



Report O4-A1

Training Implementation and Validation Plan: Methodology and Instruments

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1. Introduction

The description of work for this activity (O4-A1 Training Implementation and Validation Plan: Methodology and Instruments) is as follows:

This activity will provide the plan of implementation for the pilot training activities (phases I & II) and the validation events, as well as their quality assurance process. It will describe the involvement of the various stakeholders, and develop the indicators, processes and tools for the validation of the training activities (e.g. Questionnaires, Evaluation Guidelines, Reports), in accordance with the project objectives and priorities.

This document describes the planned implementation actions for both phases of National and International Training Activities of the CEYS project, as well as the process to validate these in terms of the methodology and instruments used (indicators, processes and tools).

The training activities will cover both training events organized by the consortium and school-based training carried out by the participating teachers (e.g in staff training events). Participants in these activities will be involved in a series of seminars and workshops, as well as on-line training sessions organized by the project partners in each country. Subsequently, they will be asked to implement and adapt the knowledge and strategies presented during the activities in their own classrooms. The evaluation of the activities along the way will allow the project partners to gather valuable data in order to adapt the training materials and delivery and investigate the initial impact of the CEYS training and curriculum materials in school contexts.

The realisation of this plan will be reported in O4-A4 Report on Implementation and Validation of Training Activities which will include the training activities carried out in each country, the results of their validation and provide recommendations on how they can be implemented in varied real life settings (one-day events, workshops, training courses).

1. Objectives

One of the key objectives of the CEYS project is dedicated to the implementation and validation of the training approach and curriculum materials developed by the project, i.e.

to implement and validate a number of training activities at national and international levels with the scope to improve early years and primary teachers' knowledge and skills.

These training activities, as well as the training approach, will be based on the course syllabus and corresponding course modules developed by the project partners in Intellectual Output 3, while a number of the curriculum materials which are going to be used in the modules will be produced in Intellectual Output 2.

The Implementation and Validation plan has six specific objectives, it aims:

- to present the different types of training activities that will be carried out during the two phases and recognise different settings where the activities will take place;
- to ensure the efficient management of both phases of implementation and validation in order to reach the quality indicators;
- to identify how the implementation of the training activities can contribute to the improvement of the training materials produced by the project and are to be used in teacher education for early years and primary teachers to foster their use of creative and inquiry-based approaches in science teaching;
- to provide guidance for the evaluation process that will analyse how teachers and other stakeholders participating in the training activities learn to use creative and inquiry-based approaches in science teaching;
- to present the tools that will be used for the evaluation of the training activities by the participants and the consortium;
- to present the evaluation of the training events as part of the entire project's evaluation plan, which includes the evaluation of the Induction Workshops and Curriculum Development Workshops.

2. Implementation of Training Activities

In order to ensure the implementation quality and determine the project's progress the consortium will employ a highly versatile and efficient implementation management structure. Therefore, the coordination of all the implementation activities rests with the Implementation Manager. The Implementation Manager will be Dr. Fani Stylianidou from EA, as written in the project proposal, and will monitor the organisation and quality delivery of the training activities.

As Implementation Manager her responsibility will be to:

- Coordinate all implementation activities
- Monitor the progress of the implementation and provide relevant feedback to the project partners
- Coordinate the collection of evaluation results across the consortium

This plan for implementation of the CEYS project serves as an invitation to teachers' community to participate. Each phase of implementation and validation will serve as one validation cycle for the project as Phase I will organise training activities in order to validate the First Training Modules and the initial outcomes from the Curriculum Development process in *O2-A3 Development of prototypical classroom materials for early years science education*, while Phase II will trial the refined outcomes and any new modules produced to a new group of participants. The results of the evaluation of Phase II will result in the final version of the project outcomes.

Phase I

The first phase of implementation and validation will begin in January 2016 and will be concluded by August 2016. It will consist of all the training activities organised by the project partners, including half-day national activities and a 6-day International Training activity, and the school-based training events organised by the teacher-participants of the Curriculum Development Workshops. Each partner will organise a minimum of 2 half-day national training activities during Phase I, as in the project proposal, with at least 50 teachers in total. All partners will contribute to the 6-day International Training activity that will take place in 10-15 July 2016, with teachers coming from all over Europe, including from countries outside the partnership. The aim of Phase I is to trial and evaluate each of the 10 First Training Modules at least once. These include the modules that were implemented and evaluated during the E1-B1 6-day International Training event in July 2015, and the modules that will be developed until August 2016, a number of them making use of the materials currently being developed by the teachers in the Curriculum Developments Workshops. An initial plan has been decided among partners on which organisation will implement which training module in their national activities. This plan is presented in the final section of this document, along with the identified events for Phase I. After the completion of the first validation phase, the produced training content will be revisited and revised for the beginning of Phase II.

Phase II

Phase II of implementation and validation will begin after the completion of the evaluation and incorporation of all findings from Phase I in the modules and curriculum materials used in them. It will begin in September 2016 and will be concluded in July 2017. It includes the training activities which will incorporate all project findings and outcomes from the first two

years of the project. New groups of teachers will participate in the training events organized by the project partners in each country. Phase II will follow the same approach of Phase I with project partners and teachers from lead schools organising the training events. For the second phase each partner has to organise a minimum of 4 training activities with twice the number of participants compared to the first phase (100 for each partner). The content of the training activities for Phase II is going to be the updated training modules and/or any new modules developed, although the total number of modules cannot be safely estimated at this point since it will be heavily influenced by the evaluation findings of Phase I and the Curriculum Development process. An update to this document will come after the evaluation of Phase I and before the beginning of Phase II to include detailed information on the second phase. As part of Phase II an additional 6-day International Training summer school will be organised in July 2017 to test the usability of the validated classroom materials, the course syllabus and the course modules by teachers from European countries other than those in the consortium. This summer school will serve as the test bed for the finalisation of the Creativity in Early Years Science Education Training Course and will be the final training event before the release of the final versions of the CEYS project outcomes.

Training Activities

In the framework of the project the implementation of training activities will take place in 4 European countries (Belgium, Greece, Romania and the UK) in schools (training events, staff meetings), national and international conferences, one-day training events and 5/6-day training courses.

The different kinds of training activities mentioned serve the purpose of flexibility in the use and exploitation of the CEYS training materials. The output 'Training Guide and Scenarios of Use' (O3-A4) will provide the support (both theoretical and based on the empirical evidence gathered) behind the different uses of them to achieve particular outcomes and maximise impact.

The following parts of the implementation plan will present different variations of training opportunities for teachers' professional development where the project outcomes can be used. These variations will cover training content, duration, venues and contexts. They will concern the first phase of implementation and validation, and therefore additions to this particular section of the plan are to be expected at the beginning of the second phase, since they depend on the progress of the Phase I training activities and their initial evaluation. This section will conclude with the list of identified opportunities by each of the partners for the first phase of implementation and validation.

a) Workshops

The first category of training activities will cover training workshops. These workshops will cover the content of a single module from CEYS and will last about half-a-day (3 hours). They can be realised as one-off teacher training events in local settings, such as school staff meetings, training events organised by local authorities or partner organisations and national and international conferences. One or more of these workshops may also be incorporated in the curriculum of Initial Teacher Training of early years teachers in science.

In terms of content, these workshops will use the CEYS modules. Each of the modules aims at promoting one synergy between Inquiry-Based Science Education and Creative Approaches, linking the theoretical background with real-life examples from classroom practice and reflective tasks that allow participants to link the information and guidance offered to their own practice.

b) One-day training events

These events can cover the span of an entire day and can include 2 CEYS modules. One-day events consist of two 3-hour sessions, one in the morning and one in the afternoon, to cover more than one topic of interest. Organisers can either choose two modules each linked to a specific synergy or choose one of the more generic modules, such as on the Nature of Creativity, the Nature of Science, IBSE, or Planning for Innovation modules along with a module linked to a synergy. The former may be organised by project partners as one-off training events with teachers that have some knowledge about and experience with the theoretical framework of CEYS (or of Creative Little Scientists), while the latter may be used in training events with first-time participants who have not had any contact with the theoretical framework and overall approach (such as the participants in the Induction Workshops).

c) CEYS Training Courses (5/6-day duration)

This type of event refers to training courses which cover combinations of multiple modules over 5/6 consecutive days. These training activities will present different versions of the main outcome of the project, the CEYS Teacher Training Course. They will all introduce participants to the theoretical background of the project, mainly referring to the definition of creativity in science and how this is manifested in the classroom in the framework of inquiry-based science education. Subsequently, other modules will build on the background to introduce various synergies between of IBSE and creative approaches, a number of which use materials created by the teachers who participated in the Curriculum Development Workshops and promote reflection on participants' classroom practice.

One such event took place in Marathon, Greece in July 2015 (in conjunction with E1-B1). It trialled some of the First Training Modules, developed using some of the Exemplary Teacher Training Materials, previously developed in the Creative Little Scientists project. Another two similar events are planned to take place in the duration of the project, one of which during Phase I and is specified below.

Implementation Plan for Phase I

Phase I as described above aims to organise at least 10 training activities and train at least 250 teachers. The project partners identified opportunities for the organisation of the training activities and decided on the specific modules that each partner will implement. The agreed plan presented below refers to the minimum requirements for each partner. The implementation and validation part of the project is considered crucial to the success of the project and the quality of the project outcomes and every partner is motivated to organise additional training activities in the different variations presented above. All additional training activities that will be organised will be reported in *O4/A4 - Development of Report on Implementation and Validation of Training Activities*.

The table below presents the national events identified by the project partners for the organisation of Phase I of implementation and validation.

Partner Organisation	Training event	Date of event (if known)	Audience	Module Number ¹
INFLPR	International Workshop on Inquiry-based Science Education in Bucharest, Romania	04/2016	Teachers	10
INFLPR	School Science fair in Bucharest, Romania	26/03/2016	Teachers	4
OU	Workshop with science specialist teachers at the University of Brighton, UK	04/2016	Teachers	9
OU	Workshop in PGCE course at the University of Sussex, UK	05/2016	Teachers	1
OU	School Staff meetings in lead schools, UK	04-06/2016	Teachers	7
AUC	2 Workshop with teachers from local schools at the Arteveldehogeschool campus, Belgium	03-05/2016	Teachers	2
UCL	Workshop at the STEM Education Centre, London, UK	04-06/2016	Teachers	7
UCL	Workshop for school science coordinators, London, UK	04-06/2016	Science coordinators	8
UCL	Workshop with school mentors, London, UK	04-06/2016	Teachers	5
UCL	Workshop with science specialist teachers at the UCL Institute of Education, UK	04-06/2016	Teachers	5
EA	Workshop in Inspiring Science Education international conference, Pallini, Greece	22-24/04/2016	Teachers, teacher educators	6
EA	Workshop in 9th Panhellenic Conference on Early Years Science Education, Crete, Greece	27-29/05/2016	Teachers, teacher educators	3

A 5/6-day training activity is also scheduled by the consortium, for July 2016. All project partners in collaboration will organise an international training summer school in Marathon, Greece to test and summatively evaluate the validated classroom materials and parts of the course syllabus and modules. Participants will be teachers from European countries who will receive funding through the Erasmus+ KA1 programme.

This document will be updated to include the Implementation Plan for Phase II, in September 2016. The results of the evaluation of Phase I will influence the plan for implementation for the second phase and provide data of the final cycle of evaluation which will include findings from all project activities (Induction, Curriculum Development and Implementation).

¹ The numbers refer to the identification of the CEYS First training modules in O3-A2



Creativity in Early Years Science Education

The final training activity which the project will implement is the final version of the 5/6 day training course on July 2017 (E1-B3) and will use the almost complete version of the training materials. This international training summer school will test the usability of the validated classroom materials, the course syllabus and the course modules by teachers and serve as the test bed for the Creativity in Early Years Science Education Training Course. The course will introduce participants to the theoretical framework of creativity in early years science, share classroom strategies that are based on training materials created by teachers in real science classrooms and finally, engage them to reflect on the implications for planning their own science lessons through the lens of promoting creativity in early years science education. The evaluation of the entire course will be used to inform the final version of all its components (syllabus, modules, materials).

3. Evaluation and validation of training activities

The training evaluation methodology seeks to cover the evaluation of the training pedagogy, syllabus, modules and material, as well as the training implementation and at a lesser degree the training impact. The evaluation of the training activities is crucial to the success of the project due its role in the development of the training course, as it will provide information that will be used to refine the training approach and materials produced by the project. The findings from this evaluation, along with those from the Curriculum Development process, are the key sources of information for the evaluation of the entire project in terms of producing outcomes that will be effective when training teachers to promote creativity in early years science education.

Why is it important to talk about evaluation of CPD?

It is important to talk about evaluation, because of the current view of professional development (PD) as an ongoing and continuous process, which the CEYS project tries to promote. This broader conception of PD creates the need to find ways to measure progress in better and more meaningful ways. PD today is also increasingly recognised as an intentional process, i.e. a systematic effort to bring about change – but not just change for the sake of change – but positive change and improvement, based on explicit and clear goals to be accomplished. If this effort is to be counted as successful, relevant information, related to these goals to be accomplished, must be gathered, analysed and meaningfully presented. There is a need for better information to guide reforms in PD and educational programmes generally. Teacher education must be able to offer clear and understandable evidence to all interested parties to show that professional development makes a difference, but perhaps most importantly for this project's scope, improved understanding of the PD processes and procedures that lead to success will allow us to be more effective in creating meaningful and evidence-based PD experiences.

Purposes of CPD evaluation

On the whole, the evaluation of the implementation of the training activities in the CEYS project is seen as performing two purposes:

- a) a formative purpose, aimed at identifying both corrective actions during the actual training activity, and changes in the training pedagogy and materials during the development of the activities;
- b) a summative purpose, assessing the impact of the training activities after these are concluded.

The formative focus of evaluation is on pedagogy and materials that are developing and not completed and thus are continuously amendable to revision. It consists of i) identifying problems and weaknesses, ii) making revisions based on evaluation data, and iii) using the revised versions to confirm their success and/or maybe identify any further weaknesses. In other words, evaluation with a formative purpose is concerned with the strengths and weaknesses of training in its developing stages, for the purpose of revising it to improve its efficiency and appeal.

In CEYS, 'formative evaluation' is a quality control step that helps to guarantee that the finished product will be successful when being used in science classroom settings. It includes all evaluation instances that will take place in the training activities of both implementation phases and will cover all tasks that are built within the modules, in order to gauge

participant reactions to the delivery and materials of the training. A variety of evaluation tools will be used to collect data that can prompt feedback, which moves learning forward in terms of refining the training approach and materials. These tools also communicate to learners what is and is not valued in a particular module, thus communicating criteria for success.

The summative focus of evaluation is on the impact of the training activities in teachers' knowledge, skills and practice and ultimately in their pupils' knowledge and skills. Since, only longer-term training activities are expected to bring about any substantial impact to teachers' practice, CEYS is concerned with this purpose of evaluation only in relation to the 5/6-day duration training courses planned, and to the Curriculum Development Workshops (see O2-A1, Curriculum Development Methodology).

Levels of CPD evaluation

According to Guskey (2000) there are 5 levels of evaluation of teacher CPD:

- Participants' reactions
- Participants' learning
- Organisation support and change
- Participants' use of new knowledge and skills
- Student learning outcomes

Important characteristics of these levels are that:

- they are hierarchically arranged from simple to more complex;
- with each succeeding level, the process of gathering evaluation information is likely to require increased time and resources; and
- more importantly, that each higher level builds on the ones that come before. In other words, success at one level is necessary for success at the levels that follow.

Measuring participants' reactions, that is their initial satisfaction with the experience provides information that can help improve the design and delivery of PD programmes or activities. This therefore is the level that most CEYS evaluation activities address.

The other evaluation levels are only addressed in relation to the longer-term (5/6-day) training activities and Curriculum Development Workshops.

Foci of CPD evaluation

According to Guskey (2000), participants' reactions questions around evaluating the training course and materials can be seen as relating to three broad categories: **content – process – context**. **Content questions** address the relevance, utility and timeliness of the topics explored through a professional development experience. They focus on the new knowledge, skills and understanding which form the basis for the course. They can also relate to the magnitude, scope, credibility, and practicality of the change required to implement this new knowledge. Participants' comments generally tend to be more favourable when the content addresses specific problems and offers practical, relevant solutions that can be implemented immediately.

Process questions relate to the conduct and organisation of the PD experience. They ask about how things were done. They generally relate to the structure and format of the activities, and how well those activities facilitated participants' learning. Because participants often have different learning styles or preferred learning modalities, it is wise to

include a variety of activities and learning formats. Moreover, planned activities should vary the degree of active engagement for participants, include occasions for collegial sharing, allow for explorations of practical applications and provide ample opportunities for personal planning and reflection.

Context questions generally relate to the setting of the professional development experience. They are designed to provide information on the background and current reality of the environment in which the experience takes place.

Another important but often neglected aspect of context is the participants themselves. Information on their backgrounds, current positions, and previous experiences can be very helpful in interpreting results. These may be collected in pre-course questionnaires.

Corresponding questions may also be asked of the CPD facilitators, as their view point on the content, process and context, as well as their reflections on what worked or not during a training activity are essential for the adjustment and improvement of the experience.

In CEYS, the evaluation of training activities will validate the training approach, the delivery of training, the curriculum materials produced and the Training Course. The findings will feed into the composition of the CEYS Training Guide and Scenarios of Use. On the other hand, the evaluation of the Curriculum Development Workshops will validate the selection of action research as the curriculum materials' development process, as well as the partnership approach between teachers and researchers to provide quality professional development to early years teachers. The latter findings will inform the development of the Curriculum Development Guide.

Evaluation tools

The evaluation tools of the CEYS project are intended to provide both qualitative and quantitative data. Therefore, the selection of the tools was based on their special features and on their flexibility. The tools were chosen on the basis of being able to offer the project valuable information on the satisfaction of participants, the usability of the approach in different settings and the value of the training materials in order to foster creativity in early years science. The data collected by these tools will meet the validation needs of the project and it will enable its improvement.

However, a clear distinction among the different types of training activities organised by the project, leads to the differentiation of the instruments used for the validation procedures. In some cases same instruments will be used in different kinds of activities to meet their needs, but there will be also some cases when specific tools will be used to specific activities in an attempt to focus specifically on the importance of the input they can provide.

Additionally to all the evaluation tools for the Implementation and Validation of Training Activities, there is another set of evaluation tools that are used to evaluate the Curriculum Development process and particularly the Curriculum Development Workshops. The evaluation tools of this process are described in detail in *O2-A1 Curriculum Development Methodology* and serve three different evaluation purposes. These are evaluation of the workshops, evaluation of the partnerships, evaluation of the curriculum and evaluation of the curriculum development methodology. They include questionnaires for participants and project partners and the Teachers' Portfolio.

The list of evaluation tools for the Implementation and Validation of Training Activities is provided, along with information on their scope and importance to the validation process below.

Workshop evaluation questionnaire (participants' questionnaire)

The workshop evaluation questionnaire is used to determine whether training is having the desired effect in regards to the acceptance & satisfaction of the participants and their intrinsic motivation to use the teaching approaches to promote creativity in early years science education. The questionnaire also aims to collect teachers' opinions about workshops' content, structure and delivery in a written form. The workshop evaluation questionnaire can be found in Appendix A.

Training facilitators' reflective evaluation of training activities - after each activity

Partners (and in general training facilitators) will reflect after each workshop on how well its aims and objectives were achieved, on strengths and areas for development, training approach and evidence of impact on teachers' strategies and attitudes to EY science education. Training facilitators' on-going reflective evaluation sheet can be found in Appendix B.

Creativity in Early Years Science Education Training Course - pre-course questionnaire for participants

Participants to the CEYS 5/6-day training courses have to register for the course in order for their place to be confirmed. The registration process is an excellent opportunity to include questions that are designed to provide information on the background and current reality of the participants, their personal goals, motivation and expectations. This allows the partners to have an idea of the particular needs of the participants to each course beforehand and decide on possible modifications to the course curriculum to appeal to the audience. Participants fill out the pre-course questionnaire online on the course website. This questionnaire can be found in Appendix C.

Creativity in Early Primary Science Education Training Course - evaluation questionnaire for participants

The Training Course evaluation questionnaire is the main summative tool to evaluate the longer training activities that last for more than one day. It includes both close-ended and open-ended questions and are completed by the participants at the end of the course. It consists of questions regarding participants' views on:

- the quality of the training course
- extent to which learning objectives were met
- usability of training approach in their practice
- useful/enjoyable/inspirational/exciting aspects of the training course
- training approaches
- course trainers
- suggestions for improvements
- venue

The Training Course evaluation questionnaire will allow partners to identify strengths and weakness of the training materials, modules, training delivery and its findings will be implemented in the refinement of the project outcomes. The Creativity in Early Primary Science Education Training Course - evaluation questionnaire can be found in Appendix D.

Creativity in Early Primary Science Education Training Course – Action Plan for participants

Participants that attend the 5/6-day Creativity in Early Primary Science Education Training Courses will be asked to fill out an action plan on what they intend to do in their classroom after the training course. This is a very important part of the training course as it allows participants to bring together their experience during each session/module of, reflect on their practice and decide on specific changes for the immediate future. Filling out the action plan form moves teachers from abstract outcomes of the training to concrete decisions for their classroom practice and gives them a path for the future. On the other hand, the action plan is a useful tool for the partners, as it serves a dual purpose. On one hand, it highlights the key learning points that each participant took for each session and on the other, provides useful information on what specific elements of the framework and materials are useful to the participants. The action plan form can be found in Appendix E.

Creativity in Early Primary Science Education Training Course - Impact Form for participants

Another evaluation tool used by the consortium in conjunction with the longer-term courses, is a form addressed to participants of the training asking them to provide information on the impact of training to their professional development. This is meant to be filled in after at least 2 months from the course's completion, so that the participants will have the opportunity to implement the Knowledge and skills acquired in training, in their practice and reflect on their impact on their students.

Its objective is to determine the impact of the training activities and to know how it is contributing in achieving the overall learning goals of the training approach. The information provided by the impact form will enable the consortium to further improve the quality and relevance of the training activities as well as summatively evaluate their success.

The form asking for the impact of the training to participants' professional development in 4 different areas. The areas are:

- Impact on knowledge and skills (e.g. new knowledge acquired, improved confidence, etc)
- Impact on practice (e.g. use of new skills, changes in classroom practice, etc.)
- Impact on the school (e.g. by influencing practice and sharing learning, in your school/school cluster)
- Impact on pupils (e.g. changes in attainment, motivation, ways of working etc)

The impact form can be found in Appendix F.

Creativity in Early Primary Science Education Training Course - Reflection Tool for course facilitators

Partners will also have to reflect after each of the 5/6-day Creativity in Early Primary Science Education Training Courses organized by the project on how well each session was implemented. The reflection tool allows partners to highlight any aspects of sessions that were useful (aims and objectives, strengths and areas for development, training approach). There is also space for partners to note specific changes they made before each session while asking them to justify their actions and the same question for any changes they are planning on implementing for each session after delivery. The reflection tool allows the consortium to gather responses from all partners on each session carried out during the training course to provide a holistic evaluation of the course. Partners' reflection tool can be found in Appendix G.

Creativity in Early Primary Science Education Training Course formative evaluation tools and activities

As previously mentioned, the implementation of the CEYS summer school is in its nature a form of evaluation of what has been developed i.e. syllabus, course modules, workshop format and materials. As these summer schools present an opportunity to test and review different elements of curriculum (according to the curriculum web, van den Akker, 2007) it is suggested that on the day before the last day of each summer school the CEYS coordinators carry out a group feedback session that can use as starting points the questions:

- What would you like more of in the summer school?
- What would you like less of in the summer school?

The answers are collected and recorded in a table drawn on the flip-chart board/paper by the CEYS coordinator.

Another activity linked to the formative purpose of evaluating the training activities is carried out during the Multiplier Events and involves participants in reflecting on each module and being able to display their satisfaction in terms of learning goals. During the introductory session of the Training Course participants are each given two small artefacts by the trainers and they are asked, at the end of each session, to place them along a piece of string that represents a continuous scale of their satisfaction. One artifact represents their feedback on the extent to which the session/module met its intended learning goals, while the other represents their satisfaction in terms of the training delivery. Placing the first artifact on the far left end of the string means that the participant considers that the section did not meet its learning goals. The further right the artefact is placed by the participant the more they consider that the session met its learning goals. The same applies for the second artifact, but for their satisfaction on the training delivery (left=not at all satisfied, right=very satisfied). This activity was successfully trialed during the E1-B1 Multiplier Event in July 2015 and was one of the aspects enjoyed by the participants, as they felt it allowed them to be able to further interact with the course organisers and identify successes and failures of the Training Course.

Validation protocol

Validation management

The validation approach that is going to be used in the CEYS project will follow a simplistic and accommodating structure in order to ensure an uncomplicated use by the partners. Initially, it is significant to illustrate the building steps towards the completion of the validation approach.

The development of the validation plan (i) and its distribution to the partners is the ground of the process. Along with the validation plan, the consortium will also receive modular validation instruments (ii). Cultural and linguistic differentiations will be solved with the development of localised validation plans and tools (iii), if needed. This process is expected to offer input also to the CEYS Curriculum Materials, the CEYS Training Modules, the Training Guide and Scenarios of Use and the Creativity in Early Primary Science Education Training Course (iv).

Report on Validation

Every validation activity should be accompanied by a validation report. Therefore a specifically designed reporting template will be distributed for the ease of the partners and



for the collecting piece of information in common format. All the information elicited by the validation reports partners have shared along with their completed reflective sheets will be used to inform the O4-A4 Development of Report on Implementation and Validation of Training Activities. The validation activity template can be found in Appendix H.

4. APPENDICES

Appendix A: Workshop evaluation questionnaire (participants' questionnaire)

Creativity through Early Years Science Education TRAINING ACTIVITY

END EVALUATION

NAME OF PARTICIPANT

E-MAIL OF PARTICIPANT

OVERALL QUALITY OF THE TRAINING ACTIVITY

VERY GOOD

GOOD

SATISFACTORY

POOR

EXTENT TO WHICH THE TRAINING ACTIVITY LEARNING OBJECTIVES WERE MET

FULLY

MOSTLY

PARTIALLY

NOT AT ALL

USEFULNESS OF TRAINING ACTIVITY TO YOUR PRACTICE

VERY GOOD

GOOD

SATISFACTORY

POOR

PERSONAL INTEREST/ENJOYMENT

VERY GOOD

GOOD

SATISFACTORY

POOR

WHICH WAS THE MOST USEFUL/ENJOYABLE/INSPIRATIONAL/EXCITING ASPECT OF THE TRAINING ACTIVITY AND WHY?

PLEASE IDENTIFY WHICH OF THE TRAINING APPROACHES THAT YOU EXPERIENCED IN THIS TRAINING ACTIVITY ENABLED YOUR LEARNING

PLEASE IDENTIFY EXAMPLES OF EVIDENCE WHICH ACCORDING TO YOU WOULD SHOW THAT YOU HAVE MET YOUR LEARNING OBJECTIVES IN RELATION TO THE TRAINING ACTIVITY

HOW COULD THE TRAINING ACTIVITY AS A WHOLE BE IMPROVED?

ANY COMMENTS ABOUT THE KNOWLEDGE/COMMUNICATION/RESPONSIVENESS OF THE PRESENTER(S)?

VENUE AND CATERING

VERY GOOD
 GOOD

SATISFACTORY
 POOR

REGISTRATION AND ADMINISTRATION

VERY GOOD
 GOOD

SATISFACTORY
 POOR

WOULD YOU RECOMMEND THIS TRAINING ACTIVITY TO OTHERS?

YES

NO

ANY FURTHER COMMENTS/CONCERNS/APPRECIATIONS REGARDING THE WHOLE ORGANISATION OF THE TRAINING ACTIVITY



Creativity in Early Years Science Education

PLEASE TICK THIS BOX IF YOU DO NOT WISH THIS INFORMATION TO BE USED IN REPORTS OR RESEARCH. ANY INFORMATION THAT IS USED WILL BE ANONYMISED.

Thank you for completing this questionnaire.

The Organisers



Appendix B: Training facilitators' reflective evaluation sheet

Date: _____ Training facilitator: _____

About the course

1. To what extent did the course overall meet its aims, objectives and learning outcomes?

Fully Mostly Partly Not at all

2. Please write a few lines explaining why you answered the previous question as you did.

.....
.....
.....
.....

3. Did any unexpected problems / issues arise during the course?

Yes No

If yes, please describe them and explain how you dealt with them.

.....
.....
.....
.....

4. Which parts of the course did you consider especially important and why?

.....
.....
.....
.....

5. Which parts of the course did you consider as the least important? Why?

.....
.....
.....
.....

6. If you were giving this course again, what would you change (if anything) and why.

.....

7. How good were the Administrative Arrangements (room, refreshments, etc) relating to the course?

Very Mostly Partly Not at all

8. How could the course as a whole be improved?

.....

Looking into the future

9. Please identify examples of evidence which according to you would show that the participants have met the learning objectives in relation to the course.

.....

10. What follow-up training activity would be most helpful to the participants in your opinion?

.....

11. Please feel free to make any further specific comments on other aspects of the course.

.....

Appendix C: Creativity in Early Years Science Education Training Course - pre-course questionnaire for participants

PLEASE MAKE SURE YOU COMPLETE **ALL 3 PAGES** OF THE FORM AND PRESS **SUBMIT** AT THE END.²

PERSONAL DETAILS

1. Surname*
2. Name*
3. Gender*
4. Your educational institution *
5. Your position *
6. Age range of your pupils or students *
7. You are currently teaching in *
8. By the end of this school / academic year, how long will you have been working as a teacher or teacher trainer? *
9. Address of your Educational Institution
10. Website of your Educational Institution

CONTACT DETAILS

11. Street / Street Number
12. City / Town
13. Area Code
14. Country*
15. E-mail address*
16. Telephone number
17. Mobile Phone*
18. Fax

BACKGROUND AND MOTIVATION

19. Please explain your motivation for attending this course and indicate up to 6 things you might expect to gain from it*
20. Short CV*
21. Will you bring your own laptop? *
22. Day of arrival*
23. Day of departure*
24. Other travel details (e.g. please mention whether you will be accompanied by any extra person(s))
25. Please tell us where you have heard about this course*

² Fields marked with * are mandatory



Appendix D: Creativity in Early Primary Science Education Training Course - evaluation questionnaire for participants

Date: _____

Name of Participant: _____

E-mail of Participant: _____

About the course and you

1. How would you rate overall the quality of the training course?

Very Good Good Satisfactory Poor

2. How clear were the training activity aims, objectives and learning outcomes to you?

Fully Mostly Partly Not at all

3. To what extent did the training course overall meet these aims, objectives and learning outcomes?

Fully Mostly Partly Not at all

4. Please write a few lines explaining why you answered the previous two questions as you did.

.....
.....
.....

5. Please describe any unexpected gains from the training course.

.....
.....
.....

6. Which parts of the training course did you think were the most useful? Why?

.....
.....
.....

7. Will you be able to apply these parts of the training course in your current role? Please explain.

.....

8. Which parts of the training course did you think were the least useful? Why?

.....

9. Your knowledge and understanding of the topic. Please mark on the line where you were...

...at the outset

Little _____ Extensive

...at the conclusion

Little _____ Extensive

About course aspects

10. How appropriate was the Content of the training course?

Very Mostly Partly Not at all

11. How well-presented was the Content of the training course?

Very Mostly Partly Not at all

12. How appropriate were the Teaching Approaches used in the training course?

Very Mostly Partly Not at all

13. How useful were the training activity Materials and Resources?

Very Mostly Partly Not at all

14. Please rate the training activity facilitators with respect to the following:

Knowledge and understanding of the topic

Very Good Good Average Poor Very Poor

Range of techniques to accommodate diverse learning styles

Very Good Good Average Poor Very Poor

Ability to communicate with participants

Very Good Good Average Poor Very Poor

Enthusiasm for the event

15. Please rate the Event with respect to the following:

This training activity has...

... been fun

Agree strongly Agree Disagree Disagree Strongly

... been stimulating

Agree strongly Agree Disagree Disagree Strongly

... provided opportunities to network with other colleagues

Agree strongly Agree Disagree Disagree Strongly

... modelled best practice in design and delivery of professional development courses

Agree strongly Agree Disagree Disagree Strongly

... provided space for participation and engagement

Agree strongly Agree Disagree Disagree Strongly

16. How good were the Administrative Arrangements relating to the training activity?

Very Mostly Partly Not at all

17. How good were the Conference Room facilities?

Very Mostly Partly Not at all

18. How good were the Refreshment Arrangements?

Very Mostly Partly Not at all

19. Please feel free to make any further specific comments on the above or other aspects of the training activity.

.....
.....
.....

20. How could the training activity as a whole be improved?

.....
.....
.....

Looking into the future

21. What changes do you expect to see in your practice as a result of this training activity?

.....
.....
.....
.....

22. How do you plan to disseminate what you learned in the training activity to colleagues in your organisation?

.....
.....
.....
.....

23. Would you recommend a similar training activity to other colleagues? Please give reasons.

.....
.....
.....
.....

Thank you for completing this questionnaire.

Appendix E: Creativity in Early Primary Science Education Training Course – Action Plan for participants

Action Plan

Name:		Date:	
-------	--	-------	--

Session title	What was useful about this session? Key learning points	What will you do next? Prepare Action Plan below

NOW SELECT THREE ACTIONS AS PRIORITY IN THE NEXT 3 MONTHS:

What will I do?	How will I do it?	When will I do it?	How will I know I have done it?	Whom will I do it in collaboration with?

Appendix F: Creativity in Early Primary Science Education Training Course - Impact Form for participants

CEYS Training Course - Impact of Professional Development form³

Name: _____ Position: _____ School: _____

Name of course attended: _____ Date of course attended: _____

Please complete the table overleaf to record the impacts of the CEYS course for you, your pupils and other educators by:

- describing any impacts under Impacts to Date - with potential examples being provided below,
- providing a Rating - on a 0 to 3 scale, where 0 is no impact and 3 significant impact, and
- listing the reasons for the rating under Evidence.

For example: if a course had a significant impact on pupils' attainment in and attitude towards science, 'improved attainment and attitudes' would be listed under Impacts, a Rating of 3 provided, and Evidence might include showing improved test/examination grades, findings from observations and feedback from other teachers, and comments from pupils and students.

If no impacts have been identified to date, please complete the Rating column as 0, but under Evidence list any impacts expected or being worked towards.

Many thanks.

³ This form is based on a similar form developed for the Network of Science Learning Centres, UK

Area of Impact	Impacts to Date	Rating (0 to 3)	Evidence
Impact on your knowledge and skills (e.g. new knowledge acquired, improved confidence, etc)			
Impact on your practice (e.g. use of new skills, changes in classroom practice, etc.)			
Impact on the school (e.g. by influencing practice and sharing learning, in your school/school cluster)			
Impact on pupils (e.g. changes in attainment, motivation, ways of working etc)			

Signed: _____

Date: _____

Appendix G: CEYS Training Course Reflection Tool

CEYS Training Course Reflection Tool

Name:			Date:	
Session title	What was useful about this session? What would you like to keep?	What did you change before delivering the session and why? What will you change after delivering the session and why?		

Appendix H: Validation activity reporting template

Title of activity:	
Country/City:	
Working language:	
Start/End Date:	<i>DD/MM/YYYY - DD/MM/YYYY</i>
Partner Organisation:	
Facilitator(s) name(s):	
Activity Type	<i>[Training Workshop; 1-day Training Event; Multiple days Training Course]</i>
Activity Context	<i>[e.g. Conference, School-based training event, etc.]</i>
Activity Setting	<i>[Local, National, International]</i>
Total number of participants	<i>Provide the number of participants.</i>
Attendance List	<i>Please attach the attendance list for this activity</i>
CEYS Features (or Modules if appropriate) presented	<i>Please provide the CEYS aspects included in the activity or Name the modules used, if appropriate</i>
Photos or other relevant material	<i>Select 3-4 good-quality photos or other relevant material and attach them in this report</i>
Event agenda	<i>(if applicable) Please copy here the agenda of the event (program of your activity)</i>
Have you completed a reflective evaluation sheet for this activity? (If No, please complete Appendix B)	Yes <input type="checkbox"/> No <input type="checkbox"/>