

Report from the FP7 project:

# Assess Inquiry in Science, Technology and Mathematics Education

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**ASSIST**ME

## Reports with NSB Feedback

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## Introduction

Since month 28, we have minutes from the last seven National Stakeholder Panel (NSP) meetings where a number of questions were discussed. Furthermore, there has been held one additional meeting in Denmark (October 2015).

In the last NSP-meetings (5 partner countries), the following questions were discussed:

1. What position/role describes you best?
2. From your perspective, describe how students' learning is assessed in your country. Please describe both formative assessment for learning (e.g. teachers' feedback to students in the daily teaching) and summative assessment of learning (e.g. exams). Please indicate if these practices differ across educational levels from grade 1 to 12 (baccalaureate).
3. Is learning about formative and summative assessment an important aspect of teacher education and TPD?
4. Is it desirable to try to combine formative and summative assessment?
5. Are there any nation-wide (or regional-wide) high-stakes assessments in your country?  
If yes: At which level(s)?
6. Do you see any reason to change the assessment/examination culture in your country?
7. What changes, if any, do you find necessary in the examinations at different levels to make it reflect the competence goals (both subject specific and generic) in the curriculum?
8. Do you have any influence on the change of the assessment system in your country?
9. If so, will you use your influence in any change process – and in what direction? How can you best change the assessments/examinations in the desired direction?

## General themes of the discussions

Question 1 and 2 differ a lot between partner countries, please consult the minutes from each meeting to get a schematic and detailed overview.

### Question 3:

The majority of panels agreed that assessment is an important aspect of teacher education and TPD. However, in one of the partner countries it was mentioned that professional development programs for in-service teachers are not compulsory and thus there is no formal professional assessment aspect.

A successful implementation of formative assessment depends on several factors, and questions on the assessment in the context of new curricula and competences are important (How do we assess competence-oriented teaching?). The implementation of formative assessment is hindered by obsolete curricula that do not provide teachers with sufficient orientation, especially related to process-oriented competences. Some teachers have the impression that they teach competence-oriented, but they do not know how to handle the assessment in relations to that; they are willing, but not educated to do so. Moreover, formative assessment requires job and life experience as well as a solid content knowledge.

What is needed in teacher education and TPD:

- Instruments, tools, guidelines, and examples of good assessment practice. However, it is not sufficient to provide teachers with diagnostic instruments - they also have to understand these instruments and the underlying principles.
- Teachers need to be convinced that they can handle competence-oriented formative assessment.
- Clear competence descriptions that could be used as a basis for formative assessment are missing.
- Regarding in service teachers, there is a need for teaching innovation projects that integrate teaching institutions (e.g. schools) and research collaborative groups.

However, it is important to note that it is not sufficient to provide teachers with materials and discuss these in short-term (e.g. one day) TPD activities. The implementation has to be accompanied in practice by long-term TPD.

There is a need for alignment between the theoretical content that pre-service teachers learn in the various phases of teacher education (i.e. what we expect them to do) and the reality they find in practice (i.e. what they are able to implement). If the discrepancy is too big, the acceptance of assessment will decrease.

### Question 4:

The national stakeholder panels report on various ways in which summative and formative assessment are combined in practice, e.g. students' work on projects is assessed formatively during the work and is assessed summatively at the end (the summative assessment is then oral or written feedback), or several summative tests can be used during a teaching unit/a course and serve formative functions. However, it is generally agreed that consistency is important, and thus there needs to be an alignment between

teaching and assessment (same criteria and visible (for students) criteria). Related to the aspect of alignment, it was mentioned in one of the panels that “that there is lack of systematic implementation of the two types of assessment. Hence, combining the two types becomes an ever more difficult task”. Nevertheless, “a primary school teacher claims that the inspectors pursue the combination of formative and summative assessment via professional development programs and meetings with professionals”.

It was further mentioned, that at some points, and for some purposes, assessment can (and should) only be formative, and it is important to keep in mind that formative and summative assessment serve different functions.

In one of the panels, it was argued that the only way to combine formative and summative assessment is by evaluating student portfolios in order to monitor students’ learning progress.

#### Question 5:

In the large majority of the panels, they mentioned nation-wide/region-wide assessments. However, it was emphasized that most of them are usually not high-stakes for the students. Nevertheless, it was further mentioned that tests during the school year in one partner country determine students’ grades for the semester, and if those grades are below average, then the final examination becomes critical and important for the students in order for them to advance to the next grade.

In some partner countries, the central final examinations are high-stakes for the students. In other partner countries, it was mentioned that the roles of the tests may be increased in the future.

#### Question 6:

*In some NSP’s it was emphasised that changes in assessment culture should be adapted to the relevant context – not just in terms of national context, but also educational level, subject etc.:*

Czech Republic NSP member: “I am a little afraid of the “quick” and universal conclusions”

German minutes: “The panel feels that it depends on the school type as well as the grade level whether and in which form the use of formative assessment is sensible.”

French: In particular, there’s a similarity in the lower secondary Level assessment (summative or formal) between the students who will follow general curriculum and thus who will attend more professional specialized schools. This favours the formers. This implies a need for a change that allows a better balance in the way the evaluation of all students in the lower secondary is done.

*Discussion among some panels about how focusing on FA does not mean that SA hasn’t got a role to play, especially since parents expect SA:*

Czech NSP member: “We are not in the stage where the formative assessment could be part of everyday teaching. There is still prevailing demand for grading – the teachers need them to make final certificate and parents are used to work with them too”

French minutes: Also, regarding marking, there's a long history in France concerning this tradition of marking that is not easy to change. One participant mentioned that the society is quite competitive and we should educate students about it as well.

German minutes: The panel speaks clearly in favour of a strict separation of formative and summative assessment to avoid a confusion of learning and achievement situations. In addition, it stresses that summative assessment cannot (and should not) be completely abolished.

Finnish: Also, many parents still advocate summative testing (grades).

Swiss minutes: Stronger involvement of parents: the parents want formative assessment on the one hand, but at the other hand also want to know the "worth of any artefact has" (summative assessment)

*There seems to be a general consensus that something needs to be changed in the assessment culture to enhance the status of FA, albeit there are different opinions about what should be changed and how this could be done.*

Czech minutes: The reason for the change: The school assessment doesn't support quality of students' learning with respect to understanding of content. The assessment should help student to "learn with understanding" and achieve better understanding of the content.

French minutes: In general the NSP indicated that, on one hand, there's a need to engage teachers in an attitude that foster more assessments for learning. On the other hand, they indicated that the (official) educational system position is quite heterogenic regarding assessment.

German minutes: The panel feels that there had been an assessment culture at schools once but it has gotten lost to a huge extent. If it would be possible to reimplement it, this would have positive influence on school development, teaching and learning. In this context, the school leaders are crucial.

Swiss minutes: Large-scale assessments with innovative assessment formats could initiate more innovative teaching in the classrooms (positive teaching to the tests). So far, the existing regional-wide assessments are rather traditional. So one could also fear that more such tests kill innovative and creative teaching.

Cypriote minutes: On the contrary, the majority of existing diagnostic tests are devoted to measuring students' content knowledge, without giving any emphasis to their attitudes and skills. In addition, students' assessment should be based on a wide variety of tools and methods, such as portfolio, individual and cooperative work.

Finnish minutes: More emphasis should be put on feedback and focus more on learning (what is learnt instead of what is not learnt). Generally, people should be more aware about the diversity of assessment methods and practices.

#### Question 7:

*This question was not discussed in most of the NSP's. This means that it is not really meaningful to look for common themes. Instead, relevant parts of the discussions are summarised in the quotes below.*

German minutes: Here the panel admits that changes in the final examinations do have a steering influence. Changes in final examinations thus always have to be preceded by changes in instruction. The examination tasks should then be changed carefully e.g. by introducing tasks that cover the concepts introduced by the educational standards. Science is part of the final examinations almost exclusively in the 'Abitur'. Here, these new tasks could be related to experimental methods, modeling or scientific ways of thinking.

Finnish minutes: Assessment could be more diverse than it is nowadays (impression). It should be based on diverse evidence of learning. The new core curriculum emphasizes more competences than previous one, so assessment must change as well.

### Question 8 and 9:

These questions were difficult to summarise in terms of common themes across countries. Please see minutes for each country for answers.

### **In two of the NSP's (France and Czech Republic), the following questions were discussed:**

1. Do you see any reason to change the assessment/examination culture in your country? If not – why not? If yes – why, and in which way?
2. What will be the best strategy for changing the assessments in a direction that takes the ASSIST-ME results into consideration?
3. In which ways can you – as a NSP – help the changing process?
4. If we should apply for a successor, a follow up for ASSIST-ME, which research questions should we then pursue?

The following sections summarise the points that emerged from the discussions in the two NSPs:

### Question 1

In France, it was argued that there is a need to engage students in assessment in a way that focuses on assessment for learning. Students work in a different way with peers than with the teacher. There is a need to change the assessment culture so that the way in which students work with the teacher resembles the way they work with peers. Teachers need to change their teaching practices to integrate formative assessment. However, as mentioned in France, there is a tradition for summative assessment and grading, which is not easy to change. The French NSP suggests collaborations with teaching institutions and research collaborative groups in establishing teaching innovation projects.

Members of the Czech NSP argue that there is a need to change the assessment culture "because the used assessment strengthens only the external motivation (...) students and teachers don't think enough about the learning goals, characteristics of quality performance and products" and since "the school assessment doesn't support quality of students' learning with respect to understanding of content". The Czech NSP also noted that there is a need for changing the roles in the classroom, which is mainly

teacher-centered, and that “teachers are mainly focused on the fact whether the students have learnt the topic or not (...) teachers don’t discuss the mistakes with students very often”. The assessment should help students to “learn with understanding” and “achieve better understanding of the content”. However, there is still a demand for grades: “the teacher needs them to make final certificates, and parents are used to work with them too”. Further “teachers need to learn how to specify learning goals, have some tasks which could be used with guidance to assess the students’ performance”.

Czech minutes: we need examples of “good practice” with explanations for teachers.

### Question 2

Czech minutes: Examples of tasks with the described competencies as well as guidance for assessment and examples of students’ work. These materials will help future teachers and in-practice teachers with formative assessment. In addition, there is a need to expand the understanding of school assessment as “it should not be seen only as a tool, but also as an (educational) goal”, “we could use some results from this project to promote this change”.

French minutes: there is a call for integrating formative assessment into pre-service teacher training. Another strategy is to generate projects by the local institutions that integrate formative assessment practices in their projects.

### Question 3

French minutes:

All the NSP members support actively the French Assist-Me Conference in Grenoble. They will take part in some panel discussions during the conference. Each NSP member can help the changing process in its own level:

Research associations (ARDIST, ARDM) can help for dissemination and the sharing of research results (theoretical and experimental) within the research network that include a lot of teacher educators. They can also share results to teachers’ associations in order to reach teachers.

The DGESCO (General Direction of School) can redeem information on the national site EDUSCOL (An official site for school educators and teachers that aim at informing and support teachers). DEGESCO can also pass information on to National Education School Inspectors.

National Education School Inspectors can support our action in the National Plan of Formation for in service teachers’ professional development. They said that we need to invest in pre-service teacher’s education. Collaborative research groups (in service teachers, teacher educators and researchers) can develop specific training actions about formative assessment for in-service teacher’s training.

### Question 4

The French NSP suggested the following foci for research questions:

**Students' self-regulated learning:** "How to develop diverse teaching approaches and methods that have the potential to support students' self-regulated learning? What is the role of a combination of investigation, direct methods and formative assessment on a range of outcomes, including motivation for learning?" **Assessment for learning:** "What is the influence of formative assessment on the effectiveness and responsiveness of teaching and learning as well as on the inclusiveness of learning? What are the impacts of different innovative teachers' strategies to address the diversity of students in a classroom?" **From education to employability:** How can we improve the transversal competences (e.g. ethical awareness and behaviour, persistence, critical thinking skills, autonomy, collaboration etc.) of science students at all levels in order to ease transition from education to employment and throughout working life?

The Czech NSP suggested that we continue with the topic from ASSIST-ME, with a focus on what teachers need in order to be able to work with formative assessment, and provide teachers with help and guidance. It is necessary to show teachers how formative assessment works and what it can do for teaching and learning; they need to see reasons to engage with formative assessment, and they should have the possibility to see it and try it out.

Some of the research questions suggested by members of the NSP are: "What information do the teachers take from the assessment? How do the teachers understand to the pedagogical function of the assessment and how do they use it?", "How do students understand the assessment from the teacher? What information do they take from it?", "How is the student's understanding of content changed if s/he has the opportunity to autonomously assess the problem solving (peer-assessment or self-assessment)?", "What are the students' constraints in their efforts to formulate the assessment about the performance during the task solving?"

Minutes from the various National Stakeholder Panel meetings can be accessed via Sharepoint.