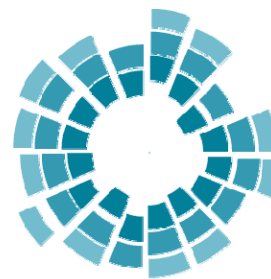# Assess Inquiry in Science, Technology and Mathematics Education

ASSISTME

Educational system factors influencing student assessment methods in science, technology and mathematics education

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This deliverable presents the work done by the UJF-LSE team within the WP 3 from January to June 2013. The main production is a table of variables used to characterize educational systems in regards to formative or summative assessment and IBE in STM. This table of variables was used to produce an online questionnaire intended to the partners.

1. Objectives

This table aims to identify educational system variables with relevance to formative or summative assessment and IBE in STM. It will be used to map out the participating countries with respect to these variables. The WP3 final goal is to provide the consortium and especially WP4, 5 and 6 with systemic information needed for trial implementations.

2. Methodology

The overall methodology for characterizing and comparing the educational systems relies on a quantitative and qualitative method. The quantitative approach relies on close-ended questions, which allows comparing different educational systems on the same ground. The qualitative approach consists on open-ended questions in order to grasp the fine details of each educational system and to moderate the results from the close-ended questions. This approach has led to the construction of an on line questionnaire (Annex 1) organized in five dimensions. Each dimension is filled out by a set of close-ended questions and one open-ended question.

The methodology adopted to construct the questionnaire relies on a progressive refinement process. The starting point was the table of variables related to inquiry-based teaching as presented in the submitted project (Figure 1).

Variable	Antipode I	Antipode II
1- Centralization	Centralized System	De-centralized system
2- Streaming in lower secondary level	Strong streaming (more than one track to follow)	No streaming at all (only one track, comprehensive schools)
3- Standardised tests vs. teacher autonomy	Standardized Tests required for assessment	Teachers have full autonomy in assessment
4- Existence of Competence model	Explicit (model written in the curriculum)	Implicit (no model explicitly stated)
5- Integration of science subjects in primary and lower secondary	Separate subjects: Biology, Chemistry, Physics	Integrated science
6- Autonomy of schools	Low (schools follow rules/are govern in detail)	High (schools are responsible for school profile, parts of curriculum, teacher development, etc.)
7- Professional teacher	Low (PTD is not common for every	High (teachers have the right and duty to

development	STM teacher)	participate in PTD)
8- Textbook	Prescribed	Not prescribed
9- Practical work	Not common (less than 25% of teaching time)	Common (more than 25% of teaching time)
10- Status of Inquiry-based STM education	Low (IBE is not mentioned in STM curriculum or not used often in STM education	High (IBE is mentioned in STM curriculum and used often in STM education)

Figure 1: Table of variables as presented in the submitted project.

This table presented some weaknesses. One of the most important is that all these variables are not at the same level, some of them being very specific and other very global. For example the fact that textbooks are prescribed or not is an indicator of the autonomy of schools and teachers, and therefore should be included in the "autonomy of school" variable. On the contrary the "centralization" variable is very large and encloses possibly many indicators.

In a first stage, the variables were reorganized according to what can be found in Eurydice and OECD databases as well as from existing results on IBE in STM from EU projects such as Mind The Gap, S-TEAM, Primas, ESTABLISH, INQUIRE, SAILS, and Fibonacci. This step led to a first version of a variable table (figure 2) and associated questions (Annex 2).

Variable	Criteria
1- Centralization of educational system	Curriculum Textbooks Funding Teacher management Teacher status Teachers' evaluation and consequences
2- Structure of educational system	Streaming Positive action Public/Private
3- Teacher education and professional development	Education and training CPD programmes Attractiveness of teacher profession Nature of teacher population
4- School organisation	Collaboration Leadership
5- Form of students' assessment	Day-to-day assessment Certification Students' career and grade retention
6- Role of competence model	Explicit/ Implicit
7- Importance of science subjects in the curriculum	Integration Dedicated time
8- Importance of IB STM E	Curriculum and teacher resources Dedicated time Practical work

Figure 2: First version of the table of variables presented at the kick-off conference

A workshop was organized during the kick-off conference in Copenhagen in January 2013 in order to present this table to the partners. Each country had to indicate if the variables and questions seemed relevant for their country and whether or not it would be possible to answer these questions.

The second stage of our methodology consisted on taking into account the comments from the workshop, and to submit a new version of the table to the partners by email. For each question, each country had to indicate if the question were not relevant (1) to very relevant (4) (annex 3), and also to make comments about each of them. The aim was to acquire information about the relevance of the chosen variables in regards to evaluation in STM education and also about the relevance of these variables for discriminating the participating countries. The results showed that most of the variables submitted are relevant according to the partners. Some variables have very different scorings, which can be interpreted as variables that discriminate very different educational systems.

The last stage was to produce indicators for each variable in order to construct an online questionnaire (Annex 1). Indicators found in OCDE and Eurydice databases and in other European projects were favored. When no existing indicators could be found, they were chosen through a discussion within the team. The close-ended questions were filled out for each country when the corresponding information was already available.

3. Table of variables

The final table of variables is organized in five dimensions:

1. System organisation and management

2. Schools organisation and management

3. Teacher education and professional development

4. Science education

5. Form of student assessment

For each of these dimensions we will present the rationale that justifies why each dimension is relevant to formative and summative assessment, and the table of variables.

3.1. System organisation and management

When the curriculum is designed at the national level, without any school autonomy, teachers

are reluctant to develop effective new teaching strategies.

Depending on the diversity of the school context (school intake, class size, funding and curricula) within the country, variability in the development of IBE in STM or FA/SA might be observed.

Dimensions	Variables
1- System organisation and management	Centralization of educational system Curriculum Funding and resources management Teaching profession

	Structure of educational system
	    age for choosing a career track
	    number of students per class
	    ratio public/private schools
	    local targeting of resources
	    school performance monitoring

3.2. Schools organization and management

When the system is collective leadership oriented, teachers have the opportunity to cooperate, and they are motivated in taking into account students' diversity of wills, needs and knowledge.

Dimensions	Variables

2- Schools organisation and management	Teacher collaboration
	    dedicated in-school structure
	    dedicated time to collaborate
	    teacher small groups
	    exchanges / student learning and engagement

	Leadership
	    teacher /decision making at school level
	    teacher /decision making at regional level
	    students, parents, and community /school
	    school leaders /instruction improvement
	    school leaders / teacher evaluation

	school leaders / teacher development program
	Student performances monitoring
	school data collecting for monitoring student progress
	teacher recording of student progress for internal use
	record / student difficulties (nature and recommendations)

3.3. Teacher education and professional development

The data about teacher characteristics in terms of education, training and experience will provide information on:

   1/ the possible part of teacher population trained in IBSTME

   2/ the type of teacher education to be recommended.

Dimensions	Variable

3- Teacher education and professional development	Education (initial)
	   teacher education level (required & actual)
	   model of initial teacher education
	   part of ECTS / educational courses
	   part of IBST (actual & 15 years ago)
	   part of FA/SA (actual & 15 years ago)

	Training (CPD)
	   in-service education mandatory
	   CPD programs (design & evaluation)
	   part of IBST (actual & 15 years ago)
	   part of FA/SA (actual & 15 years ago)

	Teacher population characteristics
	   ratio age
	   ratio experience length

3.4. Science education

When the competence model is explicit the coordination between FA/SA is more effective, when the science departments are coordinated or integrated, students can more easily create meaning, and when IBE is explicitly mentioned in STM steering texts for teachers, the IB uptake is more effective.

Dimensions	Variable
4- Science education	Role of competence model
	competence model explicit or implicit
	specific competencies related to IBSTME
	competencies related to Formative Assessment
	Importance of science and math subject in the curriculum
	STM: separate or integrated subjects
	amount of time allocated
	STM connection with other subjects
	Importance of IBSTME
	IBSTME mentioned in STM curriculum
	IBSTME mentioned in STM textbook p
	IBSTME resources for teachers
	part of inquiry based methods in science teaching
	part of practical work in science teaching

3.5. Form of student assessment

1/As assumed in the ASSIST-ME project, when teachers are involved in the whole assessment process (at each stage from the design to the correction) they are more aware of the necessity to monitor all their students learning processes.

2/ Knowing the effective teachers' practices of assessment will provide information on the implementation of FA in the classroom.

Dimensions	Variable
5- Form of student assessment	Day-to-day assessment
	designing, performing and correcting day-to-day students' assessment
	students' progress communication
	students involvement in assessment of their own (and others') performance
	dedicated meetings for helping students and parents to make sense of the assessment information
	consequences of evaluation on students' career
	Summative assessment
	designing, performing and correcting SA

	teachers involvement in SA design
	consequences of evaluation on students' career
	Students' career and grade retention
	grade retention allowance
	grade retention limitation
	grade retention frequency
	coping with students who encounter difficulties

4. Questionnaire

The questionnaire is presented in the annex 1. As said above, each dimension is grasped through a set of close-ended questions, presented in Annex 1, and one or several open-ended questions. The open ended question is an overall question which aims at evaluating the affordances and limitations of each dimensions vis-à-vis of assessment in each country.

5. Agenda

M1	The UJF-LSE Grenoble team has identified educational system variables that seem relevant. These variables rose from Eurydice and OECD databases as well as from existing results on IBE in STM from EU projects such as Mind The Gap, S-TEAM, Primas, ESTABLISH, INQUIRE, SAILS, and Fibonacci.
	A first version of the table drawn on questions about 5 dimensions was elaborated.
M2	During the kick-off seminar, WP3 had held a workshop in order to discuss the table first version.
M3-M4	UJF-LSE had refined the table after the comments that occurred during the workshop.
	A second version of the table was sent to each partner. They have to rank each question on a scale from 1 (irrelevant) to 4 (totally relevant) with respect to their national educational system.
M5	UJF-LSE had adapted the table and elaborated the definitive version.
	This version was an online questionnaire
M6 (15/06/13)	The link toward the online questionnaire will be sent to each member.
	The questionnaire will be filled in by UJF-LSE when the data are available on the international databases.
	Each partner will be asked to complement the data on the online questionnaire (DL 15/07/13).
	UJF-LSE will provide a plan and an agenda for the NSP meeting.
M7 (15/07/13)	Deadline for completed the online questionnaire (due to the vacation times some partners might complete the questionnaire for the mid-August).
M9	UJF-LSE will provide a first version of the map of the members with respect to

	relevant variables.
M11	Each member will hold a NSP meeting in order to check the map first version and to collect the comments of the stakeholders.
	Each member will sent the NSP conclusions to UJF-LSE
M12	UJF-LSE will provide the final map of the partners.

Annex 1 Online questionnaire

ASSIST-ME educational systems

Goals of this survey:
This survey aims to collect educational system data with relevance to formative or summative assessment and IBE in STM. It will be used to map out the participating countries with respect to these data. The WP3 final goal is to provide the consortium and especially WP4, 5 and 6 with systemic information needed for trial implementations.

Data drawn from official texts:
This survey is concerned with the educational level, thus the data has to be drawn from the texts that organize the educative system, the school management, and the way teachers are expected to rule their classes. These texts are produced either at a national, regional or local level. This questionnaire isn't concerned with the actual functioning of the educational system but with the way it is expected to function with respect to the official texts.
These types of data are important for comparing the members' countries with respect to a same basis.

Open-ended questions:
Since it is difficult to capture the complexity of curriculum matters in the individual countries, an open response box had been added after each set of questions. That gives space for some relevant information that cannot be captured by closed-ended questions.

Dead line:
You might fill in the questionnaire in several times, since the data remain available for change until the survey will be over.
Nevertheless, the ULF-LSE team asks you to send your completed questionnaire for the 15th of July.

Choose your country in the list

ASSIST-ME educational systems

System organization and management: 1.1. Centralization of educational system

Who has legal authority to approve changes or new curricula?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Who is in charge of textbook and learningware choices?

	Teachers	Schools	Teachers groups (unions, associations...)	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐

How independent can schools be in the implementation of the program of study ?

	0 (not at all)	1	2	3	4	5 (totally)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

How independent can Teachers be in the implementation of the program of study ?

	0 (not at all)	1	2	3	4	5 (totally)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

Is there a process of curriculum evaluation ?

	No	Yes at school level	Yes at a Local level	Yes at a Regional or sub-regional level	Yes at a central or state level	Not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

What level of financial autonomy do schools have?

	0 (not at all)	1	2	3	4	5 (totally)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

Who is in charge of funding the schools (material, textbooks, software, learningware, documentation)?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Who is in charge of the expenditures (material, textbooks, software, learningware, documentation)?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Who decides of the teaching time dedicated to each topic?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Who decides of the size of the classes?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Is school funding based on students' success?

	0 (Not at all)	1	2	3	4	5 (Totally)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Are funding and resources for examinations centralized or a part of the schools' budget?

	Centralized	part of the schools' budget	Both	Not relevant
Primary education	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐

Who is in charge of the teachers' hiring?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Are teachers civil servants? (only one choice)

	No	Yes some of them	Yes most of them	Yes all of them	Varies in function of the region	Not relevant
Primary education	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○

For how long teachers are hired?

	Short-term contract (1 year or less)	medium-term contract (more than 1 year to 5 years)	long-term contract (more than 5 years to permanent)	Not relevant
Primary education	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐

Who is in charge of teacher evaluation??

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	independent agencies	Not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

What are the consequences of teacher evaluation in terms of career (maintain employment)?

What are the consequences of teacher evaluation in terms of teacher professional development?

What is the average teacher wage compared to the average wage of the population with the same level of education (Ratio in percentage of salary to earnings for full-time, full-year workers with tertiary education aged 25-64)

Primary education	
Lower secondary education	
Upper secondary education	
Vocational or technical secondary education	

How attractive is the teaching profession? (if you have some evidences, please give them)

In your opinion, which elements that characterize the system organization and management in your nation are relevant to the testing and implementation in the Assist-Me project?

Structure of Educational system

At what age are students normally expected to choose a career track (academic, technological, vocational)?

How many students per class? (please 1-give the average number of students per class at each level, 2-give the min and max number of students per class if there is a legal norm)

average in primary education	
maximum in primary education	
minimum in primary education	
average in lower secondary education	
maximum in lower secondary education	
minimum in lower secondary education	
average in upper secondary education	
maximum in upper secondary education	
minimum in upper secondary education	
average in vocational secondary education	
maximum in vocational secondary education	
minimum in vocational secondary education	

ASSIST-ME educational systems

What is the ratio public/private schools? (please give the percentage of private school from 0 (no private school, only public schools) to 100% (only private schools, no public school)

Primary education	
Lower secondary education	
Upper secondary education	
Vocational or technical secondary education	

Who is in charge of monitoring school performance?

	Schools	Local authorities	Regional or sub-regional authorities	Central or state authorities	independent agencies	Not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

What types of criteria are used for monitoring school performance? (if there is some differences according to the educational level, please precise the criteria for each educational level)

Is there any local targeting of resources (e.g. focusing on low income populations, immigrants...)?

	Yes	No	Not relevant
Primary education	☐	☐	☐
Lower secondary education	☐	☐	☐
Upper secondary education	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐

In your opinion, which elements that characterize the structure of the educational system in your nation are relevant to the testing and implementation in the Assist-Me project?

School organization and management

Is there a dedicated in-school structure that supports collaboration among teachers?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Is there dedicated time for teachers to collaborate with each other?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Does the school structure allow for teachers to collaborate in smaller groups based on affinities?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

To what extent do teachers collaborate in smaller affinity groups?

	Never or almost never	very few collaborations	some collaborations	a lot of collaborations	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Do teachers have regular meetings in which they analyze and discuss evidence of student learning and engagement?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Do teachers have formal roles in the decision-making process regarding local school initiatives?

	0 (they have no role)	1	2	3	4	5 (they play a major role)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

Do teachers have regional or national organizations that have formal roles in the decision-making process regarding local school initiatives?

	0 (they have no role)	1	2	3	4	5 (they play a major role)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Can regional or national organizations of students or parents influence school initiatives?

	0 (they have no influence)	1	2	3	4	5 (they have a major influence)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Do students, parents, and community have formal ways to provide input regarding the optimal functioning of the school?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Is there a formal role for school leaders (principal, director, headmaster, head teacher or head) in continuous improvement of instruction?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Do school leaders have a role to play in teachers' on-going evaluation of their pedagogical strengths and weaknesses?

	0 (they have no role)	1	2	3	4	5 (they have a major role)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

Do school leaders have a role in teachers' professional development?

	0 (they have no role)	1	2	3	4	5 (they have a major role)	Not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Do schools collect data that monitors student progress on a continuous basis?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Are these data accessible to teachers?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Are these data accessible to students?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Are these data accessible to parents?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Is there a compulsory process for teachers to keep a detailed record of student progress for internal use?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Does this record offer interpretive information about student difficulties?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

Does this record include recommendations for individual student improvement?

	No	Yes in some schools	Yes in most schools	Yes in all schools	Not relevant
Primary education	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐

ASSIST-ME educational systems

In your opinion, which elements that characterize the school organization and management in your nation are relevant to the testing and implementation in the Assist-Me project?

Teacher education and professional development

What is the required education level of teachers?

	Secondary education	3 years or less in Higher education	4 years in Higher education	5 years in higher education	More than 5 years in higher education	Not relevant
Primary education	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○

What is the actual education level of teachers?

	Secondary education	3 years or less in Higher education	4 years in Higher education	5 years in higher education	More than 5 years in higher education	Not relevant
Primary education	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○

What is the duration of teacher-training programme in years?

Primary education	
Lower secondary education	
Upper secondary education	
Vocational or technical secondary education	

Who is involved in STM teacher pre-service education with respect to pedagogical competences?

	Teacher educators	Experienced teachers	Researchers	Inspectors	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

Is a competitive examination required to enter pre-service teacher training?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

ASSIST-ME educational systems

Is a teaching practicum required as part of pre-service training?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

Is a competitive examination required to enter the teaching profession?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

Is a credential or licence, in addition to the education diploma, required to start teaching?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

ASSIST-ME educational systems

Is a credential or licence, in addition to the education diploma, required to become a fully qualified teacher?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

Is a Teaching practicum required to obtain credential/licence?

	No	Yes	Not relevant
Primary education	○	○	○
Lower secondary education	○	○	○
Upper secondary education	○	○	○
Vocational or technical secondary education	○	○	○

What is the approximate amount of ECTS spent on educational courses/subjects during teacher education?

	0 to 30 ECTS	31 to 60 ECTS	61 to 90 ECTS	91 to 120 ECTS	more than 120 ECTS	Not relevant
Primary education	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○

ASSIST-ME educational systems

What is the part of Inquiry Based Sciences Teaching (IBST) in science, math and technology teacher initial education?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

When did IBST appear in teacher initial education?

	More than 15 years ago	Between 15 to 5 years ago	Less than 5 years ago	Not yet	Not relevant
Primary education	○	○	○	○	○
Lower secondary education	○	○	○	○	○
Upper secondary education	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○

ASSIST-ME educational systems

When did Formative Assessment / Summative Assessment appear in teacher initial education?

	More than 15 years ago	Between 15 to 5 years ago	Less than 5 years ago	Not yet	Not relevant
Primary education	○	○	○	○	○
Lower secondary education	○	○	○	○	○
Upper secondary education	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○

ASSIST-ME educational systems

How is teacher professional development (PD) managed in relation to mathematics, science and technology teaching in particular?

	no management or strategic control with responsibility for involvement being devolved to the school and individual teacher	some 'light touch' control with an accreditation or 'kite-marking' system having a role to play in quality control of provision and with some obligation for teachers to take part in PD but with responsibility for involvement again being devolved	a planned strategic programme of PD provision with a requirement for practicing teachers to take part in credit awarding PD on a regular basis	not relevant
Primary education	○	○	○	○
Lower secondary education	○	○	○	○
Upper secondary education	○	○	○	○
Vocational or technical secondary education	○	○	○	○

ASSIST-ME educational systems

Who is in charge of designing in-service teacher education?

	Teacher education departments	Experienced teachers	Researchers	Inspectors	Local, regional or central authorities	Independent providers (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

Who is in charge of providing in-service teacher education?

	Teacher education departments	Experienced teachers	Researchers	Inspectors	Local, regional or central authorities	Independent providers (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

Who is in charge of evaluating teacher preparation programmes?

	Teachers	Teacher education departments	Researchers	Inspectors	Local, regional or central authorities	Independent agencies (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

What is the part of Inquiry Based Learning in science, math and technology CPD programmes?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

When did Inquiry Based Learning in science, math and technology appear in CPD programmes?

	More than 15 years ago	Between 15 to 5 years ago	Less than 5 years ago	Not yet	Not relevant
Primary education	○	○	○	○	○
Lower secondary education	○	○	○	○	○
Upper secondary education	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○

ASSIST-ME educational systems

What is the part of Formative Assessment / Summative Assessment in CPD programmes?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

When did Formative Assessment / Summative Assessment appear in CPD programmes?

	More than 15 years ago	Between 15 to 5 years ago	Less than 5 years ago	Not yet	Not relevant
Primary education	○	○	○	○	○
Lower secondary education	○	○	○	○	○
Upper secondary education	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○

What is the average age of teachers (in years)?

Primary education	
Lower secondary education	
Upper secondary education	
Vocational or technical secondary education	

What is the average experience length of teachers (in years)?

Primary education	
Lower secondary education	
Upper secondary education	
Vocational or technical secondary education	

When did Formative Assessment / Summative Assessment appear in CPD programmes?

○ More than 15 years ago   ○ Between 15 to 5 years ago   ○ Less than 5 years ago   ○ Not yet   ○ Not relevant

ASSIST-ME educational systems

In your opinion, which elements that characterize teacher education and professional development in your nation are relevant to the testing and implementation in the Assist-Me project?

Science education

Is the competence model :
(competence model is understood from ASSIST-ME project definition)

	explicit	implicit	not present	not relevant
Primary education	○	○	○	○
Lower secondary education	○	○	○	○
Upper secondary education	○	○	○	○
Vocational or technical secondary education	○	○	○	○

Does the competence model specify competencies related to IBSTME?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Does the competence model specify competencies related to Formative Assessment?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

Is science, math and technology taught through separate or integrated subjects in primary education? (tick the combinations of integrated subjects that appear in your educational system)

	Physics	Chemistry	Earth	Biology	Mathematics	Technology
Physics	○	○	○	○	○	○
Chemistry	○	○	○	○	○	○
Earth	○	○	○	○	○	○
Biology	○	○	○	○	○	○
Mathematics	○	○	○	○	○	○
Technology	○	○	○	○	○	○

Is science, math and technology taught through separate or integrated subjects in lower secondary education? (tick the combinations of integrated subjects that appear in your educational system)

	Physics	Chemistry	Earth	Biology	Mathematics	Technology
Physics	○	○	○	○	○	○
Chemistry	○	○	○	○	○	○
Earth	○	○	○	○	○	○
Biology	○	○	○	○	○	○
Mathematics	○	○	○	○	○	○
Technology	○	○	○	○	○	○

Is science, math and technology taught through separate or integrated subjects in upper secondary education? (tick the combinations of integrated subjects that appear in your educational system)

	Physics	Chemistry	Earth	Biology	Mathematics	Technology
Physics	○	○	○	○	○	○
Chemistry	○	○	○	○	○	○
Earth	○	○	○	○	○	○
Biology	○	○	○	○	○	○
Mathematics	○	○	○	○	○	○
Technology	○	○	○	○	○	○

ASSIST-ME educational systems

What is the amount of time allocated to science math and technology teaching? (in hours/week)

Physics average time at grade 5	
Physics average time at grade 9	
Physics average time at grade 12	
Physics minimum time at grade 12	
Physics maximum time at grade 12	
Chemistry average time at grade 5	
Chemistry average time at grade 9	
Chemistry average time at grade 12	
Chemistry minimum time at grade 12	
Chemistry maximum time at grade 12	
Earth average time at grade 5	
Earth average time at grade 9	
Earth average time at grade 12	
Earth minimum time at grade 12	
Earth maximum time at grade 12	
Biology average time at grade 5	
Biology average time at grade 9	
Biology average time at grade 12	
Biology minimum time at grade 12	
Biology maximum time at grade 12	
Mathematics average time at grade 5	
Mathematics average time at grade 9	
Mathematics average time at grade 12	
Mathematics minimum time at grade 12	
Mathematics maximum time at grade 12	
Technology average time at grade 5	
Technology average time at grade 9	
Technology average time at grade 12	
Technology minimum time at grade 12	
Technology maximum time at grade 12	

Are science, math and technology subjects commonly taught in connection with other subjects in primary school and in secondary school?

	Sciences in primary school	Sciences in secondary school	Mathematics in secondary school	Mathematics in primary school	Technology in primary school	Technology in secondary school
First language	☐	☐	☐	☐	☐	☐
Second language	☐	☐	☐	☐	☐	☐
Art	☐	☐	☐	☐	☐	☐
History	☐	☐	☐	☐	☐	☐
Geography	☐	☐	☐	☐	☐	☐
Sports	☐	☐	☐	☐	☐	☐

Are these activities mentioned in mathematics, sciences and technology curriculum in primary school or in secondary school

	No	Yes in math, in primary school	Yes in math, in secondary school	Yes in sciences, in primary school	Yes in sciences, in secondary school	Yes in technology, in primary school	Yes in technology, in secondary school	Not relevant
Diagnosing problems	☐	☐	☐	☐	☐	☐	☐	☐
Identifying questions	☐	☐	☐	☐	☐	☐	☐	☐
Searching for information	☐	☐	☐	☐	☐	☐	☐	☐
Considering alternative /multiple solutions	☐	☐	☐	☐	☐	☐	☐	☐
Creating mental representations	☐	☐	☐	☐	☐	☐	☐	☐
Constructing and using modeling	☐	☐	☐	☐	☐	☐	☐	☐
Formulating hypotheses	☐	☐	☐	☐	☐	☐	☐	☐
Planning investigations	☐	☐	☐	☐	☐	☐	☐	☐
Finding structures / patterns	☐	☐	☐	☐	☐	☐	☐	☐
Researching conjectures	☐	☐	☐	☐	☐	☐	☐	☐
Collecting and interpreting data	☐	☐	☐	☐	☐	☐	☐	☐
Evaluating results	☐	☐	☐	☐	☐	☐	☐	☐
Searching for alternatives / Modifying design	☐	☐	☐	☐	☐	☐	☐	☐
Constructing and criticizing arguments or explanations using evidence	☐	☐	☐	☐	☐	☐	☐	☐
Debating with peers	☐	☐	☐	☐	☐	☐	☐	☐
Searching for generalizations	☐	☐	☐	☐	☐	☐	☐	☐
Dealing with uncertainty	☐	☐	☐	☐	☐	☐	☐	☐
Constructing prototype	☐	☐	☐	☐	☐	☐	☐	☐

Are these words mentioned in mathematics, sciences and technology textbook (In primary or secondary school)?

	No	Yes in math, in primary school	Yes in math, in secondary school	Yes in sciences, in primary school	Yes in sciences, in secondary school	Yes in technology, in primary school	Yes in technology, in secondary school	Not relevant
Diagnosing problems1	☐	☐	☐	☐	☐	☐	☐	☐
Identifying questions1	☐	☐	☐	☐	☐	☐	☐	☐
Searching for information	☐	☐	☐	☐	☐	☐	☐	☐
Considering alternative /multiple solutions	☐	☐	☐	☐	☐	☐	☐	☐
Creating mental representations1	☐	☐	☐	☐	☐	☐	☐	☐
Constructing and using modeling1	☐	☐	☐	☐	☐	☐	☐	☐
Formulating hypotheses1	☐	☐	☐	☐	☐	☐	☐	☐
Planning investigations1	☐	☐	☐	☐	☐	☐	☐	☐
Finding structures / patterns	☐	☐	☐	☐	☐	☐	☐	☐
Researching conjectures1	☐	☐	☐	☐	☐	☐	☐	☐
Collecting and interpreting data1	☐	☐	☐	☐	☐	☐	☐	☐
Evaluating results1	☐	☐	☐	☐	☐	☐	☐	☐
Searching for alternatives / Modifying design	☐	☐	☐	☐	☐	☐	☐	☐
Constructing and criticizing arguments or explanations using evidence	☐	☐	☐	☐	☐	☐	☐	☐
Debating with peers1	☐	☐	☐	☐	☐	☐	☐	☐
Searching for generalizations1	☐	☐	☐	☐	☐	☐	☐	☐
Dealing with uncertainty1	☐	☐	☐	☐	☐	☐	☐	☐
Constructing prototype1	☐	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

To what extend IBSTME resources for teachers exist?

	0 (no resources)	1	2	3	4	5 (a lot of resources)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

What is the part of inquiry based methods in science teaching?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

What is the part of practical work in science teaching?

	0 (very low)	1	2	3	4	5 (very important)	not relevant
Primary education	O	O	O	O	O	O	O
Lower secondary education	O	O	O	O	O	O	O
Upper secondary education	O	O	O	O	O	O	O
Vocational or technical secondary education	O	O	O	O	O	O	O

In your opinion, which elements that characterize mathematics, science and technology education in your nation are relevant to the testing and implementation in the Assist-Me project?

[empty text box]

ASSIST-ME educational systems

Form of student assessment

Do the programs require student day-to-day assessment?

	0 (no requirement)	1	2	3	4	5 (very important requirement)	not relevant
Sciences	O	O	O	O	O	O	O
Mathematics	O	O	O	O	O	O	O
Technology	O	O	O	O	O	O	O

Who is in charge of designing day-to-day students' assessment?

	Teachers	Teacher education departments	Researchers	Inspectors	Local, regional or central authorities	Independent agencies (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

Do resources for teacher exist in order to support the uptake of day-to-day assessment related to science, technology and mathematics education?

	0 (no resources)	1	2	3	4	5 (a lot of resources)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

How is students' progress communicated to them in primary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	○	○	○	○	○	○	○
marks	○	○	○	○	○	○	○
booklet	○	○	○	○	○	○	○
portfolio	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○

How is students' progress communicated to them in lower secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	○	○	○	○	○	○	○
marks	○	○	○	○	○	○	○
booklet	○	○	○	○	○	○	○
portfolio	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○

How is students' progress communicated to them in upper secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	○	○	○	○	○	○	○
marks	○	○	○	○	○	○	○
booklet	○	○	○	○	○	○	○
portfolio	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○

How is students' progress communicated to them in vocational and technical secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	○	○	○	○	○	○	○
marks	○	○	○	○	○	○	○
booklet	○	○	○	○	○	○	○
portfolio	○	○	○	○	○	○	○
Other	○	○	○	○	○	○	○

ASSIST-ME educational systems

How common is it that students are involved in assessment of their own (and others') performance assessment?

	0 (not common at all)	1	2	3	4	5 (very common)	not relevant
Primary education	O	O	O	O	O	O	O
Lower secondary education	O	O	O	O	O	O	O
Upper secondary education	O	O	O	O	O	O	O
Vocational or technical secondary education	O	O	O	O	O	O	O

How is students' achievement communicated to their family in primary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	O	O	O	O	O	O	O
marks	O	O	O	O	O	O	O
booklet	O	O	O	O	O	O	O
portfolio	O	O	O	O	O	O	O
Other	O	O	O	O	O	O	O

ASSIST-ME educational systems

How is students' achievement communicated to their family in lower secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	O	O	O	O	O	O	O
marks	O	O	O	O	O	O	O
booklet	O	O	O	O	O	O	O
portfolio	O	O	O	O	O	O	O
Other	O	O	O	O	O	O	O

How is students' achievement communicated to their family in upper secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	O	O	O	O	O	O	O
marks	O	O	O	O	O	O	O
booklet	O	O	O	O	O	O	O
portfolio	O	O	O	O	O	O	O
Other	O	O	O	O	O	O	O

How is students' achievement communicated to their family in vocational and technical secondary education?

	0 (never)	1	2	3	4	5 (mainly)	not relevant
face-to-face meetings	O	O	O	O	O	O	O
marks	O	O	O	O	O	O	O
booklet	O	O	O	O	O	O	O
portfolio	O	O	O	O	O	O	O
Other	O	O	O	O	O	O	O

ASSIST-ME educational systems

Are there dedicated meetings for helping students and parents to make sense of the assessment information and decide strategies for improving their learning?

	0 (never)	1	2	3	4	5 (very often)	not relevant
Primary education	O	O	O	O	O	O	O
Lower secondary education	O	O	O	O	O	O	O
Upper secondary education	O	O	O	O	O	O	O
Vocational or technical secondary education	O	O	O	O	O	O	O

What are the consequences of this evaluation on students' career inside the schooling system?

	None	Student allocation to a temporary group specifically featured with respect to his or her strengths and weaknesses	Student allocation to a permanent (1 year or more) group featured with respect to his or her strengths and weaknesses	Grade repetition	Student allocation to another pathway	not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

![LSE Laboratoire des Sciences de l'Education logo]

ASSIST-ME educational systems

Do the programs require student summative assessment?

	0 (no requirement)	1	2	3	4	5 (very important requirement)	not relevant
Sciences	O	O	O	O	O	O	O
Mathematics	O	O	O	O	O	O	O
Technology	O	O	O	O	O	O	O

Who is in charge of designing students' summative assessment?

	Teachers	Teacher education departments	Researchers	Inspectors	Local, regional or central authorities	Independent agencies (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Who is in charge of performing students' summative assessment?

	Teachers	Teacher education departments	Researchers	Inspectors	Local, regional or central authorities	Independent agencies (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Who is in charge of correcting students' summative assessment?

	Teachers	Teacher education departments	Researchers	Inspectors	Local, regional or central authorities	Independent agencies (free market)	Others	Not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

To what extend resources for teacher exist in order to support the uptake of summative assessment related to science, technology and mathematics education?

	0 (no resources)	1	2	3	4	5 (a lot of resources)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

ASSIST-ME educational systems

What are the consequences of this summative evaluation on students' career inside the schooling system?

	None	Student allocation to a temporary group specifically featured with respect to his or her strengths and weaknesses	Student allocation to a permanent (1 year or more) group featured with respect to his or her strengths and weaknesses	Grade repetition	Student allocation to another pathway	other	not relevant
Primary education	☐	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐	☐

ASSIST-ME educational systems

Is grade retention frequently practiced?

	0 (never)	1	2	3	4	5 (very often)	not relevant
Primary education	○	○	○	○	○	○	○
Lower secondary education	○	○	○	○	○	○	○
Upper secondary education	○	○	○	○	○	○	○
Vocational or technical secondary education	○	○	○	○	○	○	○

What are the ways to cope with students who encounter difficulties?

	Student allocation to a class specifically featured with respect to his or her level of achievement.	Student allocation to a class featured with respect to his or her specific needs	Grade repetition	Student allocation to another pathway	other	not relevant
Primary education	☐	☐	☐	☐	☐	☐
Lower secondary education	☐	☐	☐	☐	☐	☐
Upper secondary education	☐	☐	☐	☐	☐	☐
Vocational or technical secondary education	☐	☐	☐	☐	☐	☐

In your opinion, Which elements that characterize student evaluation in your nation are relevant to the testing and implementation in the Assist-Me project?

Annex 2 First version of the questionnaire presented at the 1kick-off conference January 2013

	Criteria	Source from which the question was drawn	Questions / System
Centralization of educational system	Curriculum	OECD	Who is in charge of the curriculum? To what extent schools are allowed to adapt the curriculum?
	Textbooks	OECD	Who is in charge of textbook and learningware choices?
	Funding		Who is in charge of funding the schools (material, textbooks, documentation)
	Teacher management	OECD	Who is in charge of the teachers' hiring?
	Teacher status	Eurydice	Are they civil servants? For how long teachers are hired?
	Teachers' evaluation and consequences	PISA OECD	Who is in charge of teacher evaluation? What are the consequences of this evaluation on teacher professional development?
Structure of educational system	Streaming	Eurydice	At what age students have to choose a career (general, technological, vocational)?
	Positive action		Do Educational Zone exist?
	Public/Private	Eurydice	Ratio public/private schools
Teacher education and professional development	Education and training	Eurydice S-TEAM	What is the education level of teachers (Primary / secondary teachers)? What is the model of initial teacher education (concurrent / consecutive)? What is the part of IBST in science

			teacher education? What is the part of FA/SA in science teacher education?
	CPD programmes	S-TEAM	Is in-service education mandatory for all teachers? What is the part of IBST in CPD programmes? What is the part of FA/SA in CPD programmes?
	Attractiveness of teacher profession	OECD	Ratio average wage teacher/general
	Nature of teacher population	OECD	Ratio age, experience length per degree
School organisation	Collaboration		Does a dedicated structure support collaboration between teachers?
	Leadership		Is the system collective-leadership oriented?
			Is there a formal role for school leaders in continuous improvement of instruction?
Form of students' assessment	Day-to-day		Who are in charge of day-to-day students' assessment designing, performing and correction?
			How students' achievement is communicated to them or their family (marks, booklet, portfolio)
			What are the consequences of this evaluation on students' career?
	Certification		Who is in charge of summative students' assessment designing, performing and correction?
	Students' career and grade retention	Eurydice	Is grade retention allowed? Is it frequently practiced? What are the ways to cope with students who encounter difficulties?
Role of competence model	Explicit/ Implicit		Competences related to IBST

			Competences related to Formative Assessment (self-assessment)
Importance of science subjects in the curriculum	Integration	S-TEAM OECD	Is science taught through separate subjects / integrated department?
	Dedicated time	OECD	Amount of time allocated to science in primary/secondary schools
Importance of IB STM E	Curriculum and teacher resources		Is IBST mentioned in STM curriculum? Is IBST mentioned in STM textbook? Do teacher resources exist towards IBSTME?
	Dedicated time		What is the part of IBST in science teaching (Differentiating primary/secondary and vocational/general schools.)
	Practical work		What is the part of practical work in science teaching?

Annex 3: Second version of the questionnaire submitted to the partners in May 2013

1. System organisation and management:

1.1. Centralization of educational system

1.1.1. Curriculum

Criteria	References	Relevance /4 The order of the data is: UCPH, IPN, UCY, FHNW, KCL, JYU, JU
Who has legal authority to approve changes or new curricula?	Primas WP2, p.24 OECD, 2012, p. 503	4 4 3 4 4 4 4
Who has been appointed to create new curricula or make changes?		
Who is in charge of textbook and learningware choices?	OECD, 2012, p. 503	4 3 4 4 4 4 4
How independent can schools be in the implementation of the programmes of study, in general, and in relation to mathematics, science and technology in particular?	Primas WP2, p. 24 OECD, 2012, p. 503	4
How independent can teachers be in the implementation of the programmes of study, in general, and in relation to to mathematics, science and technology in particular?		- 4 4 4 3 4 4

1.1.2. Funding and resources management

Criteria	References	Relevance /4
Who is in charge of funding the schools (material, textbooks, software, learningware, documentation)	OECD, 2012 D6	4 1 4 4 2 4 4
Who is in charge of the expenditures (material, textbooks, software, learningware, documentation)?	OECD, 2012 D6	4 1 4 4 2 4 3
Who is in charge of the teaching time dedicated to each topic?	OECD, 2012 D1.3 p 432	- 3 4 4 3 4 4
Who is in charge of the size of the classes?	OECD, 2012 D2 p 440	2 3 4 4 3 4 3
Is school funding based on students' success?		4
What level of financial autonomy do schools have?		4
Are funding and resources for examinations centralized or a part of the schools' budget?		4

1.1.3. Teaching profession

Criteria	References	Relevance /4
What is the average teacher wage compared to the average wage of the population with the same level of education (Ratio of salary to earnings for full-time, full-year workers with tertiary education aged 25-64)?	OECD, 2012 table D3.1	3
How attractive is the teaching profession? (if you have some evidences, please give them)		3
Who is in charge of the teachers' hiring?	OECD, 2012, p. 505	2 3 4 3 2 4 4
Are teachers civil servants?		3 3 4 1 2 2 3
For how long teachers are hired?		3 4 4 1 2 3 3
Who is in charge of teacher evaluation?	OECD, 2012, p. 505	4 2 4 2 4 1 4
What are the consequences of teacher evaluation in terms of teacher professional development?	OECD, 2012 D5.5 et D3.3a	3 2 4 4 ? 1 4

1.2. Structure of Educational system

Criteria	References	Relevance /4
At what age are students normally expected to choose a career track (academic, technological, vocational)?		2 2 3 4 3 4 3
How many students per class? (please 1-give the average number of students per class at each level, 2-give the min and max number of students per class if there is a legal norm)	OECD, 2012 D2	4 3 2 4 3 3 4
What is the ratio public/private schools?		2 3 3 1 3 4 3
Who is in charge of monitoring school performance?		3 3 3 3 4 2 4
What types of criteria are used for monitoring school performance?		
Is there any local targeting of resources (e.g. focusing on low income population, immigrants...)?		3 - 4 3 4 2 3

2. Schools organisation and management:

2.1. Teacher collaboration

Criteria	References	Relevance /4
Is there a dedicated in-school structure that supports collaboration among teachers?		4 4 3 4 4 4 3
Is there dedicated time for teachers to collaborate with each other?		
Does the school structure allow for teachers to collaborate in smaller groups based on affinities?		4
To what extent do teachers collaborate in smaller affinity groups?		4
Do teachers have regular meetings in which they analyze and discuss evidence of student learning and engagement?		4

2.2. Leadership

Criteria	References	Relevance /4
Do teachers have formal roles in the decision-making process regarding local school initiatives?		4 4 4 3 4 2 4
Do teachers have regional or national organisations that have formal roles in the decision-making process regarding local school initiatives?		4
Is there a regional or national organisation of students or parents that can influence school initiatives?		4
Do students, parents, and community have formal ways to provide input regarding the optimal functioning of the school?		4 3 4 2 4 2 3
Is there a formal role for school leaders[1] in continuous improvement of instruction?		4 3 4 4 4 3 3
Do school leaders have a role to play in teachers' on-going evaluation of their pedagogical strengths and weaknesses?		4 3 4 4 4 2 3
Do school leaders have a role in teachers' professional development?		4 3 4 4 4 3 3

2.3. Student performances monitoring

Criteria	References	Relevance /4
Do schools collect data that monitors student progress on a continuous basis?		4 4 4 3 4 3 4
Are these data accessible to teachers?		4 3 4 2 4 1 4
Are these data accessible to students?		4
Are these data accessible to parents?		
Is there a compulsory process for teachers to keep a detailed record of student progress for internal use?		3 3 2 3 4 3 4
Does this record offer interpretive information about student difficulties?		
Does this record include recommendations for individual student improvement?		

1

   ⌐ School Leaders = principal, director, headmaster, head teacher or head (OECD,2008 p. 18)

3. Teacher education and professional development

3.1. Education and training (initial and CPD[2])

Criteria	References	Relevance /4
What is the required education level of teachers?	OECD, 2012 table D5.4	4 2 3 3 4 4 4
What is the actual education level of teachers?		
Who is in charge of pre-service education of teachers at different levels?		
What is the model of initial teacher education (concurrent / consecutive[3])?		4 3 4 3 4 4 4
What is the approximate amount of ECTS spent on educational courses/subjects during teacher education (by school level)?		4
What is the part of IBST in science, math and technology teacher initial education? When did it appear in teacher initial education?	INQUIRE, p. 19 ESTABLISH, WP2.1 p.12	4 4 4 3 3 3 4
What is the part of Formative Assessment / Summative Assessment in science, math and technology teacher initial education?	INQUIRE, p. 19	4 4 2 3 4 3 4
When did Formative Assessment / Summative Assessment appear in teacher initial education? Je ne vois pas vraiment le type de réponses possibles		
How is teacher professional development managed in general and in relation to mathematics, science and technology teaching in particular?	Primas WP2, p.24	4 4 4 4 4 3 4
Is in-service education mandatory for all teachers?	OECD, 2012 table D5.4	4 3 4 3 2 4 4
Who is in charge of designing and providing in-service teacher education?		4 4 4 4 3 2 4
Who is in charge of evaluating these teacher preparation programmes?		
What is the part of IBSTME in CPD programmes?	INQUIRE, p. 19 ESTABLISH, WP2.1 p.12 Mind the GAP 6.1	4 4 4 4 2 2 4
When did IBSTME appear in CPD programmes?		
What is the part of Formative Assessment / Summative Assessment in CPD programmes?	INQUIRE, p. 19	4 4 4 4 4 2 4
When did Formative Assessment / Summative Assessment appear in CPD programmes?		

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2 CPD: Continuing Professional Development
3 Concurrent model: Academic subjects are studied alongside educational and professional studies throughout the duration of the course. Consecutive model : The specialized courses in pedagogy and in teacher teaching are accessible after having completed another degree in a discipline taught in school, (Musset, 2010)

3.2. Teacher population characteristics:

Criteria	References	Relevance /4
What is the age distribution of teachers in primary and secondary education?	OECD, D5	- 3 2 4 2 1 2
What is the experience length distribution of teachers in primary and secondary education?		

4. Science education:

4.1. Role of competence model

Criteria	References	Relevance /4
Is the competence model[4] explicit, implicit or not present at all?		- 3 2 4 4 2 4
Does the competence model specify competencies related to IBSTME?		- 3 2 4 2 2 4
Does the competence model specify competencies related to Formative Assessment?		- 3 2 3 4 2 4

4.2. Importance of science and math subject in the curriculum

Criteria	References	Relevance /4
Is science, math and technology taught through separate or integrated subjects?	ESTABLISH, WP2.1 p.6	- 2 3 4 3 4 4
What is the amount of time allocated to science math and technology teaching?	ESTABLISH, WP2.1 p.6 OCDE, 2012 D1	- 2 3 3 3 4 4
Are science, math and technology subjects are commonly taught in connection with other subjects		

4.3. Importance of IBSTME

Criteria	References	Relevance /4
Is IBSTME mentioned in STM curriculum?		- 4 4 4 3 4 4
Is IBSTME mentioned in STM textbook or other teaching resources?		- 4 4 3 3 4 4
Do IBSTME resources for teacher exist?		4 4 4 4 3 2 4
What is the part of inquiry based methods in science teaching?		- 3 4 4 4 3 4
What is the part of practical work in science teaching?		3 3 4 3 4 3 4

4

¬ 'competence model' is understood from ASSIST-ME project definition

5. Form of student assessment

5.1. Day-to-day assessment

Criteria	References	Relevance /4
Do the programs require student day-to-day assessment?		
Who is in charge of designing, performing and correcting day-to-day students' assessment?	INQUIRE, p. 15	- 3 4 3 4 3 4
Do resources and guidelines exist for designing, performing and correcting day-to-day assessment in STM subjects?		
How is students' progress communicated to them (marks, booklet, and portfolio)?		4 3 4 3 4 4 4
How common is it that students are involved in assessment of their own (and others') performance assessment?		
How is students' achievement communicated to their family (marks, booklet, and portfolio)?		1 3 4 3 4 4 4
Are there dedicated meetings for helping students and parents to make sense of the assessment information and decide strategies for improving their learning?		
What are the consequences of this evaluation on students' career inside the primary and secondary schooling system?		1 3 3 3 2 3 4

5.2. Summative assessment

Criteria	References	Relevance /4
Do the programs require student summative assessment?		
Who is in charge of designing, performing and correcting students' summative assessment?		4 3 4 3 4 2 4
Are teachers involved in designing students' summative assessment?	Primas WP2, p.24	- 3 4 3 4 3 4
Do regional or national resources and guidelines exist for designing, performing and correcting summative assessment in STM subjects?		
What are the consequences of this evaluation on students' career?		- 3 4 3 4 4 4

5.3. Students' career and grade retention[5]

Criteria	References	Relevance /4
Is grade retention allowed?		- 2 4 2 – 3 4
Is grade retention limited (e.g. restrictions exist on the practice of grade retention)?		
Is grade retention frequently practiced?		- 2 4 3 – 2 3
What are the ways to cope with students who encounter difficulties?		- 3 4 4 – 3 4

5 Grade retention: Countries vary in the way they help individual pupils who experience problems during the school year. Depending on the legislation in force, pupils are usually offered additional support and activities to help them catch up with their peers. However, if they still fail to meet the set objectives by the end of the school year, they may have to repeat it – this process is known as grade retention or grade repetition. (Eurydice, 2012 p. 161).