeholders, and particularly to teachers, students and parents. As with any initiative for change, special interests can be over-represented through national media and create uncertainty and fear within the system. Those responsible for the changes need to ensure that clear information and key

messages are being consistently communicated through a number of channels. (…). Three groups have been identified as requiring further attention as partners in the development of the curriculum generally and in the integration of key skills: [a] Parents (…) [b] Students (…)[and c] Higher education. **GC-CS 12**

B. The impact of *Project Maths* on student achievement, learning and motivation in both the phase one and non-phase one schools was independently evaluated by the National Foundation for Educational Research, on behalf DES and the NCCA. Other evaluations included teachers' assessment of the professional development, research carried out by the NCCA on the experiences of teachers in the 24 schools and the Report on the Trialling of Leaving Certificate Sample Papers for Phase 1 of *Project Maths* in the twenty-four initial schools, carried out by the *State Examinations Commission*. The purpose of the trialling process was to measure the effectiveness of the draft sample papers and the marking schemes. Feedback from the trialling exercise informed the curriculum development and the teaching and learning approaches that should be adopted. **GC -CS13**

C. The PICBA programme has taken on an evaluation model in which responsibility is shared between the sectors and organisations involved in its development – as described below.The *core team* prepares the outline of the *research and evaluation plan* (objectives, actions, completion times, and evaluation tools) so that the various sectors and evaluation and research bodies (*base team, provincial teams, schools, Andalusian Agency for Educational Evaluation, and school inspectors*) can develop their own evaluation designs for application during and after the PICBA training process:

- ✓ **The initial evaluations** made by the *provincial technical teams* identify the most appropriate PICBA training modality (initial, advanced, or in-depth) and evaluate the starting points (willingness to participate, support for the management and teacher representatives).
- ✓ **PICBA evaluation processes** by the *core team, provincial teams, and schools (self-evaluation)* enable a reorientation of activities and scheduled processes and are based on results. For example, the portfolio used in schools facilitates collective reflection and offers teachers an interrelated vision of the processes followed during the school year.
- ✓ **Final evaluation** by the *Andalusian Agency for Educational Evaluation (AGAEVE)* and *school inspectors* analyses the results of the PICBA curricular integration in key competences and measures the level of impact on lesson design and classroom practice, as well as the influence on academic performance.
- ✓ **An evaluation/research process** made by the *University of Seville* analysed the evaluation culture of schools, the most common difficulties in evaluation practice, and the conditions that must be met in schools for the evaluation of curriculum and evaluation practices of teachers.

The various evaluation reports are analysed by the *core team* with the aim of identifying proposals and improvements that should be introduced in subsequent phases and PICBA training calls. In addition to these adjustments, a Final Day is organised in which the participating schools, educational services, and educational authority managers are presented with evaluation reports that offer the most relevant conclusions, proposals, and recommendations for improvements in the PICBA programme.**GC-CS 15**

C41. Information/communication to different groups (through various channels) avoids uncertainty and fears about the inclusion of key competencies in teaching practices and student assessment

A. The one aspect that has been identified as needing more attention is that of communication. There is a sense that, while the key skills have attracted significant attention and are generally viewed favourably, the message has not been communicated clearly enough to all stakeholders, particularly parents, students and teachers. In addition, as curriculum initiatives move from the design phase to the implementation phase there is a danger that the message of what is important can become somewhat diluted. **GC-CS 12**

B. While partnership was a significant feature of the initiative and the curriculum committee developing the syllabus had representatives from all the stakeholder bodies involved in Irish education, including four teacher representatives and representatives from 3rd level, there was still an impression that there was a lack of information in the system and evidence that the key messages of the initiative were not being heard. Teachers reported being at sea and not knowing what was on or off and third level personnel criticised the lack of consultation. The learning from this experience was that the lead-in time to implementation of the initiative was too short. More time was needed to gear up the system in advance of the initiative. (…) [Moreover, it is important to note that the communication with the system is one of the main] obstacles to the successful implementation of the initiative. **GC-CS 13**

C. Between the next actions within the programme are going to be extend the participation of families, and associations that represent families, in the framework of a school-based plan that enhances the development of competence skills in children and adolescents from the perspective of a comprehensive curriculum (formal and non-formal learning). It is understood that this plan meets the needs of families regarding information and training on how to participate in the educational change proposed by the competence model. It is also intended to produce a guide that reflects experiences that can serve as a reference for the community. **GC-CS 14**

C42. It is needed "Evaluate the competence assessment" focusing student achievement and how to align it with curricular objectives.

A. There was a general consensus among all stakeholders interviewed that it is too early to judge the impact of the initiative and a further evaluation is needed. This should focus on students who have met the complete new syllabus from first year. (…) Teachers in the focus groups identified a number of issues with the assessment of the syllabus, in particular that the marking schemes are having a backwash effect on teaching and learning, that the language is overly complicated and that questions don't adequately assess the broad range of skills promoted by the syllabus. (…) They suggest that an evaluation of the assessment, in particular how it is aligned with the aims of the syllabus is also required. **GC-CS 13**

C43. The need to include the competence-based model into initial training of prospective teachers

A. Initial teacher education providers also have a role to play in this. New teachers entering the system have mixed experiences and their level of preparedness to handle this new approach varies greatly. It is the experience of some schools that new teachers bring lots of new ideas to the school and are well prepared to introduce key skills to their classrooms. Other schools have had the experience of new teachers coming with little understanding of key competences. **GC-CS 12**

B. [*University of Seville* research highlighted that]"those teachers who made most progress in contextualising the curriculum while addressing the priority needs of their students achieved higher levels of performance and motivation in their students – as well as achieving greater levels of professional development and improved internal cohesion in the school" **GC-CS 15**

C44. Key competences and research (universities, research centers, etc.)

A. Three groups have been identified as requiring further attention as partners in the development of the curriculum generally and in the integration of key skills, [among them, higher education]. (...) for stronger ties between curriculum developers and researchers, with a view to improving the research base and the relationship between curriculum design, research and practitioners. Opportunities for research partnerships might be explored to address this issue. (…) An enabler was the discussions surrounding various pieces of research that point to the need to improve teaching and learning in this phase of secondary education. An extensive longitudinal study by the *Education and Social Research Institute* (ESRI, 2004-2007) pointed towards the influence on teaching and learning of the externally-assessed final examination; over the three years the focus of teaching narrows, becoming centred on preparation for the examination. It also raised issues of student disengagement mid-cycle and highlighted the importance of supporting schools to better facilitate student engagement in learning. (…) [It was referred] the need for stronger ties between curriculum developers and researchers, with a view to improving the research base and the relationship between curriculum design, research and practitioners. **GC-CS 12**

B. Research carried out by the *University of Limerick* identified a low level of mathematical knowledge and skills shown by some students proceeding to further [than third level colleges, industry, politicians, employers' groups and various other educational institutes] and higher education, and an inability to cope with basic concepts and skill requirements in the mathematical aspects of their courses.(…). Similarly, research carried out by the NCCA echoed these concerns from the system. (…) The system responded [faced with the verification that a significant number of teachers did not have the necessary qualifications and consequently adopting the proposed methodologies and teaching for understanding posed a problem] by putting in place a state-funded Post-Graduate Diploma for "out of field" teachers. This is viewed as one of the important enablers in the implementation of the initiative. **GC-CS 13**

C. Inquiries about the needs of Andalusian teachers conducted by the educational authority of the regional government in collaboration with the *University of Seville*, highlighted the need for training and evaluation for the development of key competences in obligatory education. In response to these results, the Andalusian government prepared a plan for addressing key competences that would strengthen the implementation of the PICBA programme. **GC-CS 15**

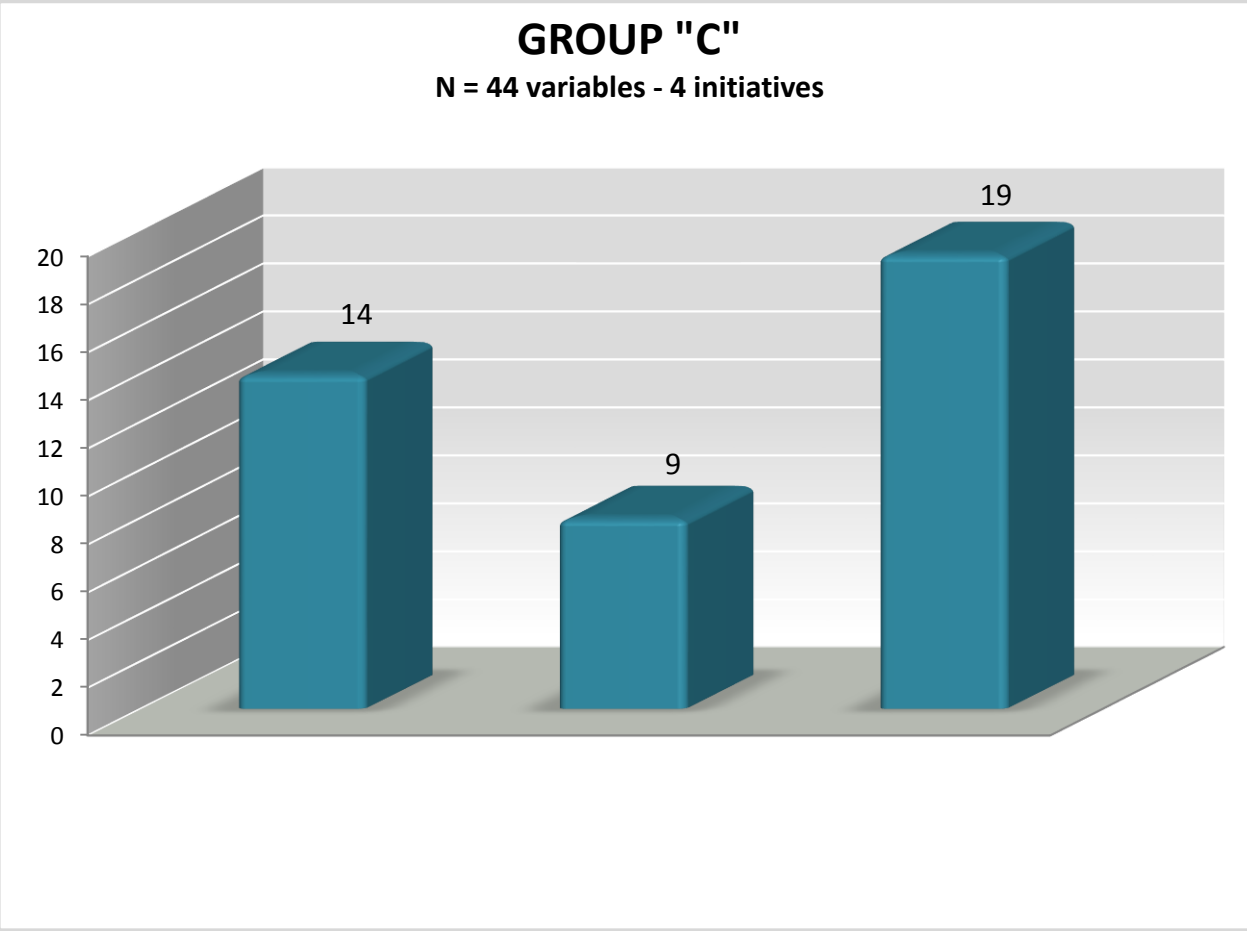
Summary: variables selected in Group C (4 initiatives pertaining to KeyCoNet multiple-case study)
Initiatives code: GC-CS 12; GC-CS 13 GC-CS 14; GC-CS 15

GC	Variables identified	Shared frequency
C1	The initiative is inserted into the network of European and/or national actions related to student competence assessment and its connection to teaching practices.	**4**
C2	The initiative builds on experiences and resources from programs previously carried out on the integration of key competences in teaching and learning: what works in the classroom?	**4**
C3	Reports on social and professional requirements to which the European citizen faces facilitate the implementation of initiatives that enhance competence development in students	**2**
C4	Need for different sectors to rethink teaching and learning according to the competence-based approach	**4**
C5	The implementation of the competence-based model at school level requires a change in mindset of teachers: a shift from a body of organized knowledge and evaluated linearly to another focused on problem solving.	**4**
C6	The education authority reflects on how to support teachers in interpreting the curriculum reform in their teaching practices and in the assessment of student learning	**4**
C7	The initiative consist of an official program designed ad hoc to foster the integration of key competences in teaching practices and assessment of learning	**4**
C8	Initiative focused primarily on competence development of students from secondary level	**2**
C9	Initiative focused on competence development of students from different education levels	**2**

C10	It is convenient to start external support programs for teaching teams before secondary education level (connections between primary and secondary)	**2**
C11	Provide school culture a reference framework that allows to connect assessment to the competence approaches assumed by the curriculum reform	**2**
C12	Provide school culture a reference framework that allows to connect the official curriculum with classroom reality: levels of curricular integration of key competences in the processes of planning and development of teaching practices	**2**
C13	Collaboration between different bodies of education authorities and, in turn, between them and schools, facilitates the achievement of the objectives of the initiative	**4**
C14	Coordination between education authorities at different governmental level (national/regional, regional/provincial/local)	**2**
C15	Fluid and cooperative coordination: connection of experiences, knowledge, work lines, resources, etc.	**4**
C16	The teaching team constitutes a learning community dedicated to analyzing the curricular integration of key competences	**4**
C17	Pedagogical coordination at each school: important link between school and training proposals provided by external teams.	**4**
C18	The culture of collaboration in school “everyday” (departments, courses, etc.) helps to understand the integration of competences in teaching, learning and assessment.	**3**
C19	Sustained support for teaching teams by an external team fosters collaborative learning and enhances professional development.	**4**
C20	Integrating key competences in teaching practices and student assessment requires teachers to be competent in the discipline of the subject and in pedagogical topics.	**2**
C21	Teachers go through the process of integration of key competencies into their teaching and/or evaluation of students practices with different rhythms and approaches	**4**

C22	The school management team has a decisive role in the processes of change that the integration of key competences in teaching practices and student assessment involves	**2**
C23	Collaborative work between schools and education inspectorate	**2**
C24	The Website as resource centre and communication context.	**3**
C25	Online tool that supports teachers in the task of integrating key competences in the teaching and assessment of student learning	**2**
C26	Solving tasks in teacher training: professional development	**2**
C27	The curricular integration of competencies requires a review of class times, methodologies and learning spaces.	**3**
C28	Teachers believe that the integration of key competencies in teaching and/or learning assessment is very time consuming	**3**
C29	School textbooks: need to be compatible with the competence-based model	**1**
C30	Publication of materials, guides, videos, examples and other supporting documents to accompany the processes for continuous training of school team	**4**
C31	Involvement of families in the initiative development.	**2**
C32	Certify the development of the fundamental skills that students reach	**2**
C33	It is important that students are actively involved in their learning through key skills.	**3**
C34	Difficulties in relating curricular changes to the assessment of student results	**2**
C35	Teachers show insecure facing competence assessment: need to enhance their professional development in this field	**3**

C36	The continuation of the double assessment of students (performance assessment, on the one hand, and competence assessment, on the other) slows the adoption of an integrated assessment model.	**1**
C37	The deep roots of the performance assessment culture slows the shift to competence assessment	**3**
C38	Debate in different social environments (students, families, teachers, administrative managers, etc.) around the assessment model that integrates objectives and competencies	**2**
C39	Different social sectors see the reforms based on the competence-based model as a thread	**2**
C40	The importance of informing the features of the competence-based model using a clear and accessible language for the different members of the education community (mainly about teaching practices and student assessment).	**3**
C41	Information/communication to different groups (through various channels) avoids uncertainty and fears about the inclusion of key competencies in teaching practices and student assessment	**3**
C42	It is needed "Evaluate the competence assessment" focusing student achievement and how to align it with curricular objectives.	**2**
C43	The need to include the competence-based model into initial training of prospective teachers.	**2**
C44	Key competences and research (universities, research centers, etc.)	**4**



Non-shared variables (GC): 2

C29, C36