Study visit group report

Group No	
Title of the visit	Contents-based approach and competence acquisition in teaching mathematics and scientific subjects
Topic	Competences in science and technology / curriculum / mathematical comptence
City, country	Udine, Italy
Type of visit	General Education
Dates of visit	21/10 – 25/10
Group reporter	Joan Knott

Dear participants,

The purpose of a study visit is to generate an exchange of experience and good practice between the country you visit and the countries you all come from. Thus, participating in a study visit can be an exciting experience and an important learning tool for you.

During the visit you are invited to prepare a group report summarising your discussions and learning. This will help Cedefop disseminate what you have learnt to others, who share your interest but did not participate in this particular study visit.

On the first day of the visit, you are to select a reporter who will be responsible for preparing the final report and submitting it to Cedefop. Everybody should contribute to the report by sharing their views, knowledge, and practices in their respective countries. Please start working on the report from the first day of the visit.

You will, of course, be taking your own notes during presentations and field visits; but the group report should highlight the result of the group's reflections on what was seen and learnt during the entire visit and the different perspectives brought by the different countries and participants. The report should **NOT** read as a travel diary, describing every day and every session or visit.

Cedefop will publish extracts of your reports on its website and make them available to experts in education and vocational training. When writing the report, please keep this readership in mind: make your report clear, interesting, and detailed enough to be useful to colleagues throughout Europe.

By attaching any photos to the report, you agree to Cedefop's right to use them in its publications on study visits and on its website.

Please prepare the report in the working language of the group.
Please do not include the programme or list of participants.

CEDEFOP

The reporter should submit the report to Cedefop (studyvisits@cedefop.europa.eu) within ONE month of the visit.

I FINDINGS

This section summarises the findings of the group while visiting host institutions, discussing issues with the hosts and within the group. You will be reflecting on what you learnt every day. But to put them together and give an overall picture, you need to devote a special session to prepare the final report on the last day of the visit.

In this section, it is important that you describe not only things you learnt about the host country but also what you learnt about the countries represented by group members.

1. One of the objectives of the study visits programme is to exchange examples of good practice among hosts and participants. Cedefop will select well-described projects/programmes/initiatives and disseminate them to former participants and a wider public, including potential partners for future projects. Therefore it is important that you identify and describe all aspects that, in your view, make these projects/programmes/initiatives successful and worth exploring.

The group identified examples of best practice and suggest the following initiatives will be useful for more detailed exploration in future projects.

Describe each of the good practices you learnt about during the visit (both from the hosts and from one another) indicating the following:

title of the project/programme/initiative	country	name of the institution that implements it (if possible, provide a website)	contact person (if possible) who presented the programme to the group	whom the project/programme/initiative addresses	what features of the project/programme/initiative make it an example of good practice
KOLE Cooperative learning	Austria	HTL Steyr	Christoph Kimbacher Christoph.kimbacher@htl-steyr.at	All learners	Students take responsibility for their own learning. The basis of lessons is group work and cooperation between students. E.g. placemate or jigsaw.
Narration de recherche	France	IREM de Montpellier http://www.irem.univ-montp2.fr/C-est-quoi-une-narration-de	Aurore Gelot Maths.gelot@gmail.com	All learners	Students work on open problems. They have to write down all their ideas, not only the correct solutions.
MATh.en.JEANS	France	Association MATh.en.JEANS www.mathenjeans.fr	Aurore Gelot Maths.gelot@gmail.com	Secondary school learners	Exchange between professional mathematicians and students from high school

Maths projects with another high school	Spain (Catalonia)	www.xtec.cat/sesserradenoet		All learners	Working collaboratively with other schools with in our city. The project involves seeing our town through mathematical eyes. Mathematical Gymkhana and conferences.
One student one pc	Spain (Catalonia)		Fina Madrid jmadrid@xtec.cat	For students	Every student has their own pc or tablet.There is a a lot of interesting, interactive educational software available which students enjoy using. The software indicates whether or not they are correct meaning that they gain confidence, practice more and do not practice incorrect methods.
Try, research and find out	Spain (Catalonia)			For students	It is very important to awaken the student's curiosity. Asking interesting questions, giving clues, or not giving clues, depending on the student and the complexity of the problem. We have to allow the students opportunities to think, research and try to find the solution. If they find the solution they will learn and they will remember the strategy
General education system	Poland	www.zs10.zabrze.pl	Mirek Mendecki mirmn@interia.pl	All learners	Ongoing reform over 20 years period has led to significant reduction in dropout, raised achievement and greater engagement in HE. PISA ranking provides evidence
Motivating students in Mathematics.	England		Joan Knott	Upper Secondary School Students	Explore the concrete do not rush students into the abstract before they have grasped the concepts being taught. Giving students the

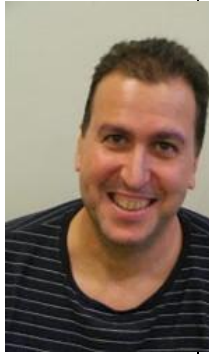|					
			Joanknott80 @gmail.com		opportunity to explore concepts practically and work in small groups to develop confidence. Working on projects in small groups and presenting to the class. E.g. Using Chocolate to develop an understanding of fractions. Difference of 2 squares proved by tearing paper.
Overcoming the fear of Failure	England			All students	Helping students to realise that 'wrong' answers are as important as correct ones in understanding new concepts. Wrong answers can lead to the question why does this not work?
Using project work with small groups	England			All students	Allowing groups of students to choose their own topics for investigation in Statistics. Setting problems or investigations to be completed in small groups (4) Group presents to the class. Everyone in the group must contribute. Rest of the class assess by criteria laid out by the teacher. Less threatening than an individual presentation. Class listen for errors and learn from the assessment process.
General and professional education system	Latvia	www.izglitiba.daugavpils.lv DAUGAVPILS CITY GENERAL AND PROFESSIONAL EDUCATION DEPARTMENT	Yelena Azarevica Azalena2@inbox.lv	Secondary school learners	Experience in teaching mathematics and sciences, laboratory works method. Working collaboratively with other schools in our city and country. Teachers meeting to exchange ideas. Using ICT in education.

Challenges in retention due to learning modes.	Northern Ireland		Collettecarson @serc.ac.uk	All Teachers	Interactive learning strategies used to improve retention and success for FE students.
Bridging the gap between High School and University	Sweden	www.LTU.se		Upper Secondary School Students	The gap between upper secondary school and university is too wide. We are looking for better ways to prepare students for University.
Structure of classifying competences and content for the revision of the curriculum of secondary schools	Germany	www.stmbkwk.bayern.de www.isb.bayern.de	Holger Wirth hkwirth@web.de	Secondary school learners	In Bavaria for Maths, six different competences (argumentation, problem solving, modeling, using graphics/representations, being able to use symbols, formal and theoretical elements of mathematics, communicating) as well as five content areas (numbers and operations, values and measurements, space and form, functional relation/coherence, data and probability) have been defined.

Table 1

Using a personal blog for using and classifying useful resources	Spain (Canary Islands)		Juan José Florido Diaz	All Teachers	Using a personal blog for collecting and classify useful resources.
Activities outside of the classroom	Spain (Canary Islands)			Teachers and students	Going outside the normal classroom for practising and enabling students to perform practical activities. E.g. Calculating gravity using a pendulum, making soap from burned cooking oil.
Using Technology to engage students	Spain (Canary Islands)		IES Nueva Isleta Tony Gallardo	Students	Managing a moodle for students, filming short videos to foster team work.
Games	Spain (Canary Islands)	Superteachertools.com		Students	Using games for engaging and getting the most out of students. E.g. Jeopardy, Hot Potatoes, moodle games, stop disasters game etc.
Real Research Work	Hungary			Students	Students taking part in real Hungarian research groups in medicine, science, history etc.
Conferences and Summer Camps	Hungary			Students and Teachers	Students and Teachers meeting to exchange ideas.
National and International Competitions	Hungary		Anna Majer	Students	Using competitions to motivate students.

* You can describe as many good practices as you find necessary. You can add rows to the table.

. The study visits programme aims to promote and support policy development and cooperation in lifelong learning. That is why it is important to know what you learnt about such policies and their implementation during your visit. You are invited to describe your findings concerning the following:

2   APPROACHES TAKEN BY PARTICIPATING COUNTRIES (BOTH HOST AND PARTICIPANTS') REGARDING THE THEME OF THE VISIT. ARE THERE ANY SIMILAR APPROACHES/MEASURES IN PARTICIPATING COUNTRIES? WHAT ASPECTS ARE SIMILAR AND WHY? WHAT ASPECTS ARE DIFFERENT AND WHY?

Common goal preparing students for university or vocational work.
In most of the participant's country, a broader range of subjects are studied until the age of 18. In the UK and Czech Republic this is more restricted. One reason is because Universities require evidence of specialist knowledge before they begin a course.

Diversity of methods of teaching.
Everyone tries to improve motivation and raise standards. Investigation, experiments and practical work, students hands-on, team work, projects and games are used in all countries because they motivate students and promote understanding.

Germany and Austria have both vocational education and vocational training.
These countries place a higher value on vocational education and training which covers a wider range of careers than is seen elsewhere. Because there is fuller employment and the tradition of the so called"dual system", the companies are eager to play an active part and students are confident of gaining employment at the end of the training.

2.1   CHALLENGES FACED BY PARTICIPATING COUNTRIES (INCLUDING HOST) IN THEIR EFFORTS TO IMPLEMENT POLICIES RELATED TO THE THEME OF THE VISIT. WHAT ARE THE CHALLENGES? ARE THEY COMMON CHALLENGES? IF SO, WHY? IF NOT, WHY NOT?

UK has challenges in encouraging students to follow vocational pathways because it is hard to find employment. Students usually value an academic education more than a vocational education.
Professional careers in finance, law or medicine are seen as having higher status than vocational careers like architecture, civil engineering or catering.

In all countries, there seems to be a lack of time and opportunity for cooperation in school and between schools to exchange ideas.
In the UK schools and colleges compete for students and this works against cooperation, despite this some excellent partnerships between good schools and failing schools have been developed.

All countries would like to do more projects group and practical work, but the curriculum restricts the time available. It is difficult to find the right balance between competence and content based approaches.
Facilities are not always available for practical work (especially in France).

National examinations do not yet test competences except in Austria (and France for Science).

All countries have a framework for assessment with high stakes examinations taking place at the transfer from school to University.
National tests allow comparison between students and school but because they are higher stakes, they restrict what is taught.

In Italy it is difficult to make comparisons between schools as whilst there is a National framework for assessment, schools set there own examinations and there is no standardisation of the papers, marks schemes or results.

2.2   NAME AND DESCRIBE EFFECTIVE AND INNOVATIVE SOLUTIONS YOU HAVE IDENTIFIED THAT PARTICIPATING COUNTRIES (BOTH HOST AND PARTICIPANTS) APPLY TO ADDRESS THE CHALLENGES MENTIONED IN QUESTION 2.2. PLEASE MENTION SPECIFIC COUNTRY EXAMPLES.

In Austria and in Germany, teachers are trained to teach competences and to create competences based tasks, exams and assignments.

In Northern Ireland and Catalonia, FE colleges encourage transference skills between different curriculum areas (for example, Sciences, creative studies).

Most countries offer interactive online courses to teachers.

UK, Poland and Catalonia have teachmeet events. (informal meeting organised by teachers)

In Latvia and Hungary, they are changing from traditional teaching to practical teaching, by providing motivational materials and training teachers.

2.3   ASSESSMENT OF THE TRANSFERABILITY OF POLICIES AND PRACTICES. COULD ANY EXAMPLES OF GOOD PRACTICE PRESENTED IN THIS REPORT BE APPLIED AND TRANSFERRED TO OTHER COUNTRIES? IF SO, WHY? IF NOT, WHY NOT?

Generally yes, providing that the legal requirements as well as the structural needs are looked after. One should bear in mind that there are culture differences that are reflected in Education systems and these cause limitation to transferability.

Teachmeet events would be very cheap and easy to organise, they just need a motivated teacher.

3. Creating networks of experts, building partnerships for future projects is another important objective of the study visit programme.

Please state whether and which ideas for future cooperation have evolved during meetings and discussions.

Participants feel this is the most important outcome of the study visit and continued cooperation is planned.
Having English as a common language has enabled the participants to share ideas and they will continue to do so.

Materials and ideas will be exchanged via the internet and links have been established on professional networks e.g. Linkedin

Exchange visits between schools are being investigated.

Delegates plan visits to each others countries.

TO SUM UP

4. What is the most interesting/useful information that the group believes should be communicated to others? To whom, do you think, this information will be of most interest?

Best practices have been communicated.
Awareness, similarities, challenges and differences have been openly discussed.
Ideas have been exchanged.
New relationships have been established across Europe.
Most problems are the same in all countries:-
    Motivation of students,
    Money for practical equipment,
    (practical material often paid for by teachers!)
    Suitable accommodation for practical tasks not always available.
    Lack of time is seen as a reason for not doing much practical work.
    Lack of time for teachers to evaluate their work and share ideas.

The information will be invaluable to:
    People who are preparing study visits
    Ministries of Education
    Unesco
    Education Departments within and beyond the EU
    Future participants

II Organisation of the visit

This part of the report will not be published but it will be made available to the organiser and will be used by national agencies and Cedefop to monitor and improve implementation of the study visits programme.

We recognise the value of ongoing feedback as a way of ensuring that the programme is at all times a responsive and dynamic initiative, meeting the needs of its various participants and target audiences. In this section you are invited to

give us your feedback on several factors that, in our opinion, contribute to an effective visit.

1. Discuss within the group and check if you agree or disagree with the following statements. Please mark only one box (☑) that expresses most closely the opinion of the entire group. Please use Question 2 of this section to elaborate on your responses, if needed.

		All agree	Most agree	Most disagree	All disagree	Not applicable
e.g.	The size of the group was good.	☑		☐	☐	☐
1.1.	The programme of the visit followed the description in the catalogue.	☐	☐	☑	☐	☐
1.2.	There was a balance between theoretical and practical sessions.	☐	☐	☐	☑	☐
1.3.	Presentations and field visits were linked in a coherent and complementary manner.	☐	☐	☐	☑	☐
1.4.	The topic was presented from the perspectives of the following actors of the education and training system in the host country:					
1.4.1.	government and policy-makers	☑	☐	☐	☐	☐
1.4.2.	social partners	☐	☐	☐	☑	☐
1.4.3.	heads of institutions	☑	☐	☐	☐	☐
1.4.4.	teachers and trainers	☐	☑	☐	☐	☐
1.4.5.	students/trainees	☐	☐	☐	☑	☐
1.4.6.	users of services	☐	☐	☐	☑	☐
1.5.	There was enough time allocated to participants' presentations.	☐	☐	☐	☑	☐
1.6.	The background documentation on the theme provided before the visit helped to prepare for the visit.	☐	☐	☐	☑	☐
1.7.	Most of the group received a programme well in advance.	☐	☑	☐	☐	☐
1.8.	The information provided before the visit about transportation and	☐	☑	☐	☐	☐

		All agree	Most agree	Most disagree	All disagree	Not applicable
	accommodation was useful.					
1.9.	The organiser accompanied the group during the entire programme.		☑	☐	☐	☐
1.10.	The size of the group was appropriate.	☑	☐	☐	☐	☐
1.11.	The group comprised a good mixture of participants with diverse professional backgrounds.	☑	☐	☐	☐	☐
1.12.	There were enough opportunities for interaction with representatives of the host organisations.	☐	☐	☐	☑	☐
1.13.	There was enough time allocated for discussion within the group.	☐	☐	☐	☑	☐
1.14.	The Cedefop study visits website provided information that helped to prepare for the visit.	☑	☐	☐	☐	☐

2. If you have any comments on the items 1.1. – 1.14 above, please write them in the box below.

The study week lacked a coherent structure.
The main topics of the study visit weren't really given for the Italian system. The competence based approaches within the Italian system were not clear.

Name badges would have been useful. On Monday morning, it would have been interesting to present each other and explain our goals briefly. We would have liked a team leader.

We would have liked to learn about the Italian teacher training system.
We would also like to have visited classes within the class rather than have demonstration lessons.

1.13. "There was not enough time allocated for discussion within the group."
Insufficient time to reflect and evaluate within the group. We needed some time everyday for make the report.

III Summary

1. Having summarised all your reflections and impressions, please indicate how satisfied you are with your participation in the study visit. Indicate the number of participants for each category, e.g.

Very
satisfied [ ]

| Very satisfied | [ ] | Satisfied | [ ] | Somewhat satisfied | 12 | Not satisfied | [ ] | Neither satisfied nor dissatisfied | [ ] |

2. What elements and aspects of the study visits do you think could be changed or improved?

The information about accommodation and transport should be received earlier. (19 September was late and not everyone managed to stay in the same hotel)

We would have liked the information which explained the Italian education system on the first day.

Internet access was not available until Tuesday. We would have liked Wifi from the beginning of day 1.

Name badges would have been useful.

On Monday morning, it would have been interesting to introduce each other and explain our goals briefly. We needed a team leader. There was no time allowed in the programme for discussion and evaluation.
For future programmes we would recommend that the last 30min – 1hr each day is used for this purpose. We needed some time everyday to evaluate and discuss the presentations and assimilate what we have learned.
The programme was too full and we did not see any lessons in the host school. We were looking for ideas to motivate and engage students and do not need to be 'taught' content.
There was not a participant from the host school with whom we could discuss teaching methods in Italy.

3. If there is anything else you would like to write about that is not included in the above questions, please feel free to write below or attach a separate sheet.

All participants found the visit useful and would like to part to a further visit.
We felt that we had built up an awareness of the diversity of the Education systems in Europe.

Hospitality was excellent. We were very impressed by the standard of Italian catering students.

THANK YOU!

Please submit the report to Cedefop (studyvisits@cedefop.europa.eu) **within one month** of the visit.