Final Executive report
MENTEP Global Self-Evaluation and TET-SAT
as a certification tool
European Schoolnet

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Table of contents

Introduction

This report summarises the outcomes of a self-evaluation exercise of the MENTEP policy experimentation and the work in the project investigating the use of TET-SAT as a certification tool.

The first chapter covers the self-evaluation of the project. It summarises feedback from MENTEP consortium partners, the national public authorities and delegated bodies participating in the policy experimentation, the national coordinators responsible for supporting the implementation of the field trials and the scientific committee members.

Evidence also results from two extensive one-day workshops, a mid-term review of the field trials, which took place on 6 March 2017 and the project self-evaluation workshop on 26 March 2018. The mid-term review critically reflected on the field trial implementation, intermediate results, and suggested any adjustments for the final phase of the field trials. In particular, the sampling process, the process of recruiting schools and teachers, the building of TET-SAT and ethical issues were evaluated by all partners. During the self-evaluation workshop, the MENTEP consortium, partners, national coordinators and scientific committee members evaluated the entire process of running a policy experimentation. The main objective of the evaluation was to critically reflect on the process (research design, sampling, running the field trials, national workshops) in order to identify lessons learnt in order to inform future action on how to run policy experimentations. All partners and national coordinators were present and provided input at both workshops. Partners also provided additional information on the issues at stake before and after the workshops.

The second chapter presents the results investigations into the use of TET-SAT as a certification tool. Transnational conclusions reached concerning both the impact of TET-SAT as tested during the field trials and recommendations for further actions are summarised in the MENTEP Executive report (D.5.3): Summary of results of the field trials: The impact of the technology enhanced teaching self-assessment tool (TET-SAT). the report can be accessed here.

1. Summary of the MENTEP policy experimentation

The MENTE project (`Mentoring Technology-Enhanced Pedagogy') (2015-2018) addresses the need in Europe for teachers to be able to innovate using ICT in their classroom and for improved data on teachers' digital competence. MENTEP investigated the potential of an online self - assessment tool (SAT) to empower teachers to progress in their Technology - Enhanced Teaching (TET) Competence at their own pace. It was a cross-country policy experimentation designed to test the impact of using a self-assessment tool on teachers' digital pedagogical competency development. Running between March 2015 and May 2018 and 7,391, teachers from 496 schools in 11 countries took part in the experiment, the largest randomised controlled trial (RCT) to date, by numbers of participating countries, on teacher training.

MENTEP developed an online Technology Enhanced Teaching Self- Assessment Tool (TET-SAT) for teachers. In particular it:
1. Developed a reliable, user-friendly and sustainable prototype tool for teachers to self-assess progress in Technology-Enhanced Teaching (TET) competence;
2. Tested the tool's impact on TET competencies and peer learning in field trials;
3. Provided policy-makers with a national and EU picture of teachers' TET competence, its evolution over a school year and training needs;
4. Identified optimal conditions for the tool to be used;
5. Disseminated and plans to sustain the tool, the experimental approach and the findings through online courses on the EUN Academy and other support materials;
6. Investigated the feasibility of European-wide certification of the TET competence;
7. Increased national capacity in running field trials and policy experimentation

National public authorities in 11 partner countries participated in the project: Cyprus, Czech Republic, Estonia, Finland, France, Greece, Italy, Lithuania, Portugal, Slovenia and Spain. European Schoolnet, a network of 30 ministries of Education in Europe coordinated the project and FBK-IRVAPP, the research institute for the evaluation of public policies in Italy, was responsible for the quantitative evaluation of the project. The MENTEP TET-SAT is freely available as an Open Educational Resource and can be adapted and embedded in national education portals linked to a wider system of tools, resources and support offered to teachers. It can be also used as a dashboard collecting valuable data on training needs at school, local, regional, national or European level. Teachers interested in taking TET-SAT can register here: http://mentep-sat-runner.eun.org

2. Global self- evaluation results

2.1 Challenges

2.1.1 Methodology

1. Understanding the underlying methodology of running randomised control trials in schools was a challenge for all partners in the beginning of the policy experimentation. This process included understanding the underlying aim of a policy experimentation, which is about testing an intervention to inform policy making based on sound evidence. This approach was therefore very different from other EU projects and new to the MENTEP partners. Understanding and strictly following the sampling and research protocol was new and challenging in this respect. Some partners mentioned in the beginning that it would be easier to work with a convenient sample.

2. The research goal was also considered as very ambitious, especially the objective of measuring a possible peer effect, which posed additional challenges on the sampling/selection process of inviting teachers to the surveys.

3. The coordinator and IRVAPP took considerable time to explain to partners the approach, methodology and importance of randomisation and reaching the participation threshold both at EU and national level so that partners could interpret data at national in additional to overall level.

4. Partners mentioned that it took some time to form common ground among each other. This process required negotiations between partners, the coordinator and IRVAPP, the responsible partner for the evaluation.

2.1.2 Provision of lists of schools and teachers for the sampling

1. Schools and teachers who participated in the MENTEP policy experimentation were randomly selected. National Public authorities had to provide lists of schools and teachers to IRVAPP. This process was time consuming and challenging for several reasons; first, the lists were not easily available in all countries, sometimes not up to date, and fields needed to fit the requirements of the sampling protocol. Secondly, the provision of lists required collaboration with specific departments or regional authorities.

2. Moreover, the lists provided in May 2016 to IRVAPP needed to be updated at the beginning of the school year in September 2016 to cover any changes

(e.g. replacement of teachers), which was a lengthy process for all involved, partners, EUN and IRVAPP.

2.1.3 Building the TET-SAT

1. Building the TET-SAT, the intervention to be tested, was a collaborative process appreciated by all partners. Face-to-face meetings, aimed to build the tool based on a systematic mapping of existing tools, related to national curricula, together with input from scientific experts in order to design the core content of the tool were crucial to succeed in this process
2. Agreement on the main areas, competencies and the levels was a challenge, particular given the short timeframe of building the tool.
3. Moreover, providing high quality translations of the tool, which are easy to understand for teachers in their national context was a challenge for partners.

2.1.4 The recruitment of schools and teachers

1. The most important challenge all partners faced and which was extensively discussed, especially at the mid-term review, was the recruitment of schools and motivating teachers to participate in the experimentation. Several difficulties in this process were specified by public national authorities.
2. *The school context for surveys* is difficult especially when economic difficulties and salaries for teachers are frozen (e.g. in Portugal) or when there is no further funding or equipment for schools involved. Moreover, as partners pointed out, there is an overload of work in schools and they are confronted with many surveys in general (e.g. Finland).
3. *Involvement of the school head:* The involvement of the school head in recruiting teachers was crucial. Some countries mentioned that it was easy to engage the school head, but not the teachers. However, in other countries schools only participate in projects that are obligatory, which was not the case for the MENTEP surveys. In the Czech Republic, it was very difficult to persuade school heads. If the school head was engaged, the teachers more or less participated according to the National Coordinator in Finland.
4. *Communication with schools and teachers* turned out to be a complex process for several reasons.
   a. First, as regards the **communication channels,** communicating solely by email with schools and teachers was not always sufficient, as emails to school heads can get lost at the secretary level, teachers sometimes used different emails for communication and not only the one provided for the purpose of the project. *(NB one email was*

required to serve as the unique identifier for the participation in the surveys and TET-SAT to track participation.) In many cases, national coordinators and partners additionally called the schools to inform about emails that were sent out to teachers, which was time consuming and not always possible when addressing a large number of teachers.

b. Second, **being clear and explicit about the research** to teachers and schools was a clear requirement. A major message to be communicated to schools and teachers was that the surveys and TET-SAT did not aim at evaluating the teachers' and their level of skills, but to test the impact of the tool. Moreover, teachers should feel trusted that the information provided is kept anonymously. In addition, the content of the letters to schools and teachers needed to be carefully drafted in order to find a good balance between information that can be provided and information not to be disclosed, that not all teachers should know in advance in order to avoid bias and contamination between experimental and control group. At some stages in the process, additionally explanatory letters had to be sent to teachers.

c. Third, **finding a good balance between push and natural take up of the tool** was sometimes difficult. As the process to participate in the surveys and in TET-SAT was on a voluntary basis, a careful approach was taken by the partnership and in close cooperation with the national coordinators to not raise the impression with teachers that their participation is controlled or pushed for especially as regards the use of the TET-SAT, which teachers should use because of their own interest.

5. *Time and timing* was mentioned also by the majority of partners as a major challenge in several aspects especially as regards the implementation of the field trials:

a. School calendar: holidays, exams periods are to be considered when dealing with teachers in schools. These are different from country to country and were sometimes difficult to match with the field trial implementation schedule.

b. Moreover, the policy experimentation asked teachers to respond to two surveys (Benchmark and Follow up Survey for the control group) and three different surveys to reply to for teachers in the experimental, which were additionally invited to use the TET-SAT. The time given to teachers to use the tool was therefore shorter than initially planned.

2.2 Success factors in running the policy experimentation

In the final global self-evaluation, partners identified key success factors in implementing the whole policy experimentation in practice.

2.2.1 Clear methodology and establishing a common understanding of the methodology among the partnership

Running a policy experimentation is complex and was new both to EUN and the partnership. A clear methodology and establishing a common understanding of it by all partners was mentioned as a key success factor by several partners. Partners appreciated that the coordinator had a clear vision and gave clear instructions at the different stages of the policy experimentation. EUN clarified on several occasions in the beginning and throughout the project the research question and how it will be investigated. As the Czech partner stated: *"The methodology of the project was quite clear. After we understood the process it was easy to follow instructions".*

2.2.2 The role of the national coordinator

In collaboration with the national public authorities in recruiting schools and teachers as well in supporting teachers during the field trials was crucial. Concrete actions taken by National Coordinators to ensure participation included:

- Contact and follow up with head teachers, inviting teachers, monitoring the take-up rate and inviting teachers from the oversample if necessary
- Correction of teachers' emails and extracting teachers' email addresses to be included in mail merges
- Following and respecting the protocol
- Modification of invitation letters (anticipation of problems, explanations and guidance)
- Sending reminder emails with instructions on the use of the platform
- Phone calls to schools to investigate non-completions
- Responding to personal messages from the platform and to teachers with technical problems

The approach to contact teachers was different from contacting head teachers, because contacting all teachers 1:1 was not feasible owing to their sheer numbers. National Coordinators contacted teachers via email based on standard text agreed by partners in the first place and invited them to take part in the Benchmark and Follow up Surveys. The MENTEP platform then sent a first automatic reminder to teachers for the Benchmark Survey. Afterwards National Coordinators monitored the activities of teachers, reminded them to fill in the survey, and contacted school heads to ask them to remind the teachers to do so if they had not already done so.

The following strategies were used by National Coordinators and partners to encourage participation of schools and teachers:

- Start with the initial sample of schools via a general school email and an email to the head teacher, follow up by phone to speed up the process
- Then contact oversampled schools (in case of rejection and as stated in protocol) by email and phone calls
- Attach a letter from the education ministry to the invitation letter to underline its importance
- Adapt invitation letters to the national context
- Draft personalised emails and reminders depending on the status of the survey responses
- Explain the project, the methodology and its scientific and innovative character
- Provide project updates to schools and teachers (e.g. in case of delay)
- Guarantee anonymity
- Highlight the low workload involved and that it is voluntary
- Be convincing about the overall benefits: school and competence development, improving teaching, the possibility of assessing competencies and access to training resources
- Providing sufficient information and striking a balance between experimentation policy and information needed by schools
- Develop a communication strategy (as done in Slovenia): a brochure, a national website, Twitter messages
- In some countries (e.g. Portugal and Slovenia) face-to face meetings with head teachers were organised, but this was not feasible in other countries

2.2.3   Addressing ethical issues

Ethical issues have been continuously addressed, namely being explicit about the research to the experimental and control group, the confidentiality of data, and pursuing the "no one forced, no one denied principle" for teachers. This meant that teachers could access all surveys and tools upon request- even if they were not invited because of their status, belonging either to the experimental or control group. Following this principle, teachers from the control group asking for access to the tool were granted access and assigned a specific status on the MENTEP platform, to avoid mixing their data with those of the encouraged teachers. Equally important, teachers from the test group were invited and several times encouraged to use the TET-SAT, but free to decide whether they wanted to so.

2.2.4   Effective management and support

Partners mentioned the importance of receiving quick responses to their questions from the coordinator EUN and the evaluation partner IRVAPP. IRVAPP had a key role in providing information and guidance with the research, EUN provided support and information to all partners in strong collaboration with

IRVAPP thus brokering the different perspectives from policy and research. The openness and flexibility of the IRVAPP team was also mentioned as a positive factor in this process.

2.2.5   A consortium collaboration based on trust

Partners pointed out that collaboration within the consortium grew throughout the project. Strong bonds of trust and respectful relationships were established. Several partners mentioned the meetings (with their timetabled exchanges of experiences), consortium collaboration and participation in the whole process as highlights of the project.

2.2.6   Agreement on the TET-SAT

The collaborative contributions and teamwork of national public authorities in developing the self-assessment tool and its underlying framework was an important success factor. Some partners pointed out that succeeding in agreeing on the content even with different national curricula was a good result of the project. Moreover, the Mentep self- assessment tool is considered to match well with national frameworks and to be a useful tool for different activities. "*We made a resource that teachers can use!*" (partner from Denmark).

2.2.7   National workshops

The national workshops were a clear benefit to the project and crucial for discussing the evaluation results and next steps for TET-SAT with partners and a wider group of national stakeholders. All partners valued the workshops held in their countries and found them very useful in two aspects: to brief others (often influencers or policy-shapers) not involved on the outcomes of the experimentation and receive their feedback, and to give qualitative feedback on the TET-SAT and lay the basis for the next steps. Detailed feedback from each country on the workshop and a summary of suggestions for TET-SAT is annexed. *"I was impressed by teacher's interest. The national workshop was a good one. In Finland we have several systems (Opeka, TET-SAT, Dig.comp). I would like to see them all combined"* (Finnish National Coordinator).

In short, the role of **national public authorities, national coordinators and school principals** to promote teachers' participation was crucial. Overall, the dedication of all partners, the openness of everybody to different national contexts and fields of work combined with flexibility and initiative shown by the National Coordinators in cooperation with IRVAPP and EUN was the key to success and highly appreciated.

2.2.8 Capacity building

A very positive outcome of running the policy experimentation was the professional learning experience it provided for representatives of national public authorities themselves: **being involved in a policy experimentation.** All partners said they had been on a steep professional learning curve; they also learnt how to their organisation could run a policy experimentation involving field trials. The Finnish partner described the process of putting into practice a policy experimentation involving randomised control trials as an "eye-opening experience". Professional learning gains mentioned by most partners included more knowledge about how to run an experimentation: the research questions, the sampling process, managing data, and so on.

Moreover, partners also considered it as an achievement and learning experience to agree on a tool and develop it as part of European cooperation. Some partners referred to learning on how to tackle challenging translations or being a work package leader. Having "real" data about teachers because of the policy experimentation was appreciated by all partners. Partners also felt that they developed the capacity to spread knowledge about the content within their organisation, talking to other stakeholders, and they received positive feedback.

When asked about highlights of the project, partners mentioned, after the consortium collaboration and participation in the process, the final high response rate in the Follow up Survey, the respect of privacy and anonymity of individuals' results, and the stories told by teachers about how TET-SAT helped then improve their practice and think about their work and the uniqueness of the project.

2.3 Recommendations

Partners concluded with some recommendations to be considered in the future when designing a policy experimentation.

2.3.1 Build in sufficient time

Partners mentioned that it would be better to build in more time for this kind of experimentation, especially to include some buffer time which allows to have more time for teachers to actually test the intervention. In the case of MENTEP, the TET-SAT. Developing the TET-SAT itself was a considerable challenge, which succeeded as the evaluation outcomes show, the tool is appreciated by teachers. However, more time would have been needed in the beginning to design the tool and in the implementation phase to test the tool. Another way to tackle this challenge is to use an existing tool or measure to be tested as part of the policy experimentation. In general, some partners mentioned that 3 years for running this type of policy experimentation is too short in terms of preparation, implementation and follow up and suggested it should be extended to 4 or 5 years, with the additional benefit of investigating longer-term impacts.

2.3.2   Qualitative investigations to supplement the quantitative data set

Some partners recommended building in a qualitative element to the surveys and complementing the quantitative approach with some other form of qualitative data collection. The Finnish partner explicitly mentioned that teachers would have welcomed this opportunity as part of the survey. Other partners highlighted that it would have been difficult to analyse in open-ended questions in a quantitative survey and suggested to go for focus groups instead in order to supplement the quantitative data with qualitative data. MENTEP in fact added a qualitative focus to supplement the evaluation results and carried out online focus groups with teachers who used the TET-SAT.

2.3.3   Investigate further random selection versus a convenient sample

Some partners wished to investigate further if there was a different way to select schools and teachers in order to reach out more directly to teachers and let schools as a community decide whether to take part in the experimentation or not. This would also enable the steps involved for the sampling to be reduced (providing a list of schools, etc., which was very challenging and time consuming). On the other hand, partners thought it was very important to stick to the randomisation: It was also important to reach out to teachers who normally do not reply and to be able to generalise the results for the target population. "Randomisation had a good effect since this put us in contact with other teachers" (National partner from Portugal).

2.3.4   Include scientific expertise

The project showed that a policy experimentation requires scientific expertise at different stages of the project and in different areas. Partners mentioned that including colleagues with statistical knowledge was important.

Translations of the tool were likewise managed at national level to ensure high quality and most of all to make the tool fit to national context, which could be provided best by those involved in the process of designing the tool.

The design of a self-assessment tool required the expertise of the scientific committee members (as provided throughout the project and in the beginning as part of a literature review) and additional expertise when designing the self-assessment items as provided by the Norwegian partner and supported additionally by a Finnish and Czech researcher. The MENTEP scientific committee member also provided additional value in providing a vision for developing a sustainable tool base on a bottom-up approach involving teachers in the creation of practice exemplars underpinning the TET-SAT. The scientific committee

member specialised in impact evaluation supported considerably the interpretation of findings.

2.3.5   Contribution to evidence-based policy making

There is strong evidence from the national public authorities' feedback that the results of the policy experimentation have had an impact on national policy. The results are taken into consideration and are linked to the implementation of national policies such as linking the TET-SAT ecosystem to the national resource database, the tutor teacher framework or the preparation of new curricula, as in Finland.

The content of the MENTEP TET-SAT is already closely linked to national frameworks and countries are investigating how it links to the upcoming DigCompEdu framework from the European Commission. As partners stated, the project provided information about digital competence assessment and helped to develop a better overview of digital competence assessment and development for participants and policy-makers. It enabled project participants to understand more models and tools to assess digital competence, to have a more critical view based on a deeper knowledge of the topic. It provided relevant information focused on teacher training to policy-makers. As the Czech partner said: "*We have good data now. We can see that self-assessment has an impact on teachers and that teachers need more training, which requires actions at national level.*"

3. Results: TET-SAT, certification and future prototyping

Work in WP6 included investigating certification instruments in order to identify the characteristics of those that are widely used and recognised in education. A follow-up activity developed a proof of concept of an interactive application to measure TET competence, which was prototyped in WP9.

3.1 Certification

In order to analyse existing certification instruments a survey was developed and responses provided by partners in 14 countries. D6.1 describes the results in detail.

Results indicated that professional development (PD) tends to be linked either to a salary increase or promotion, or both. There is a wide range of PD providers, most commonly universities, ministries, public bodies and commercial companies. Online PD exists in all countries although to a limited extent in some and face-to-face PD tends to take place in schools and to last one day or less. PD also tends to be compulsory, but is not in five countries. Where it is, it amounts to the equivalent of 18 to 35 hours a year typically, though can be as many as 12 days (in the Czech Republic). In some countries restrictions are placed on teachers' choice of CPD courses, while in others there is more flexibility and devolved choice to schools or teachers themselves. Online courses are compulsory in only three countries (France, Portugal and Scotland).
In almost all countries, courses are reviewed for official approval by government, university or an official body; an external university or MoE (or a MoE regional centre) assesses and certifies achievement. The typical accreditation is a certificate issued by the training provider, validated by an official body. There are closed and quantitative approaches to testing as well as open and qualitative approaches. Teacher assessment online is based on closed tests, situated tests, simulations and open-ended answers. In open-ended tests (production of artefacts, lesson plans, etc.), learners are generally evaluated by experts (tutor, senior teacher). No country has a system to verify the identity of the examinee during the test, and if a country said they had, they didn't specify how in practice, e.g. proving one's identity in a virtual learning environment. No countries currently use intelligent agents or other automatic assessment approaches and in only four are there forms of peer assessment.

Some countries have digital platforms for training teachers in digital competences and MOOCs are an emerging model of training, with peer assessment. Other countries have dedicated platforms for training teachers in their first year of teaching and evaluation is by experts or experienced teachers. Assessment of teachers' digital competence tends to be qualitative, for example portfolios and diaries or real-time assessment based on observation of work in class and of collaborative work online. Specific rubrics are considered useful for moderating

qualitative assessments, combining done/not done criteria, points and ratings which give different weights to different behaviours. External assessment can be accompanied by self-assessment activities to situate competence development within a responsible and self-reflexive attitude and not threaten professionalism. In some countries there can be scepticism about external assessment, perceived as a formal or intrusive practice not linked to a personal attitude or aim. Rarely at present is there a digital certificate for competences achieved, but in Open Badges are used in three countries, and Slovenia uses an e-card which profiles teachers' progress.

In parallel with the survey, a critical review was conducted of ten certification instruments. It found that general digital competence certification (e.g. ECDL) is more widespread than pedagogical digital competence certification. Although frameworks such as the *UNESCO ICT Competency Standard for Teachers* emphasise the situational nature of the competence to assess, the most common type of assessment is a written test, online or face-to-face. I-skill certification is an exception: although this certification is not directly for teachers, the real-time and scenario-based assessment task may be relevant in a future cross-border certification model. The review concluded that there are few models that can be used as a basis for the implementation of a new certification model linked to TET-SAT and that there are few examples of certification that include authentic assessment

3.2   Prototyping a tool to measure TET competence

The D6.1 report ended with recommendations for a MENTEP prototype which was developed in WP9. D9.2 specifies a mini-prototype for developing, assessing and certifying teachers' digital competence.
The mini-prototype was developed by INDIRE. Called EDMONDO, it is a 3D virtual classroom environment enabling teachers to demonstrate TET-SAT competences in simulated classroom environments using avatars of themselves and students, instead of measuring their skills using textual items as in TET-SAT as developed in MENTEP.
A group of 90 teachers in Italy used EDMONDO to develop and assess three specific TET competences:

> 1.2.1. Plan, use and evaluate digital tools to be integrated in the teaching and learning process (ICT devices, digital tools and software, Internet and networks)
> 1.1.4. Designing personalized student activities (according to needs of students: their interests, learning preferences and styles (sound, images)).
> 1.1.3. Designing engaging learning activities with ICT.

Each EDMONDO session can involve up to ten teachers, the first session lasting a week at the end of which teachers are invited to share their work with the other participants and to self-evaluate their competence through the TET-SAT tool, to

be embedded in the virtual space. At the beginning of the week, teachers take part in a "welcome meeting" in the virtual space, at which a tutor shows them the space and gives instructions on how to move inside (how to move, move objects, create objects). The tutor also encourages participants to meet each other during the work, visit the colleagues' space and interact with the community during the experience by talking, chatting and sharing content.

A typical task is to manage a personalised lesson with a class including three special needs students, four high achievers, two with a visual impairment, six average students and two students for whom Italian is not their mother tongue. A visual short biography of each student is viewable in order to have a deep understanding of the social and pedagogical needs behind the classroom. A repository of different tasks is provided in order to allow teachers to choose which situation/problem to work on. The teacher has a week to work online, choosing how to configure space according to the students' preferred way of learning, which content to use for different students, which devices and multimedia channels to use, how to divide students in groups and manage interactions and which output to ask each student (or group) to produce. After the activity, teachers self-assess their competence in a special area of the school where there is a screen on which they see the TET-SAT tool: they can answer by simply clicking on the response most suited for them.

After using the virtual space, teachers rated their competence in six areas 0.5 points higher on TET-SAT's 1-5 scale.

TET-SAT Competence	Evaluation before	Evaluation post	Delta
Implement ICT in cross- curricula approaches/project work	2,59	3,18	0,59
Teachers competence to use and adapt ICT based assessment tools to support different types of assessment (formative, summative)	2,24	2,79	0,55
Knowledge of instructing students to conducting self and peer assessment of their own work and the work of other with the support of ICT.	2,05	2,56	0,51
Teachers knowledge, understanding and use of programming languages Competence: Capability to use and teach programming	2,13	2,63	0,50
Develop, implement, reflect and redesign ICT supported teaching and learning strategies with ICT	3,38	3,85	0,46
Applying teaching methods that support students in the reflection of their learning with the use of ICT (Metacognition supported via blogging, vlogging, etc.)	2,29	2,75	0,45

Beyond developing specific digital competences, immersion in a virtual space also allowed teachers to develop meta-competences such as risk taking (attitude toward the unknown and capability to explore it) and learning to learn. Such competences are important in developing specific pedagogical digital competences.

Discussions on further developing and using EDMONDO took place at MENTEP workshops and the final conference. Participants were positive and welcomed the fact that the mini-prototype is freely available and adaptable, but observed that to be used in other countries it would have to be translated and expert programmers

and animators would be needed. These discussions and experience with EDMONDO led to specifying ten possible changes in TET-SAT in a future version (documented in D9.2), for example adding video clips illustrating competence levels, integrating eco-systems more systematically, introducing peer assessment, creating versions for initial teacher education (this is taking place in the ITELab project), and aligning with developments in technology and in digital competence frameworks.