Transnational Comparative Assessments in European Higher Education

TEACHER EDUCATION

Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe

2023

Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe CALOHEE Phase 2

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Tuning Educational Structures in the World

The name TUNING was chosen for higher education projects and initiatives to reflect the idea that universities do not look for uniformity in their degree programmes or any sort of unified, prescriptive or definitive curricula but simply for points of reference, convergence and common understanding. The protection of the rich diversity of higher education in Europe and the world has been paramount in the Tuning initiative from its start in 2001 and in no way seeks to restrict the independence of academic and subject specialists, or undermine local and national academic authority.

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Introduction

The context of higher education has been changing during the last 25 years, as a result of rapid advances in digitalization and methods of communication, job market disruption, politics and recently COVID-19, disruptive conflicts and inflation. The need for change of higher education learning has become even more imperative. Awareness of these challenges go back to the 1990s and resulted in EU initiatives and the Sorbonne/Bologna Declarations. This led to the call for developing a European Higher Education Area (EHEA).

A cornerstone of developing a EHEA is trust and confidence. The Area was launched in the context of the Bologna Process. This was thought necessary to enhance the quality and relevance of higher education for individual development, employment opportunities, societal needs. Another aspect was and is to have instruments in place to facilitate large scale credit mobility and recognition. Towards this end four key instruments have been developed: the *European Standards and Guidelines for Quality Assurance*, the *European Credit Transfer and Accumulation System* and the *Lisbon Recognition Convention* as well as two parallel and overlapping qualifications frameworks, the *Qualifications Framework for the European Higher Education Area* (QF for the EHEA) and the *European Qualifications Framework for Lifelong Learning* (EQF). The first defined in the context of the Bologna Process and the second initiated by the European Commission. Both have been endorsed by national authorities.

Qualifications frameworks are the foundations of the other instruments. They offer the reference point for the academic structure (curriculum design and credentials), quality assurance and accreditation as well as recognition of (period of) studies. Qualifications Frameworks encompass all three cycles of higher education learning.

In parallel, two major initiatives were taken, namely, the development of the QAA-UK Benchmark papers and the *Tuning Guidelines and Reference points* at subject area (discipline) level. These proved to be pivotal for giving substance to develop and enhance degrees and to move from expert driven education toward student-centred and active learning. Both initiatives were developed by groups of academics, however, many academics have found it difficult to deal with this fundamental change of the learning paradigm. Lack of initial training and continuing professional development have continued to hinder large scale change. This has been exacerbated by the over-complex structures in place. That is having two European overarching frameworks and subject ones which are not fully aligned. This might have drained away full adoption of the instruments available.

To respond to this concern, a proposal has been made by the Tuning initiative, called *Measuring and Comparing Achievements of Learning Outcomes in Europe* (CALOHEE), to make a deep analysis of the strength and weaknesses of the existing models. This has resulted in *General Tuning-CALOHEE Qualifications Reference Frameworks* for all three cycles, as well as aligned reference frameworks on the level of subject areas. An important driver for developing these frameworks has been to make the implicit explicit.

These much more detailed frameworks, building on the existing ones, offer the opportunity to encompass present and future challenges. In addition, ten subject areas have been, and are, developing Subject Area Learning Outcomes Reference Frameworks. These offer a template and menu as to what can be learned in the context of a degree programme.

This resulting set of reference frameworks will reduce complexity, offer greater clarity and guidance for programme design, delivery and quality assurance.

However, qualifications reference frameworks are only part of process of change. As fundamental and as a consequence of the change of the paradigm of learning, is revisiting the way learning, teaching and

assessment is designed and undertaken. This has been done too in the context of the CALOHEE initiative, supported by the European Commission.

Preparing international comparative assessments

Mutual recognition and mobility go hand in hand and therefore need evidence of comparability of learning and teaching, but in particular assessment, which should obviously be aligned.

Although General Qualifications Reference Frameworks, Subject Area Qualifications Frameworks and related Subject Area Learning Outcomes / Assessment Reference Frameworks offer clarity regarding the levels of learning, they do not offer the evidence whether the related learning is actually achieved. To achieve the latter some form of assessment must take place, primarily to assure that across the spectrum of countries and institutions comparable learning in terms of its outcomes is taking place.

On the level of achievement, it is possible to make a distinction between the individual learner, the subject, the programme, the HE institution and the country (system level). The aim of the CALOHEE project has been to develop diagnostic international comparative assessments for five disciplinary fields, that is civil engineering, history, nursing, physics and teacher education.

These assessments provide a diagnostic tool to allow for a comparison to be made regarding the level of achievements of the different descriptors as included in the frameworks. The focus is here on the degree programmes in the context of the subject area. The results of the exercise will provide valuable evidence-based information for academic staff responsible for delivering the programme to allow for further enhancement.

The discussions among international groups of subject area experts show us that disciplines have their own requirements. There are obviously specific contextual settings, cultural and national conditions. For example, the field of history only allows for a high level of abstraction, whereas nursing, civil engineering and teacher education are usually regulated professions with all that that entails.

Assessment of students is perceived as a highly sensitive issue and the prime responsibility of the academic when the programme is purely theoretical. However, in professional and regulated programmes assessment of performance, the responsibility is shared with responsible professionals. Similarly, while academics are responsible for implementing a programme, they are required to involve relevant stakeholders. This requires coordination regarding programme design, delivery, evaluation and student-assessment and grading. This may influence academic freedom for regulated professions. Although all programmes will have their own profile, there should be common standards meeting international reference points. This approach intends to do justice to the EU motto, introduced in 2000, ‘unity in diversity’ which is clearly not standardisation.

In this context, the relation should be highlighted between the graduate profile and the learning outcomes of an individual programme and its units. This reflects the different missions of institutions and programmes, covering the full spectrum from research driven programmes to applied ones. This can be visualised in a spider web in which individual degree profiles, programme and unit learning outcomes are matched with the CALOHEE subject area qualifications refence frameworks for all three cycles, representing the graduate profile. These spiderwebs show varieties, which are both system and programme related.

Regarding the system level, although pursuing the EHEA, it has to be fully understood that we are dealing with national states which historically have their own educational philosophies, cultures and traditions. Regarding general philosophies we can make a distinction between the Anglo-Saxon, Humboldtian, Napoleonic and Soviet models. These traditions are deeply rooted and have an ongoing impact on the way

learning, teaching and assessments is constituted, although convergence is taking place. This convergence – implying international alignment at subject area / disciplinary level - is commended by global societal developments and needs, to which the higher education sector and its degree programmes are expected to respond.

At programme level, countries might still define conditions which have to be met and/or set limits regarding the autonomy of the professional. This has implications for the (transnational) assessments to design.

As a consequence, in valid transnational comparative assessment both communalities and differences should be taken into account, as they have been detailed above. In this setting, lessons have been learned from the OECD *Assessment of Higher Education Learning Outcomes* (AHELO) feasibility study, implemented in the period 2010-2013, which obtained severe criticism from policy makers as well as academics, because it did insufficiently recognise the wide range of system and programme differentiations.

The disciplinary experts, involved in this CALOHEE project, are fully aware of the diversity in the way learning, teaching and assessment is modelled, although at the same time agreeing on the descriptors as defined in their subject area qualifications reference frameworks and far more detailed learning outcomes / assessment reference frameworks. Finding common ground - doing justice to the differences - has taken considerable time, but proved to be conditional for developing useful (transnational) assessments.

Departing from the objectives of the Bologna Process and the EHEA that programmes should be outcome based, the assessments developed, intend to cover high level generic and subject specific competences, that is applying knowledge and skills in real life situations – work place and society – requiring 'autonomy' and 'authority'. Authority reflecting self-confidence to take position and act accordingly. In other words, the assessments should allow for evidencing a critical mindset in the context of a particular academic field by focussing on 'measuring' high level skills and competences in the context of the subject area and its domain of knowledge, such as critical thinking, analyzing and synthesizing, making and criticizing an argument, problem solving, observing and analyzing behavior, operating in conjunction with others. All perceived from two angles: the academic field involved and active societal participation. Relating to present and future needs of society, a much wider scope and approach than 'disciplinary knowledge and skills' and 'critical thinking' as had been tested in the global OECD-AHELO feasibility study.

This requires taking into account 'burning societal issues', for which in the context of the CALOHEE projects separate initial reference qualifications frameworks were prepared, meant to serve as sources of information and inspiration. Based on academic literature and policy documents, it identified five current topical issues, that is:

- Societies and Cultures: Interculturalism
- Processes of information and communication
- Processes of governance and decision making
- Ethics, norms, values and professional standards
- Sustainable development (climate change)

These topical issues should be integrated in the actual learning, teaching and assessment processes doing justice to the academic field involved and avoiding overload of learning.

From the start of the CALOHEE project to develop transnational assessments and testing, the aim has been mutual. The outcomes should allow for real testing to be applicable in different contexts, ranging from an individual HE education programme to transnational testing. Intended to be inspirational – offering new models of assessment – they should also be aspirational by covering topical issues.

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As has been indicated already a distinction is made between the development of models of assessment and actual assessments and testing. Testing is defined here as the application of the assessments prepared, by asking groups of students to take a test. According to the project aim, actual testing was not foreseen in this phase. This project focussed instead on preparing the groundwork for testing whether of theory or in the workplace where this is relevant in the student programme.

In the context of the CALOHEE Phase 2 project assessment models and assessments have been prepared for the following five subject areas: Civil Engineering, History, Nursing, Physics and Teacher Education, nearly covering the full range of academic fields.

The assessments have been developed to measure the achievements of generic and subject specific competences at the end of the bachelor / first cycle.

Structure of the assessments

The five subject area groups have followed a comparable model and approach to implement their tasks. Due to the COVID-19 pandemic initially the meetings took place online. Because more fundamental discussions were needed to define common ground requiring deep intensive reflection over a longer time span, only limited results could be obtained. Three multi day face-to-face meetings were needed to come up with actual results. These meetings took place in the period April – September 2022 and were supported by an additional set of online meetings.

A first step has been to match individual degree programmes with the subject area qualifications reference framework published in 2018. A follow-up has been to re-visit their academic field making use of the 2018 edition of the brochure *Tuning Guidelines and Reference Points for the Design and Delivery of Degree Programmes* for their subject area. This proved to be a learning process in itself, developing partly new insights requiring accommodations of the materials prepared earlier.

The third step was to identify the (sub) descriptors included in the qualifications reference framework and learning outcomes / assessment reference framework, best suitable for developing transnational assessments, but also key to the subject area. This again required fundamental and deep reflections. The next step was to identify the most appropriate mode(s) of assessment and to decide on its feasibility. Independently of the mode of teaching and learning - class room, online, hybrid - different assessment formats were suggested to apply, e.g. scenario testing, observation, critically responding to arguments / texts, analyzing a problem and coming up with possible solutions, etc. This to be followed by describing / documenting the overview of items and approaches (independent of existing individual degree programmes) and the choices made. In practice, to:

- identify for each of these items the modalities for assessment: learning/teaching required, the best ways of assessment and the criteria for assessment.
- document the rational for selecting a particular competence; describe the actual test
- constitute a set of assessments reflecting a key part of the descriptors as included in the qualifications reference framework. The result should be a variety of assessment formats for the competences identified.

The outcomes of the work established by the five subject area groups are presented in separate publications for each of the five subject areas involved in the CALOHEE Phase 2 project: Civil Engineering, History, Nursing,

Physics and Teacher Education. The reports of these five disciplinary groups follow a comparable format, but each group has taken the freedom to make its own choices in presenting its findings in doing justice to the process of reflection and discussion. This brochure presents the work established by the Subject Area Group of Teacher Education, coordinated by dr. Julia González Ferreras, EDIW, Brussels and dr. Maria Yarosh, University of Groningen, The Netherlands, with support of prof. Aidan Seery, Trinity College Dublin, Ireland.

CALOHEE Project Team
Groningen, 2023

0. The Tuning–CALOHE2 Teaching Education Subject Area Group (2020-2022)

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1. Introduction to the Subject Area of Teacher Education

In 2015-2018, in the framework of the CALOHEE project (https://www.calohee.eu/), an international group of Teacher Educators created the Reference Frameworks for Teacher Education programmes of Level 6 and 7 (of EQF/QF EHEA).[1] Two versions of these frameworks were created:

1) Qualifications Reference Frameworks for Teacher Education - with descriptors for *knowledge and understanding*, *skills*, and *autonomy and responsibility* for the six dimensions identified as key for any Teacher Education programme graduate profile; and

2) Assessment Reference Frameworks for Teacher Education - in which the six key dimensions were broken down into sub-dimensions and descriptors were provided for *knowledge and understanding*, *skills*, and *autonomy and responsibility* at the level of sub-dimensions as well.

This implied (1) reaching agreements on key dimensions of the different graduate profiles for Teacher Education programmes within EHEA, (2) deciding on sub-dimensions within each key dimension, and (3) expressing each sub-dimension and dimension in terms of a) responsibilities future teachers could be expected to take on right after graduation, and b) the skills and knowledge required to be able to perform with the desired level of autonomy.

The Qualifications Reference Frameworks are designed to give an overview of what Teacher Education is about - what kind of persons and professionals Teacher Education programmes in EHEA want to prepare. The Assessment Reference Frameworks go a level deeper by "mapping out" the different choices Teacher Education programmes might make in what to focus on within each key dimension of the graduate profile.

The two types of subject-specific assessment reference frameworks - but especially the more detailed versions (Assessment Reference Frameworks) - were created in order to stimulate and support quality enhancement initiatives at the level of individual programmes. The frameworks offer those responsible for programme revision a reference of what an international community of experts considers most relevant for a particular subject area at a given moment in time. Each programme is free to make its own choices in terms of the learning outcomes to be aimed at; what is important is that - thanks to the existence of internationally accepted reference documents - these choices are informed by the full picture of what is valued internationally. In other words, to be recognised as a Teacher Education programme within EHEA, each Teacher Education programme must help students to develop competences related to each of the key dimensions. The 'level' aimed at by the time of graduation - knowledge and understanding, skills, or autonomy and responsibility - is for each institution to decide given their own context (national regulations, the system of licencing, the amount of autonomy given to student teachers during internships that form part of their educational programme, etc.). Each key dimension is also divided into a number of sub-dimensions, to further articulate diversity within the field. Again, each programme decides which of the sub-dimensions to address and - within those addressed - which to give more attention to. The Reference Frameworks give

[1] González Ferreras and Yarosh (2018), TUNING Guidelines and Reference Points for the Design and Delivery of Degree Programmes in Teacher Education; available at: https://www.calohee.eu/wp-content/uploads/2018/11/1.2-Guidelines-and-Reference-Points-for-the-Design-and-Delivery-of-Degree-Programmes-in-Teacher-Education-FINAL-v2.pdf

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Teacher Education programmes - regardless of the level of education students are prepared to teach at and the subjects they are prepared to teach - a shared framework for visualising commonalities and differences in intended graduate profiles.

The CALOHE2 project aimed to go further in terms of creating tools that can inspire Teacher Education programmes to enhance their relevance. First of all, the usefulness of the Reference Frameworks created had to be checked. The CALOHEE project team articulated first **what** Teacher Educators see as the most important for any graduate in this subject area. The thinking behind this was that such reference documents can help existing programmes to check the extent to which their graduate profiles and programme learning outcomes are in line with international tendencies. The CALOHE2 project started by inviting Teacher Education programmes in different EHEA countries to engage in such a reflection through 'mapping' their programmes/ programme learning outcomes onto the Tuning Assessment Reference Frameworks. The exercise proved indeed an insightful one, that we hope can help internal discussion and support revision or self-assessment of programmes. For lessons learned, see Yarosh & González, 2020.[2]

The next question was - how can programmes who wish to revise their graduate profile be supported, especially if they make a decision to go beyond equipping their students with knowledge and understanding. Many Teacher Educators would certainly like their students to develop skills and even wider competences ('learning to be'/autonomy and responsibility) while they are still at university. However, if programme learning outcomes are formulated at the level of *skills* or *autonomy and responsibility* and international recognition is of interest, programmes must be able to show that their students actually achieve these learning outcomes. How are Teacher Education programmes currently doing this? How can this be done in different educational contexts? Is there a way not only to aim for internationally recognised learning outcomes, but also to assess student achievement of these in ways that will be recognised beyond one's national borders? These questions were at the core of the CALOHE2 project.

What CALOHE2 Teacher Education Subject Area Group did was to seek jointly for assessment tasks, formats and tools that can be used in more than one national context to assess student achievement of what Tuning Assessment Reference Frameworks defined as *skills* and *wider competences* every Teacher Education programme can consider helping its students to achieve. The group included Teacher Educators from (in alphabetical order): Austria, Cyprus, Czechia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Poland, Portugal, Slovenia, Spain, and Turkey. Teacher Educators who have been involved in joint discussions about actual assessment possibilities and have contributed to the preparation of the present report are listed in the *Subject Area Group Membership* section below.

The present brochure shares the outcomes and outputs of many hours of discussions that are meant as a starting point for further joint initiatives that Teacher Education programmes across the EHEA can engage in. The structure of the report is as follows.

[2] Yarosh, Maria & Julia González (2020) Comparing desired graduate profiles of Teacher Education programmes with the help of the CALOHEE Reference Frameworks. CALLHE2 project report available at https://www.researchgate.net/publication/349368092_Comparing_desired_graduate_profiles_of_Teacher_Education_programmes_with_the_help_of_the_CALOHEE_Reference_Frameworks

In Chapter 2, we outline a number of challenges that have accompanied us throughout the project lifetime: a number of core issues related to how Teacher Education is currently conceived and organised in different countries and at the level of the EHEA as a whole. Some countries prepare most of their teachers 'together', while others have very different programmes for primary (and pre-primary) teachers, on the one hand, and secondary/high-school teachers, on the other. This is linked to the level at which Teacher Education programmes are offered. Here, some countries offer initial Teacher Education programmes at Level 7 only, while others have them at Level 6 only, and others have two cycles of Teacher Education programmes, both of which must be completed, or offer long-cycle Teacher Education programmes only. Furthermore, different EHEA countries also occupy different points of the 'licensing' continuum. In some countries Teacher Education graduates start working as (fully licenced) teachers directly upon completion of a Level 6 Teacher Education programme, while in other countries graduates of Level 7 programmes still need to teach for some time in an 'auxiliary' role after they obtain their degree; and only then are they eligible to go through the licencing procedure. Related to these different conceptions of how much autonomy a Teacher Education graduate is allowed to have within the system are the different conceptions of internships or school placements. Not only do countries/Teacher Education programmes differ in terms of lengths or number of these, also the type of internship/placement or what student teachers are expected and allowed to do while at schools is different from country to country. The *Complexities in comparing Teacher Education programmes from an international perspective* section explain(s) this in more detail, pointing out the repercussions this had for the CALOHE2 Teacher Education group discussions about assessment tasks that could be used across different Teacher Education programmes and traditions.

Chapter 3 comprises the revised versions of the Assessment Reference Frameworks for Teacher Education. It explains the rationale behind the changes introduced and includes a proposal for a more conceptual revision that the CALOHE2 Teacher Education group wants to share with the whole EHEA Teacher Education sector. A much bigger working group will probably need to be set up in order to advance this discussion at the level of the EHEA, yet it is important to mention in the present publication already how such a revision can allow to make a step forward in proposing internationally comparable assessments for Teacher Education graduates.

Chapter 4 reports on the initial explorations that the CALOHE2 Teacher Education Group engaged in: collecting examples of good practices in assessing skills and wider competences, and reviewing what educational research tells us about possibilities and limitations for assessment tools/tasks to be used in international context. There are three associated appendices. Appendix 1 shows a comparison of assessment tasks used by teacher education programmes in contributing countries. Appendix 2 includes examples of good practice identified at the start. Appendix 3 comprises the guidelines for developing and evaluating assessment tasks.

Chapter 5 presents the assessment elements that the CALOHE2 Teacher Education Group would like to propose as possible solutions that different Teacher Education programmes across the EHEA can use. These are linked to particular *skills* and *autonomy and responsibility* descriptors of the Tuning Assessment Reference Frameworks for Teacher Education. These are offered by means of examples; first ideas that can show a way forward for Teacher Education programmes interested in fostering recognition of their diplomas, as well as the very quality of learning experience they offer students. Therefore, the processes followed are

also accounted for. We report on the steps made and the decisions taken in order to show how this work can be continued by other Teacher Educators beyond the CALOHE2 project lifetime and scope. The same process was followed for three (sub-)dimensions, considered sufficiently different as to enable the testing of the approach: (1) sub-dimension 2.1, which focuses on learning outcomes and constructive alignment (the 'grammar' of syllabus/curriculum development); (2) dimension 6, which focuses on lifelong learning - a much more abstract and complex aspect of graduate profile, but no less key if we want to prepare teachers capable of continuous professional development; and (3) sub-dimension 4.2, which highlights future teachers' capacity to help learners develop their intercultural competence - an increasingly important element of any graduate's profile in current circumstances.

The concluding section shares the group's critical analysis of the work carried out, both the potentiality and the limitations. It asks how Teacher Education in the EHEA can build on the lessons learned in CALOHE2, what challenges remain unresolved, and mentions some of the ways forward we have been able to envisage.

2. Complexities in comparing Teacher Education programmes from an international perspective

The CALOHE2 project aimed to develop an infrastructure which allows for comparing and measuring learning in a (trans)national perspective. Frameworks and instruments that do not account for contextual differences sufficiently may face a risk of severe problems of validity and credibility. To make levels of learning measurable, comparable, and internationally compatible, descriptors were formulated in terms of 'learning outcomes': statements describing knowledge, skills and (wider) competence levels reached at the end of a programme (Level 6, Level 7). In our attempts to develop and apply instruments in a 'measure-and-compare' situation (rubrics, assessment tasks), the group was very frequently confronted with structural limitations of this approach in the case of teacher education. Comparing different aspects of the quality of teacher education programmes repeatedly proved to be a very complex matter due to various reasons. In general, the challenging situation is due to the local, regional and national diversities of legal and social contexts. The complexity of teacher education comparison manifests itself in the diversity of legal foundations and frameworks; content and formulation of learning outcomes; models of teacher study programmes (including the role of teaching practice and the place of schools within the programme), together with the diverse levels required to achieve both formal qualifications and particular learning outcomes; teaching practice solutions; the practice of teaching and learning demonstrating itself in diverse traditions and styles as well as roles and attitudes of learners and teachers; and finally the unpredictable and rapidly changing circumstances and contexts.

Firstly, the degree of autonomy teacher education institutions have to define their learning outcomes, curricula and programmes differs from country to country, depending upon their national legal statutory context. In some cases, legal statutory foundations as well as curricula and learning outcomes concerning teacher education must comply with national standards set by ministries relevant for education or by teaching councils. In other cases, it is official (national, regional) bodies that set the framework for teacher education, whereby, universities or teacher education institutions have a degree of autonomy when formulating their learning outcomes and designing their own teaching programmes within an accreditation process.

Secondly, programmes for (initial) teacher education are located at different levels and places in the Higher Education system of the different countries. In many countries, it rests within the responsibility of a given higher education institution to decide whether they follow the concurrent or consecutive model of teacher education. In others, only one model is practiced in teacher education. Combined with the fact that in some countries teacher education programmes at Level 6 qualify for a teacher license, while in other countries this is only the case at Level 7, makes comparison difficult.

A third aspect of complexity is that country standards and regulations require a different number of hours for practice/practicum which is placed either concurrently or consecutively during the professional preparation period, and is conducted according to more or less specified procedures. In spite of the fact that

in all EU countries teacher education is seen as a process of lifelong learning, the level of authenticity of the practicum within (initial) teacher education differs (it differs depending on whether one has his/her own group of learners or whether one just observes the groups, does microteaching or interviews other teachers). Teacher training consists of a continuum of Initial Teacher Education (ITE), Early Career Support (ECS) and Continuous Professional Development (CPD). In addition to that, teacher education should be seen as a continuum, which includes initial Teacher Education, induction, and continuing professional development (European Commission, 2007; OECD, 2015). The role of initial Teacher Education within the institutions of higher education and its formal position within this ongoing process differs from system to system. As a result, in some systems an important element of vocational preparation is part of the initial process (before graduating), while in other systems vocational induction is more or less a postgraduate matter. These differences have important implications for achieving wider competences and possibilities to assess them as learning outcomes.

Finally, different countries or regions exhibit their specific traditions and styles – autonomous/regulated, egalitarian/hierarchical, competitive/cooperative, practice/theory-based, to name a few aspects – together with diverse roles and attitudes of learners and teachers. What adds to the complexity of 'tuning' teacher education in Europe is the rapidity and unpredictability of changes in social contexts necessitating different shifts and transitions in teacher education happening at different paces in different countries/regions.

All in all, because education (and as a consequence teacher education) is an emanation of the country's/ region's traditions and developmental processes, it is shaped in diverse ways, it proceeds along different tracks, and it is executed in many different ways. The fact that there exists no 1-on-1 relation between graduating from Higher Education and (for instance) licensing, results in international comparison of aspects of teacher education being a challenging issue.

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OECD. *Education at a Glance 2015: Global Launch*. 2015

3. Updated Assessment Reference Frameworks

The Assessment Reference Frameworks for Teacher Education programmes have been revised. The enhanced - 2023 versions - are presented below. Four types of changes have been introduced and are explained first. A further - more conceptual - revision has been contemplated by the Teacher Education CALOHE2 group, but would require an effort of an international group of Teacher Educators representative of all the EHEA countries in order to see how the formal Level 6 versus Level 7 distinction can be reconciled with the idea that what seems to count more in Teacher Education is ensuring graduates who are allowed to teach have reached what we call a **formal eligible teacher qualification status.**[3] The rationale behind this more holistic - and perhaps also more political - revision is briefly outlined after the two tables.

Four types of revisions introduced

Firstly, it was agreed that descriptors of the second and third columns - *Skills* and *Autonomy and Responsibility/Wider Competences* - had to be made more explicitly different from each other. This was achieved through introducing a new opening phrase for all the *Autonomy and Responsibility/Wider Competences*: "Commitment and sense of responsibility to".

This way two goals have been achieved:

1) the term 'capacity', which is quite often used as a synonym for 'ability'/skill, is no longer used - this was confusing in the 2018 documents;

2) the attitudinal component of the third column descriptors is highlighted, the emphasis is placed on 'learning to be', on aiming to help learners become the kind of professionals who are ready to take on such responsibilities and have demonstrated commitment to doing so, i.e. not only being able to do certain things, but actually consistently demonstrating required behaviour and authority.

Secondly, the frameworks were revised in the light of inter-subject area group discussions about a number of 'topical' issues to be addressed in every higher education programme: (1) interculturality/ constructive engagement with persons from diverse backgrounds and identities; (2) information and communication literacies; (3) governance and decision making; (4) ethics, norms, values and professional standards; and (5) sustainable development. The first four were considered to be well accounted for in the 2018 versions of the frameworks. The interculturality reference framework was used when working on sub-dimension 4.2 (see section IV below); and the discussion of the governance and decision making topical group helped simplify Level 6 sub-dimension 4.4 Social Leadership Autonomy and Responsibility descriptor (now: Commitment and sense of responsibility to act in a leadership role according to the needs and opportunities identified). Sustainable development, however, did not come to the fore in previous discussions and it was considered

[3] **Formal eligible teacher education status**: that point in preparation for the teaching profession when a candidate may apply to their licensing body to be entered as a new/probationary teacher subject possibly to a further induction programme

necessary to make this angle visible in a number of descriptors (sub-dimensions 1.3, 2.1 and 4.3), as well as add an additional sub-dimension (new sub-dimension 6.3 Resilience and Well-Being).

Sub-Dimension	***Level***	***Type of descriptor***	***New descriptor (the added part is highlighted)***
1.3 Policies and their implementation in an educational system	6	Autonomy & Responsibility	Commitment and sense of responsibility to critically reflect on educational policies, especially from the point of view of sustainability
	7		Commitment and sense of responsibility to critically analyse, reflect and contribute to the improvement of educational policies, especially from the point of view of sustainability
2.1 Curriculum development, evaluation and enhancement	6	Autonomy & Responsibility	Commitment and sense of responsibility to critically reflect on the impact of teaching decisions on the learner's future in order to make responsible syllabus design and enhancement choices, especially from the point of view of sustainability
4.3 Social commitment	6	Knowledge	Critical understanding of the teaching profession (mission) as a public service and its impact/ significance in a local & global context
		Skills	Ability to organise curricular and extracurricular actions and educational events as a response to social and global needs
		Autonomy and Responsibility	Commitment and sense of responsibility to contribute to the development possibilities for an educational institution and its social community and build a sense of social and environmental responsibility at individual level
	7		Commitment and sense of responsibility to contribute to setting situationally appropriate goals for the community and build a sense of social, environmental, and civic responsibility at institutional and local level

New sub-dimension 6.3 Resilience and Well-Being:

Knowledge	*Skills*	*Autonomy and Responsibility (Wider Competences)*
Advanced knowledge of factors contributing to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Ability to engage in behaviours and practices conducive to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Commitment and responsibility to cultivate personal well-being, and to foster an atmosphere in which teachers have autonomy and agency to create environments in which personal and professional well-being is valued and respected.

This being a completely new element for post of Teacher Education programmes graduate profiles, it was considered sufficient at this stage to propose one set of descriptors that can serve as a reference for Teacher Education programmes offered at both levels - 6 (bachelor) and 7 (master).

All in all, the following colour coding scheme is used to show how the five topical issues are reflected in the updated ARF tables (below): Ethics; Sustainability; Information and communication; Governance and decision making; Interculturality.

Thirdly, given the experience of COVID19, when many practising teachers found themselves unprepared for designing and facilitating learning experiences in online environments, it was deemed necessary to make explicit the need to prepare student teachers for both face-to-face and online contexts. With this in mind, descriptors for sub-dimension 2.2 Teaching and learning management were revised as follows:

Level	***Type of descriptor***	***New descriptor (the added part is highlighted)***
6	Skills	The ability to support students' learning processes by providing differentiated pathways and resources, in both face-to-face and online environments
	Autonomy & Responsibility	Commitment and sense of responsibility to identify and critically reflect on conditions for learners to enjoy their learning experience and to guarantee their growth, in both face-to-face and online environments
7	Skills	Ability to support students' learning processes by developing pathways and resources, including teacher-students partnership, peer learning activities and peer tutoring activities; in both face-to-face and online environments

	Autonomy & Responsibility	Commitment and sense of responsibility to create the conditions for learners to develop competences for college, career and social life readiness; in both face-to-face and online environments

Fourthly, descriptors of the (sub-)dimensions focused on were also revised, to make them more concrete and reflect the consensus reached about their meaning, scope and focus.

For sub-dimension 2.1, Level 7 descriptors for *Skills* and *Autonomy and Responsibility/Wider Competences* have been revised as follows:

Level 7 Skills

2018 version	Ability to define appropriate learning goals for different types of educational programme(s) and ensure that the different planned teaching, learning and assessment activities can jointly lead to the programme intended outcomes
2023 version	Ability to formulate learning goals for different types of educational programme(s) and ensure that the different planned teaching, learning and assessment activities can lead jointly to the programme intended outcomes

Reasons for change: The verb 'formulate' was used to make the wording more consistent across the different descriptors of this sub-dimension.

Level 7 Autonomy and Responsibility

2018 version	Capacity and commitment to choose appropriate curriculum strategies in school, taking into account expected impact on students' learning, time available, costs and human resources; as well as to manage the learning progression in the programme, leading an educational, multidisciplinary team
2023 version	Commitment and sense of responsibility to choose appropriate curriculum strategies at the level of a school section/ department/ team/ unit, taking into account expected impact on students' learning, time available, costs and human resources; as well as to manage the learning progression in the programme, working as part of an educational, multidisciplinary team

Reasons for change:

- to have a more realistic description for a 'higher-then-one-classroom' scope of responsibility: a section, a department, a team or a unit;

- to make this aim more feasible also in terms of woking as part of a team, rather than leading a team directly, which was not considered a responsibility a recent graduate can actually be entrusted with.

For sub-dimension 4.2, Level 6 and Level 7 descriptors for *Skills* and *Autonomy and Responsibility/Wider Competences* have been revised as follows:

Level 6 Skills

2018 version	Ability to promote ethical behaviour in learners and foster a culture of valuing diversity within the classroom setting
2023 version	Ability to foster (learners') respectful behaviour towards others, in own/a classroom

Level 6 Autonomy and Responsibility

2018 version	Capacity and commitment to respect different values, when interacting with people in contexts of diversity (social, ethnic, economic, political) and learn from the diversity
2023 version	Commitment and sense of responsibility to foster intercultural learning, through empowering learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own

Level 7 Skills

2018 version	Ability to promote ethical behaviour and foster a culture of valuing diversity within school community and in broader educational contexts
2023 version	Ability to foster (learners') respectful behaviour towards others, within school community and in broader educational contexts

Level 7 Autonomy and Responsibility

2018 version	Capacity and commitment to encourage inclusive dialogue and cooperation among different value systems

2023 version	Commitment and sense of responsibility to empower learners to engage in transformative collaborations with persons coming from backgrounds different than learners' own

Reasons for changes:
Sub-dimension 4.2 was interpreted as preparing future teachers to empower their learners to become a kind of person who can engage with those different from oneself. Sub-dimension 4.2 is about doing this in your classroom, as an integral part of the curriculum activities (as different from sub-dimensions 4.3 Social Commitment & 4.4 Social Leadership, where the focus on extracurricular activities and civic engagement of teachers more broadly. Fostering ethical/moral behaviour has been moved to sub-dimension 2.3 Group/Classroom management. With this new/sharpened focused of the sub-dimension 4.2, Autonomy and Responsibility descriptors are about future teachers empowering their learners to become a kind of person who can engage with those different from oneself and learn from those different from oneself (for Level 6) and develop/build things together with others who are different from oneself (for Level 7). 4.2 Skills descriptors focus on future teachers being ready to equip learners with skills necessary to interact constructively with those different from oneself.

For key dimension 6, sub-dimensions 6.1 Acting and learners and 6.2 Acting as researchers have been merged into a new sub-dimension 6.1 Acting as learners and researchers, with *Skills* and *Autonomy and Responsibility/Wider Competences* descriptors at Level 6 and Level 7 revised accordingly. The old sub-dimension 6.3 International dimension has become a new sub-dimension 6.2, called *Acting as learners in an international dimension* and its *Autonomy and Responsibility/Wider Competences* descriptors have been slightly revised at Level 6 and Level 7 as well.

Sub-Dimension 6.1 Acting as learners and researchers

Level 6 Skills

2018 version	Ability to critically examine educational research and developments publications, events, resources, etc.) in search of solutions for challenges experienced in own classroom [old 6.1] Ability to apply educational research in school contexts, in order to improve own teaching practice [old 6.2]
2023 version	Ability to apply a research based, evidence informed approach to analyse and improve teaching and learning practice in the classroom and to promote own professional growth

Level 6 Autonomy and Responsibility

2018 version	Capacity and commitment to reflect on their own practice in reference to relevant findings from educational research and developments [old 6.1] Capacity and commitment to follow an evidence-/research-based approach in own professional practice [old 6.2]
2023 version	Commitment and sense of responsibility to continuously and critically investigate and improve own teaching practice and professional quality in an evidence informed way

Level 7 Skills

2018 version	Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at institutional level [old 6.1] Ability to initiate and lead educational research in school contexts, in order to improve own and others' teaching practice [old 6.2]
2023 version	Ability to apply a research based, evidence informed approach to analyse and innovate teaching and learning practice in the classroom and beyond (at meso level: section, department, school)

Level 7 Autonomy and Responsibility

2018 version	Capacity and commitment to encouraging incorporation of evidence-/research-based enhancements into teaching practice at school level [old 6.1] Capacity and commitment to create action research communities fostering rigour and relevance in the research [old 6.2]
2023 version	Commitment and sense of responsibility to continuously and critically investigate and innovate one's own teaching and learning practice and professional quality and that of others in the section, department, school and beyond, in an evidence informed way.

Reasons for changes:

Originally it was deemed important to highlight that future teachers can engage in lifelong learning through more than doing their own research, and thus, two separate sub-dimensions were proposed. However, when these descriptors were broken down to delineate their content, it became clear that the same actions / steps of the same cycle were distinguished for both, with sources of insights (own research or learning from others - colleagues, publications, etc.) being the main difference. It was decided then to bring the two sub-dimensions together and put an emphasis on becoming a reflective practitioner that can continue questioning their own practice and collecting evidence to improve the learning of those they work with.

Sub-Dimension 6.2 Acting as learners in an international dimension

Level 6 Autonomy and Responsibility

2018 version	Capacity and commitment to foster an atmosphere of development where learners can begin to feel and act as global citizens
2023 version	Commitment and sense of responsibility to develop connections with (international) peers in order to continue developing as professionals and global citizens

Level 7 Autonomy and Responsibility

2018 version	Capacity and commitment to foster an atmosphere of engagement in international collaborations that permit communities of teachers to feel and act as global citizens
2023 version	Commitment and sense of responsibility to foster an atmosphere of engagement in international collaborations that permit communities of teachers to feel and act as global citizens and members of a global professional community

Reasons for change:
It was considered important to (1) bring the focus back to future teachers' own continuous professional development and (2) emphasise the capacity to learn from others in the field through networking, building connections, and international cooperation initiatives.

An important note on the Level 6/7 dilemma in Teacher Education in the context of the Assessment Reference Frameworks

In many countries and systems, and in teacher education for different stages in learning [early years, primary and post-primary], it is possible to achieve **formal eligible teacher qualification status** on successful completion of Level 6 programmes in some countries/cases, or this status can be achieved only by completion of a Level 7 qualification in others.

This means that when trying to formulate agreed teacher education programme outcomes at either Level 6 or Level 7, the group was keenly aware that much knowledge and many of the skills and competences were similar at both levels as, depending on the national or regional system, they both led to **formal eligible teacher qualification status** and a clear distinction between the two levels in many dimensions of programmes is not possible. As is evident from the Assessment Frameworks presented here, some of the key distinctions between Level 6 and Level 7 lie often in the inclusion of greater research activity and agency at Level 7, but in many dimensions both levels share a common set of knowledge, skills and competences that demonstrate eligibility to apply for registration in the profession.

Therefore, a further potential and more conceptual revision of the Reference Frameworks for Teacher Education could start by reaching consensus on those (sub-)dimensions in which it is useful and important to distinguish between Levels 6 and 7, and those (sub-)dimensions where this would be artificial, as both Levels correspond to the formal eligible teacher qualification status. (Sub-)Dimensions in the first group will need different descriptors at Level 6 and Level 7, but (sub-)dimensions in the second group will show clearly that Level 6 and Level 7 Teacher Education programmes aim to equip their students with the *same* knowledge and skills because both prepare them to act with the same level of autonomy and responsibility expected of a graduate considered to have reached the formal eligible teacher education status.

TEACHER EDUCATION

TUNING Qualifications Reference Framework (Meta-Profile) of General Descriptors of a Bachelor Programme in the Subject Area of TEACHER EDUCATION (LEVEL 6)

QF EHEA 1st cycle descriptors	SQF domain dimensions Level 6 (BACHELOR)	EQF descriptor Knowledge Level 6 *Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles*	EQF descriptor Skills Level 6 *Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study*	EQF descriptor Autonomy and Responsibility (Wider Competences) Level 6 *- Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts - Take responsibility for managing professional development of individuals and groups*
I. *Have demonstrated knowledge and understanding in a field of study that builds upon their general secondary education, and is typically at a level that, whilst supported by advanced textbooks, includes some aspects that will be informed by knowledge of the forefront of their field of study*	**DIMENSION 1. KNOWLEDGE MANAGEMENT AND CREATION**	**Advanced knowledge of major conceptual elements required of a teacher as knowledge manager and creator**	**Ability to develop different types of thinking and apply these to different situations determined by curricula, pedagogical and policy needs**	**Commitment and sense of responsibility to envisage consequences of position taking and commitment to act with intellectual consistency**
	SUB-DIMENSION 1.1 ACADEMIC FRAMES OF THE SUBJECT(S) TO BE TAUGHT	Advanced academic knowledge of their curricular subject(s) and subject matter and/or chosen specialisation	The ability to expand on their curricular subject and subject matter knowledge and/or chosen specialisation	Commitment and sense of responsibility to respond to the curricular needs within an educational institution based on the subject knowledge
	SUB-DIMENSION 1.2 EDUCATIONAL THEORIES	Advanced knowledge and a critical understanding of the theoretical foundations of pedagogy, psychology and their frontier sciences	The ability to use basic educational research, i.e. testing and applying existing theories and educational methods, in order to enhance their teaching	Commitment and sense of responsibility to influence the educational direction of an institution, having in consideration desirable impacts
	SUB-DIMENSION 1.3 POLICIES AND THEIR IMPLEMENTATION IN AN EDUCATIONAL SYSTEM	Advanced knowledge and a critical understanding of objectives, principles and policies of an educational system and potential connections to educational theories	The ability to arrange their pedagogical work in line with policies of an education system and with reference to educational theories	Commitment and sense of responsibility to critically reflect on educational policies, especially from the point of view of sustainability
II. *Can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically*	**DIMENSION 2. DESIGN AND MANAGEMENT OF PROCESSES OF LEARNING, TEACHING AND ASSESSMENT**	**Knowledge of classroom management and syllabus design and enhancement: teaching, learning and assessment processes**	**Ability to evaluate and select appropriate techniques and strategies of classroom management and syllabus enhancement: teaching, learning and assessment processes**	**Commitment and sense of responsibility to ensure that the different elements of the course contribute to the development of desired learner profile**
	SUB-DIMENSION 2.1 CURRICULUM DEVELOPMENT, EVALUATION AND ENHANCEMENT	Advanced knowledge of the key principles of designing, aligning and revising/enhancing teaching, learning and assessment at course unit/ syllabus level	The ability to formulate learning outcomes for different types of course units within educational programme(s) and apply constructive alignment in (re)designing syllabus/ course units	Commitment and sense of responsibility to critically reflect on the impact of teaching decisions on the learner's future in order to make responsible syllabus design and enhancement choices, especially from the point of view of sustainability

demonstrated through devising and sustaining arguments and solving problems within their field of study	**SUB-DIMENSION 2.2 TEACHING AND LEARNING MANAGEMENT**	Advanced knowledge of teaching and learning methods and approaches (including ICT) appropriate to the subject and the context	The ability to support students' learning processes by providing differentiated pathways and resources, in both face-to-face and online environments	Commitment and sense of responsibility to identify and critically reflect on conditions for learners to enjoy their learning experience and to guarantee their growth, in both face-to-face and online environments
	SUB-DIMENSION 2.3 GROUP / CLASSROOM MANAGEMENT	Advanced knowledge of classroom dynamics (including conflict management) and student-centred strategies	The ability to organise group processes and dynamics in learning environments (including applying conflict management strategies within the classroom)	Commitment and sense of responsibility to ensure that learners can work together in a friendly and stimulating atmosphere, where potential conflicts are managed both successfully and appropriately (class level)
	SUB-DIMENSION 2.4 ASSESSMENT OF LEARNING AND FOR LEARNING	Advanced knowledge and a critical understanding of assessment principles, strategies and techniques	Ability to design and apply assessment tasks and transparent criteria (rubrics) for measurement and evaluation	Commitment and sense of responsibility to critically analyse assessment results in order to enhance the quality of teaching and learning
III. *Have the ability to gather and interpret relevant data (usually within their field of study) to inform judgements that include reflection on relevant social, scientific or ethical issues*	**DIMENSION 3. LEARNER EMPOWERMENT, POTENTIAL AND CREATIVITY: SUPPORTING LEARNER HOLISTIC GROWTH AND DEVELOPMENT**	**Advanced knowledge of theories, strategies and tools that can support learner empowerment, and development of learner fullest potential and creativity**	**Ability to apply theories, strategies and tools that can foster the development of the fullest potential and creativity of each learner**	**Commitment and sense of responsibility to contribute to maintenance of contexts of engagement with learner holistic growth and development**
	SUB-DIMENSION 3.1 LEARNER SELF-ESTEEM AND CONFIDENCE	Advanced knowledge of how to raise learner self-esteem and confidence	Ability to support learners in identifying own strengths and setting goals to build on these	Commitment and sense of responsibility to create situations and climates in which learners increase their self-esteem and confidence
	SUB-DIMENSION 3.2 LEARNER MOTIVATION AND RESILIENCE	Advanced knowledge on building motivation and developing resilience	Ability to support learners in building motivation and developing resilience	Commitment and sense of responsibility to motivate, inspire learners and support their empowerment creating situations where they can find their own ways of development and strengthening
	SUB-DIMENSION 3.3 LEARNER CREATIVITY AND MASTERY OF TOOLS	Advanced knowledge of tools necessary for learners to develop their full potential (using multiple learning styles) and enhance their creativity	Ability to select and use tools necessary for each learner to develop their full potential and enhance creativity	Commitment and sense of responsibility to facilitate climates where learners can enhance their creativity and try out new tools

	SUB-DIMENSION 3.4 TUTORING	Knowledge of school counselling processes and of how to give advice to children and adolescents (and their families/guardians) to develop learners' own resources	Ability to identify the needs and accompany learners towards the development of own resources; directing learners (and their families/ guardians) to other professionals when necessary	Commitment and sense of responsibility to ensuring that learners (and/or their families/guardians) receive necessary accompaniment and counselling in a timely manner
	DIMENSION 4. VALUES AND SOCIAL LEADERSHIP: ETHICS AND SOCIAL COMMITMENT	**Advanced knowledge of different value systems and of how to identify and promote those which can foster the fulfilment of the teacher's professional mission**	**Ability to identify and implement approaches and actions required to address the social needs; ability to analyse consequences of different value choices and to manage diversity**	**Commitment and sense of responsibility to build a sense of social responsibility in the choices made at personal, professional and contextual levels and act on needs and potentialities identified**
	SUB-DIMENSION 4.1 PERSONAL AND PROFESSIONAL ETHICS AND VALUES	Advanced knowledge of ethical and professional standards, including knowledge about the constitution of an appropriate relationship with learners	Ability to adhere to ethical and professional standards	Commitment and sense of responsibility to critically reflect and work on consistency of own personal and professional identity
	SUB-DIMENSION 4.2 VALUES AND DIVERSITY	Critical understanding of potential tensions due to the existence of different value systems	Ability to foster (learners') respectful behaviour towards others, in own/a classroom	Commitment and sense of responsibility to foster intercultural learning, through empowering learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own
	SUB-DIMENSION 4.3 SOCIAL COMMITMENT	Critical understanding of the teaching profession (mission) as a public service and its impact/ significance in a local & global context	Ability to organise curricular and extracurricular actions and educational events as a response to social & global needs	Commitment and sense of responsibility to contribute to the development possibilities for an educational institution and its social community and build a sense of social and environmental responsibility at individual level
	SUB-DIMENSION 4.4 SOCIAL LEADERSHIP	Advanced knowledge of socio-educational needs and trends, as well as principles of social leadership	Ability to identify needs and strengths in different socio-educational contexts, as well as leadership actions required	Commitment and sense of responsibility to act in a leadership role according to the needs and opportunities identified
IV. Can communicate information, ideas, problems and solutions to	**DIMENSION 5. COMMUNICATION: Communication with different actors and in different contexts**	**Advanced understanding of different critical elements, methods and tools for communicating at the interpersonal level, as well as in groups and society as a whole**	**Ability to identify and apply resources for improving communication at different levels, as well as stay up-to-date with ICT**	**Commitment and sense of responsibility to foster transparency and responsibility in interpersonal interactions, in teams and groups, as well as in social media**

both specialist and non-specialist audiences	**SUB-DIMENSION 5.1 INTERPERSONAL COMMUNICATION**	Advanced knowledge of elements essential for developing and maintaining good interpersonal communication	Ability to listen actively and to clearly communicate thoughts, attitudes and personal perspectives	Commitment and sense of responsibility to contribute to transparency, trust and personal engagement in interpersonal communicative encounters
	SUB-DIMENSION 5.2 COMMUNICATION AT GROUP LEVEL	Advanced knowledge of group communication methods and strategies in educational processes	Ability to apply communication methods and strategies that permit to work effectively with(in) learner groups	Commitment and sense of responsibility to take responsibility to promote and/or initiate teamwork among learners
	SUB-DIMENSION 5.3 SOCIAL MEDIA AND COMMUNICATION TECHNOLOGIES	Critical understanding of social media and communication technologies, as well as their impact on learners and society	Ability to make use of social media and communication technologies and stay updated with current developments in the domain	Commitment and sense of responsibility to promote responsible and critical use of social media and communication technologies among learners
V. Have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy	**DIMENSION 6. DEVELOPMENT AS PROFESSIONALS AND LIFE-LONG LEARNERS**	**Advanced knowledge of sources, tools, mechanisms and main trends of personal and professional updating**	**Ability to critically examine applied educational research and improve own practice following evidence based approaches**	**Commitment and sense of responsibility to act as a critically reflective member of an international teaching community that values evidence-based practice**
	SUB-DIMENSION 6.1 ACTING AS LEARNERS AND RESEARCHERS	Advanced knowledge of main sources that permit to stay updated with general and subject related educational research and developments	Ability to apply a research based, evidence informed approach to analyze and improve teaching and learning practice in the classroom and to promote own professional growth	Commitment and sense of responsibility to continuously and critically investigate and improve own teaching practice and professional quality in an evidence informed way
	SUB-DIMENSION 6.2 ACTING AS LEARNERS IN AN INTERNATIONAL DIMENSION	Advanced knowledge of the main trends in the profession at international level	Ability to use other languages, particularly English, for the purposes of continuous professional development	Commitment and sense of responsibility to develop connections with (international) peers in order to continue developing as professionals and global citizens
	6.3 RESILIENCE AND WELL-BEING	Advanced knowledge of factors contributing to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Ability to engage in behaviours and practices conducive to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Commitment and responsibility to cultivate personal well-being, and to foster an atmosphere in which teachers have autonomy and agency to create environments in which personal and professional well-being is valued and respected.

TEACHER EDUCATION

TUNING Qualifications Reference Framework (Meta-Profile) of General Descriptors of a Master Programme in the Subject Area of TEACHER EDUCATION (LEVEL 7)

QF EHEA 2nd cycle descriptors	SQF domain dimensions Level 7 (MASTER)	EQF descriptor Knowledge Level 7 *- Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research* *- Critical awareness of knowledge issues in a field and at the interface between different fields*	EQF descriptor Skills Level 7 *Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields*	EQF descriptor Autonomy and Responsibility (Wider Competences) Level 7 *- Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches* *- Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams*
I. Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing …	**DIMENSION 1. KNOWLEDGE MANAGEMENT AND CREATION**	**Highly specialised knowledge of major frames and theories that shape knowledge creation in the discipline and neighbouring fields at international level**	**Ability to integrate knowledge from different fields in order to solve problems and identify innovative approaches for knowledge creation and management**	**Commitment and sense of responsibility to contribute to creation of new frames, theories and policies in order to respond to complex, unknown and unpredictable situations**
	SUB-DIMENSION 1.1 ACADEMIC FRAMES OF THE SUBJECT(S) TO BE TAUGHT	Highly specialised knowledge of interrelations of subjects to be taught with associated broader domains and meta-concepts, and well as forefront knowledge of best ways to help learners acquire subject knowledge	The ability to continuously and systematically expand knowledge within chosen specialisation and tailor it to students needs	Commitment and sense of responsibility to create the (personalised) learning environment which permits and motivates every learner to achieve the subject-related learning outcomes
	SUB-DIMENSION 1.2 EDUCATIONAL THEORIES	Critical awareness of the epistemology and practical implications of concurrent educational theories	The ability to use advanced educational research, i.e. testing and applying existing theories and educational methods, in order to enhance their pedagogical practice, tailoring it to the educational needs and context(s)	Commitment and sense of responsibility to critically analyse and shape the educational direction of an institution
	SUB-DIMENSION 1.3 POLICIES AND THEIR IMPLEMENTATION IN AN EDUCATIONAL SYSTEM	Highly specialized knowledge of educational policy creation and implementation at local and global level: interactions and means to resolve contradictions and challenges related to differing objectives, principles and policies	The ability to transfer the knowledge of educational policies and theories to different education systems	Commitment and sense of responsibility to critically analyse, reflect and contribute to the improvement of educational policies, especially from the point of view of sustainability
II. Can apply their knowledge and understanding, and problem solving abilities in new or	**DIMENSION 2. DESIGN AND MANAGEMENT OF PROCESSES OF LEARNING, TEACHING AND ASSESSMENT**	**Highly specialised knowledge of classroom management and curriculum design and enhancement: teaching, learning and assessment processes**	**Ability to evaluate and select innovative techniques and strategies of classroom management and curriculum enhancement: teaching, learning and assessment processes**	**Commitment and sense of responsibility to lead and coordinate educational teams in search for innovative learner-centred means to reach the desired learner profile**

unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study	**SUB-DIMENSION 2.1 CURRICULUM DEVELOPMENT, EVALUATION AND ENHANCEMENT**	Highly specialised knowledge of key principles of planning, evaluation and enhancement of teaching, learning and assessment at curriculum level	Ability to formulate learning goals for different types of educational programme(s) and ensure that the different planned teaching, learning and assessment activities can lead jointly to the programme intended outcomes	Commitment and sense of responsibility to choose appropriate curriculum strategies at the level of a school section/ department/ team/ unit, taking into account expected impact on students' learning, time available, costs and human resources; as well as to manage the learning progression in the programme, working as part of an educational, multidisciplinary team
	SUB-DIMENSION 2.2 TEACHING AND LEARNING MANAGEMENT	Highly specialised knowledge of forefront techniques and strategies to support students in developing deep subject knowledge and establishing interdisciplinary connections	Ability to support students' learning processes by developing pathways and resources, including teacher-students partnership, peer learning activities and peer tutoring activities; in both face-to-face and online environments	Commitment and sense of responsibility to create the conditions for learners to develop competences for college, career and social life readiness; in both face-to-face and online environments
	SUB-DIMENSION 2.3 GROUP / CLASSROOM MANAGEMENT	Highly specialised knowledge of a variety of classroom dynamics and student-centred strategies; as well as advanced knowledge of conflict transformation processes	Ability to responsibly interact with different stakeholders, fostering inclusive processes and transforming potential conflicts in school	Commitment and sense of responsibility to ensure that learners and other actors of the school can work together to achieve common goals, while creating a culture where conflicts can be transformed and built on to achieve personal and collective growth
	SUB-DIMENSION 2.4 ASSESSMENT OF LEARNING AND FOR LEARNING	Highly specialised knowledge of ways to resolve challenges associated with diagnostic, summative and formative assessment processes within educational institutions, with a special focus on self-, peer and group-assessment	Ability to actively engage learners in designing and doing assessment, obtaining and providing constructive feedback which enhances individual progress and self-evaluation	Commitment and sense of responsibility to use assessment results to enhance the quality of teaching and learning, as well as to design better educational projects
III. Have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited	**DIMENSION 3. LEARNER EMPOWERMENT, POTENTIAL AND CREATIVITY**	**Highly specialised knowledge of forefront theories, frames, strategies and tools that can support learner empowerment, and development of learner fullest potential and creativity**	**Ability to identify the most contextually-appropriate theories, strategies and tools that can foster the development of the fullest potential and creativity of each learner**	**Commitment and sense of responsibility to create cultures of engagement with learner holistic growth and development**
	SUB-DIMENSION 3.1 LEARNER SELF-ESTEEM AND CONFIDENCE	Highly specialised knowledge of ways to help learners establish links and parallels between learning and advancing their self-esteem and confidence in different contexts (formal, non-formal and informal)	Ability to engage colleagues and other school actors in fostering learner self-esteem and confidence	Commitment and sense of responsibility to uphold and effectively contribute to creating an atmosphere of promoting learner confidence and self-esteem

information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements	**SUB-DIMENSION 3.2 LEARNER MOTIVATION AND RESILIENCE**	Highly specialised knowledge of theories and frames in developing learner motivation and resilience	Ability to foster learners' personal motivation, resilience and growth both within the school context and beyond	Commitment and sense of responsibility to engage others in creating and maintaining cultures of empowerment, where learners develop motivation and resilience, and are inspired and supported to find their own ways of development and strengthening
	SUB-DIMENSION 3.3 LEARNER CREATIVITY AND MASTERY OF TOOLS	Highly specialised knowledge of methodologies for transforming schools into environments for developing learner creativity and mastery of tools	Ability to identify and implement contextually-appropriate methodologies for transforming schools into environments for developing learner creativity and mastery of tools	Capacity and commitment engage all school actors in creating cultures where learners can enhance their creativity and try out new tools
	SUB-DIMENSION 3.4 TUTORING	Knowledge of school counselling processes and of how to give advice to children and adolescents (and their families/guardians) to develop learners' own resources	Ability to identify the needs and accompany learners towards the development of own resources; directing learners (and their families/ guardians) to other professionals when necessary	Commitment and sense of responsibility to ensuring that learners (and/or their families/guardians) receive necessary accompaniment and counselling in a timely manner
	DIMENSION 4. VALUES AND SOCIAL LEADERSHIP	**Comprehensive understanding of principles and tools of intercultural and interdisciplinary communication, as critical understanding of the use of social media and communication technologies**	**Ability to identify and apply resources for achieving successful and appropriate communication in intercultural and interdisciplinary teams, including through the use of social media and communication technologies**	**Commitment and sense of responsibility to foster cultures of transparency and responsibility in interpersonal interactions, in teams and groups, as well as in social media**
	SUB-DIMENSION 4.1 PERSONAL AND PROFESSIONAL ETHICS AND VALUES	Critical awareness of the processes and principles of value systems development and of the definition of ethical and professional standards	Ability to contribute to the enhancement of ethical and professional standards	Commitment and sense of responsibility to co-create cultures in which each person can uphold their own values, both personal and professional, while engaging constructively with others
	SUB-DIMENSION 4.2 VALUES AND DIVERSITY	Critical understanding of mechanisms that can make different value systems interact constructively	Ability to foster (learners') respectful behaviour towards others, within school community and in broader educational contexts	Commitment and sense of responsibility to empower learners to engage in transformative collaborations with persons coming from backgrounds different than learners' own
	SUB-DIMENSION 4.3 SOCIAL COMMITMENT	Knowledge of global trends and high impact practices in fulfilling the mission of a teacher as a socially-committed professional	Ability to respond to the local social needs through identification and application of the best global educational practices	Commitment and sense of responsibility to contribute to setting situationally appropriate goals for the community and build a sense of social, environmental, and civic responsibility at institutional and local level

	SUB-DIMENSION 4.4 SOCIAL LEADERSHIP	Highly specialised knowledge of social project development and management	Ability to initiate and carry through social projects that bring together community and school actors and create social impact	Commitment and sense of responsibility to engage others in realisation of shared vision for higher quality education, accepting social leadership role and responsibilities
IV. Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously	**DIMENSION 5. COMMUNICATION**	**Critical awareness of the multiple complex aspects that interrelate in the process of educating ethically responsible citizens**	**Ability to design and implement educational methods, instruments and projects in order to foster the development of civic competences at the school level and beyond**	**Commitment and sense of responsibility to critically analyse and act on present and future challenges and/or development possibilities in order to contribute to the creation of an inclusive society through communal educational projects**
	SUB-DIMENSION 5.1 INTERPERSONAL COMMUNICATION	Highly specialised knowledge of how different mental frames and structures can affect communication, as well as how to identify, understand and manage such differences	Ability to communicate own ideas, perceptions, and values across different metal frames and structures	Commitment and sense of responsibility to co-create cultures of transparency, trust and personal engagement
	SUB-DIMENSION 5.2 COMMUNICATION AT GROUP LEVEL	Highly specialised knowledge of interdisciplinary group communication principles and strategies for educational purposes	Ability to apply a broad range of communication methods and strategies that permit to work effectively with(in) interdisciplinary professional teams and with all parties involved in the educational process	Commitment and sense of responsibility to take responsibility to promote and/or initiate teamwork based on trust and mutual confidence among colleagues at school and in wider educational contexts
	SUB-DIMENSION 5.3 SOCIAL MEDIA AND COMMUNICATION TECHNOLOGIES	Critical understanding of multiple ways in which information can be given and ways of misusing social media and communication technologies	Ability to participate in authentic information creation and transmission processes through using forefront social media and communication technologies	Commitment and sense of responsibility to promote responsible and critical use of social media and communication technologies at institutional and global level
V. *Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous*	**DIMENSION 6. DEVELOPMENT AS PROFESSIONALS AND LIFE-LONG LEARNERS**	**Advanced knowledge of sources, trends, possibilities and research methodologies that can be used for personal and professional updating**	**Ability to systematically follow applied educational research and participate in international collaborative endeavours aimed at professional development**	**Commitment and sense of responsibility to foster the culture of evidence-based practice enhancement, as well as personal and professional updating through engagement in educational and professional development projects**
	SUB-DIMENSION 6.1 ACTING AS LEARNERS AND RESEARCHERS	Highly specialised knowledge of both national and international sources and trends that permit to stay updated with general and subject related educational research and developments	Ability to apply a research based, evidence informed approach to analyse and innovate teaching and learning practice in the classroom and beyond (at meso level: section, department, school)	Commitment and sense of responsibility to continuously and critically investigate and innovate one's own teaching and learning practice and professional quality and that of others in the section, department, school and beyond, in an evidence informed way.

	SUB-DIMENSION 6.2 ACTING AS LEARNERS IN AN INTERNATIONAL DIMENSION	Knowledge of possibilities for continuous professional development which involve cooperation with international peer teams	Ability to identify, join and collaborate with international peer teams focussed on continuous professional development	Commitment and sense of responsibility to foster an atmosphere of engagement in international collaborations that permit communities of teachers to feel and act as global citizens and members of a global professional community
	6.3 RESILIENCE AND WELL-BEING	Advanced knowledge of factors contributing to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Ability to engage in behaviours and practices conducive to personal and professional engagement, resilience, self-efficacy, agency and mental health.	Commitment and responsibility to cultivate personal well-being, and to foster an atmosphere in which teachers have autonomy and agency to create environments in which personal and professional well-being is valued and respected.

4. Exploration process: How we chose our general approach

In this section, we explain how we chose our general approach, and the various steps the CALOHEE Teacher Education Subject Area Group followed - beginning with trying to investigate and compare how different EU countries currently assess some of the CALOHEE Assessment Reference Frameworks' descriptors, to envisaging how we could assess these descriptors in ways acceptable for all the countries involved. According to the literature and the recent academic debate (Brown, 2014; Nicol, 2009; Sambell, 2011), academics and institutions are called to interpret assessment from a new point of view, with a greater focus on the formative aspects, instead of merely on the summative ones. Many scholars have highlighted the need for assessment processes to be aligned and integrated with teaching and learning and therefore to be more student-centred (Pereira et al., 2016), with the students being active participants in the assessment processes.

Our exploration process can be divided into three large phases. Firstly, we selected the elements of the CALOHEE Assessment Frameworks to focus on. We wanted to see if and how internationally comparable assessment could be proposed for certain Skills and Wider Competences' descriptors. This decision was made on the basis of the findings of the 'matching exercise'.[4] As a result of this exercise, the desired graduate profiles of a number of Level 6 (bachelor) and Level 7 (master or long-cycle) Teacher Education programmes offered in different EHEA countries were matched against the CALOHEE Teacher Education Assessment Reference Frameworks (ARF). The key question behind this matching was to see which of the ARF sub-dimensions were included in existing Teacher Education graduate profiles; and for the sub-dimensions included, whether the existing programmes aimed at their graduates developing (a) knowledge, (b) knowledge and skills, or (c) knowledge, skills and wider competences by the time they were awarded the degree. 40 Teacher Educators from 19 countries contributed to this exercise, and, although the outputs cannot be considered fully representative of the Teacher Education scene in the EHEA, they were seen as a good starting point. This exercise allowed us to identify the 'common ground' - sub-dimensions for which a meaningful dialogue about shared assessment could commence. Section II provides more insights about why such conversations are inherently challenging in the case of the Teacher Education Subject Area. Put very simply, we were looking for (sub-)dimensions that most Teacher Education programmes considered relevant in common, and where differences in profiles of teachers prepared (level of education for which teachers are prepared and subjects that they are prepared to teach) did not preclude further joint discussion. A secondary factor was the number of currently existing programmes that aimed at bringing their students to the level of Skills and/or Wider Competences according to the CALOHEE Teacher Education ARF descriptors already. Opting for such a (sub-)dimension increased the probability of Teacher Education programmes having already designed assessment tasks for students to demonstrate skills, autonomy and responsibility associated with these sub-dimensions. However, it was a secondary factor since the project working group was fully aware that sometimes developing an assessment task can stimulate programmes to aim for a higher level of achievement. So choosing a sub-dimension that is highly relevant but where programmes have not yet

[4] See Yarosh, Maria & Julia González (2020) Comparing desired graduate profiles of Teacher Education programmes with the help of the CALOHEE Reference Frameworks. CALLHE2 project report available at https://www.researchgate.net/publication/349368092_Comparing_desired_graduate_profiles_of_Teacher_Education_programmes_with_the_help_of_the_CALOHEE_Reference_Frameworks

'dared' to aim at levels higher than knowledge could also be beneficial for Teacher Education as a Subject Area.

With these considerations in mind, three focal points were selected:

1) Sub-Dimension 2.1 - Curriculum development, evaluation and enhancement - which all Teacher Education programmes address and which, with formulating learning outcomes and applying principles of constructive alignment alignment as its core, is a very 'concrete' or well-structured sub-dimension;

2) Dimension 6 - Development as professionals and lifelong learners - which, again, all Teacher Education programmes address, but which - in contrast to the sub-dimension 2.1 is much more complex in its nature; and

3) Sub-Dimension 4.2 - Values and diversity - which has become increasingly relevant for Teacher Education programmes due to increasing diversity of our classrooms, but which is quite often not addressed, let alone assessed, explicitly in existing programmes.

The second phase of our exploratory process - explained further in the rest of this section - consisted in collecting examples of assessment tasks and practices currently used in the partner countries to assess student development in these three areas/(sub-)dimensions. This phase was rich in insights and peer-learning about how student learning is assessed and assessment tasks described in different educational cultures. However, it also made us realise how difficult, if not impossible, it might be to compare assessment tasks developed for particular programme courses and learning outcomes, which did not correspond one-to-one to the CALOHEE ARF descriptors. In parallel (as briefly reported below,) the group looked into the key principles of designing internationally applicable assessments. This further convinced us that a more structured approach had to be pursued if we wanted the outputs of our work to be of real use to Teacher Education programmes across different countries.

This is why after this initial exploratory phase (phase two in our whole journey), it was decided to re-focus the discussion and make CALOHEE ARF descriptors our starting point in identifying or constructing internationally applicable assessment tasks. The third phase, whose outputs are presented in sections III and V, comprised, in turn, four stages:

(1) 'breaking down' CALOHEE Teacher Education ARF descriptors into measurable learning outcomes - to be clear about what exactly is to be assessed when we want to see the extent to which students have already developed the skills or wider competences in question;
(2) agreeing on descriptor rubrics - three levels of achievement for the key elements distinguished within each descriptor;

(3) proposing assessment tasks all Teacher Education programmes involved could use; and, for at least some of these tasks,

(4) jointly designing an assessment rubric, which, again, reflects consensus that could be reached across national approaches in terms of key points to assess in student performance/products.

Below we describe the second phase of our work. Firstly, we give a short description of the comparison of current assessment practices in project partner countries for dimensions 2.1. and 6.1. Details on which this comparison is based can be seen in the Table in Appendix 1, which shows different assessment tasks that project countries use in order to assess dimensions 2.1. and 6.1. In addition, in Appendix 2 the reader can find more details on some specific assessment tasks identified as good practice examples already in use in project partner countries. From there, we move on to explain principles of good assessment practices together with challenges and the best path to be used in order to arrive at an international assessment system, with a special emphasis on computerised assessment practices.

Finally, we describe first steps from our third phase explaining how we developed assessment rubrics and assessment tasks useful for the international context.

Current assessment practices in project partner countries

In order to investigate current assessment practices of CALOHE 2.1. and 6.1. dimensions in partner countries we first compiled a list of various assessment tasks and then designed a table with these assessment tasks and asked representatives of partner countries to indicate which tasks they use in order to assess the 2.1. and 6.1. dimensions on Level 7 (Appendix 1). In addition, examples of good practices were identified at this step, which we judged to be especially useful as tasks aligned with the 2.1. And 6.1. dimensions (Appendix 2).

Assessing the 2.1. SKILLS and WIDER COMPETENCES

As can be seen from the Table in Appendix 1, teacher education programs from countries which teach the 2.1. dimension assess this part of the 2.1. SKILLS with a wide variety of tasks. The most common way is the 'teaching unit plan' and subsequent observation of teaching in a school classroom. Assessment practices for this part of the 2.1. SKILLS indicate a connection between the ability to define appropriate learning goals for different types of programmes and ensuring that different teaching, learning and assessment activities can jointly lead to the programme's intended outcomes. The 2.1. WIDER COMPETENCES are assessed only in some countries. The comparison of tasks used to assess this dimension points to a comprehensive approach, and use of multiple operationalizations of assessing this competence.

Assessing the 6. 1. SKILLS AND WIDER COMPETENCES

Most teacher education programmes teach the importance of evidence-based practice, and the ability to follow educational research and then apply it in the classroom. However, not all teach this, and subsequently do not assess it, at the institutional level. Moreover, all the countries use at least some kind of assessment task in order to assess the 6.1. wider competences (with the exception of Turkey where this competence is not taught). It shows the commitment of all teacher education programs towards evidence-based practice (see Appendix 1 for details).

General approach to arrive to an international assessment system

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Now, we turn to the question of how we chose our general approach based on theory of assessment, especially in designing an international assessment system. We describe what kind of challenges we met and how we moved forward from framework development to potential assessment tools.

Designing international assessment tools in the field of teacher education proved to be a highly complex and challenging task, (i) due to the heterogeneity of the teacher education group in the CALOHEE project – experts of different fields of education were involved, (ii) due to the complexity of the construct under investigation, and (iii) due to the different national settings and context.

To cope with these issues, the assessment experts of the group prepared a guideline for developing and evaluating assessment tasks in an international context using the advantages of computer-based assessments (see Appendix 3). In this document they summarise the main issues of how to design a full international assessment system and consider the components that should be included to adequately evaluate students' knowledge and skills especially in the field of teacher education in an international context.

More particularly, they discussed (i) a short guideline regarding framework development, as all assessments must be based on theory, that is, on frameworks which are central to the entire enterprise of all assessments, including international assessments. The framework must contain (a) the information regarding what do we want to measure (the exact description of the construct under investigation and the description and analyses of its sub-skills/ knowledge elements); (b) the different levels of knowledge and skills students should know and be able to do, that is, the preliminary achievement-level descriptions; and finally (c) the proportions and types of items and tasks that should appear in the assessments. Without well-grounded and well-elaborated assessment frameworks we cannot answer questions about "what the results mean and why the results are what they are." They also discussed (2) a brief description about the modes and types of assessments and new assessment needs to include the potential in computer-based assessments over traditional testing. Using computer-based assessments, we can administer tasks in a more realistic, application-oriented, engaging, and authentic context. We can use innovative item development opportunities, producing dynamic, interactive, scenario-based multimedia items. We can design more valid assessments. Technology-based assessment makes it possible to provide instant, objective, standardised feedback, thus replacing previous long feedback times, and to use adaptive test algorithms to fit the difficulty level of the tasks to the knowledge and skill level of the students. The guidelines described (3) the general principles of assessments (validity, reliability, objectivity, usability, fairness issues) including the comparison of the different assessment methods (achievement test, portfolio, oral exam, self-reported questionnaire, observation, simulation), (4) the type of tasks, which can be applied in the different assessments (first, second and third generation items; types of stimulus, types of response captures, and types of items) and, (5) those issues, which are especially important in designing international assessments (translation/adaptation, different item function, sampling design, type of analyses).

The key question of the work was whether it is desirable and possible to evidence learning by developing and applying instruments which, on the one hand respect diversity, autonomy of higher education institutions and the particular mission and profile of individual study programmes, and on the other hand allow for measuring the achievements of learning on the basis of internationally agreed references or standards, to

judge whether these are respected and achieved. This means that assessments should allow for international comparison, based on certain standards (of quality teaching) on the one hand, with respect for diversity, autonomy of higher education institutes on the other hand.

After considering the complexity and diversity of the construct under investigation, the group decided to focus not on the entire construct, but different sub-dimensions of it. This point resulted in new challenges: which dimensions should be monitored? And how the indicators of the sub-dimensions should be built? Based on the existing expectations or based on what we think would be expected from a 21st century teacher even if it is not existing in the present practice. In the whole working process, we kept the two approaches in mind

Assessment rubrics and assessment tasks useful for the international context

In order to build upon the above-mentioned guidelines and to make the international assessment more meaningful and richer, we decided to first take a step back and analyse the meaning of the CALOHE descriptors in more depth. We focused on the descriptors for the 2.1. dimension, because our first steps showed all countries teach and assess this dimension, and it is widely considered to be a core teaching skill. In addition, we focused on 4.2. and 6.1. and 6.2. dimensions, because we felt these to be important skills and wider competencies for the 21st century teacher, and that providing assessment examples for these might be useful for many teaching programs currently not assessing these dimensions.

Working as a group of experts, we broke down descriptors for each of the mentioned dimensions, both for skills and wider competencies, and for Level 6 and Level 7. This work proved to be challenging and time-consuming, and a lot of discussion was needed before we arrived at final specific meanings of each descriptor. However, this work was necessary to come up with concrete definitions of objects of assessment (a prerequisite of high-quality assessment). When breaking down a descriptor our approach was to identify what a student teacher needs to show for others to see if she/he has gained a certain skill/wider competency at a certain educational level. From this work it became clear that we can further define different levels of excellence for each part of the broken-down descriptor.

In other words, we realised that we could propose rubrics which can later serve as guidelines for assessment. Different parts of the broken-down descriptors thus became criteria in a rubric, and we decided to further define three degrees of excellence – 1) low level/beginner; 2) intermediate level/good; 3) high level/exemplary. These rubrics are meant to serve as guidelines to teacher educators when designing specific assessment tasks. We fully recognize they are more general, and that some specific assessment tasks require more specific and tailored assessment rubrics.

In order to come closer to the goal of international assessment, we then identified some specific assessment tasks which were either identified as good practice examples in our previous steps, or which we, as experts, thought could be especially useful in order to measure a certain descriptor comprehensively. We then described the tasks in more detail, tying them to specific parts of the broken-down descriptors, and providing instructions to teacher educators and student teachers on how to use the assessment tasks. When applicable, we designed the more specific assessment rubric for the task itself.

This work resulted with clearly defined descriptions of what needs to be assessed, with clearly defined levels of what students should be able to do, and with concrete and specific examples of assessment tasks which are explicitly tied back to CALOHEE descriptors (in other words, to what is being assessed by the tasks). The proposed more general, and more task-specific assessment rubrics, represent tools for teacher educators when designing specific assessment tasks tailored to the needs of their respective teacher education programmes. At the same time these can be a jumping board for building broader international comparable assessment frameworks, and future efforts in computerised assessment which can also enable richer international comparable assessment efforts.

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5. Assessment Elements Proposed

5.1 Assessment elements for the Sub-Dimension 2.1

The discussion about what needs to be assessed and how this can be done in internationally comparable ways across different project countries, focused on *Skills* and *Autonomy and Responsibility/Wider Competences* descriptors of Sub-Dimension 2.1 "Curriculum development, evaluation and enhancement", which is part of Key Dimension 2 "Design and management of processes of learning, teaching, and assessment".

The 2.1 descriptors for *Skills* and *Autonomy and Responsibility/Wider Competences* for Levels 6 and 7 can be seen in the table below.

Level	***Skills***	***Autonomy and Responsibility***
Level 6	**The ability to formulate learning outcomes for different types of course units within educational programme(s) and apply constructive alignment in (re)designing syllabus/ course units**	**Commitment and sense of responsibility to critically reflect on the impact of teaching decisions on the learner's future in order to make responsible syllabus design and enhancement choices, especially from the point of view of sustainability**
Level 7	**Ability to formulate learning goals for different types of educational programme(s) and ensure that the different planned teaching, learning and assessment activities can lead jointly to the programme intended outcomes**	**Commitment and sense of responsibility to choose appropriate curriculum strategies at the level of a school section/ department/ team/ unit, taking into account expected impact on students' learning, time available, costs and human resources; as well as to manage the learning progression in the programme, working as part of an educational, multidisciplinary team**

Stage 1: 'Breaking down'

Level 6: Skills

Two elements of this skill were distinguished: formulating learning outcomes and applying constructive alignment. For the "formulating learning outcomes" elements it was considered instrumental to highlight the fact that learning outcomes had to be (1) formulated well, (2) take into account the place of a course within an educational programme and (3) take into account the type of course for which they are formulated. This resulted in the "formulating learning outcomes" element being articulated in 5 measurable learning outcomes (1-5) and the "applying constructive alignment" element being articulated in 3 measurable learning outcomes (6-8):

Descriptor	**Elements**	**Measurable learning outcomes**
The ability to formulate learning outcomes for different types of course units within educational programme(s) and apply constructive alignment in (re)designing syllabus/ course units	formulating learning outcomes	**1. Analyse LOs formulated by others in terms of how well formulated they are;** **2. Rewrite LOs to ensure the rules/principles of formulating LOs are observed;** **3. Write well-formulated LOs [i.e. LOs that follow all the rules/principles we will list as generally agreed on]** **4. When formulating course LOs, take into account the place of the course unit in the programme:** **(1) learners' starting point in terms of what previous course units helped learners achieve [the KN, SKs & competences your learners come to you with];** **(2) course units that come after your course unit (what learners must be capable of doing before they go to the 'next' related course unit);** **(3) what learners are expected to learn in other - parallel - subjects (to coordinate and avoid unintentional overlaps; can be subjects from the same domain or subjects that are otherwise relevant - e.g. focusing on same generic competences/transversal skills);** **5. [when formulating course LOs], take into account what learners are expected to achieve at this level/stage of education in this particular subject (e.g. national curriculum, school specific curriculum or other relevant reference documents)**
	applying constructive alignment	**6. Analyse course/syllabus in terms of constructive alignment** **7. Improve constructive alignment of a course/syllabus/course unit** **8. Design constructively-aligned courses/syllabi/course units**

Level 6: Autonomy and Responsibility

Two elements were distinguished: 'critically reflecting on the impact of teaching decisions on the learner's future' and 'making syllabus design and enhancement choices.' It was agreed that 'responsible' choices will be understood as those based on such critical reflection. And the concept of

'learner's future' was defined as one/a combination of the following 4 domains - depending on the subject/level of studies: (1) life, (2) participation in society, as well as (3) further studies and (4) potential career.
Within both elements, care was taken to account for both learning outcomes and constructive alignment. This resulted in the "critically reflecting on the impact of teaching decisions on the learner's future" element being articulated in 2 measurable items (1-2; 1 for 'learning outcomes' & 2 for 'constructive alignment') and the "making syllabus design and enhancement choices" element being articulated in 4 measurable items (3-6; 3-4 for 'learning outcomes', 5 for 'constructive alignment', 6 for 'learning outcomes' & 'constructive alignment' together):

Descriptor		**Measurable learning outcomes**
Commitment and sense of responsibility to critically reflect on the impact of teaching decisions on the learner's future in order to make responsible syllabus design and enhancement choices, especially from the point of view of sustainability	critically reflecting on the impact of teaching decisions on the learner's future	**1. ensure that LOs of the course unit contribute to preparing learners for the future.** **More exactly, this means that graduates will be able to judge if this is already in place and:** **1.1 [if currently formulated LOs do not satisfy this condition - i.e. do not contribute to preparing learners for future (understood as any of the 4 aspects above or a combination of some of the 4 aspects], suggest revisions to LOs to ensure the new LOs can indeed help learners be better prepared for the future** **1.2. [if it is in place - i.e. if such relevance is seen by those who design the programme] Check if learners see the relevance of LOs for** **(1) their life and/or** **(2) desired participation in society and/or** **(3) further studies and/or** **(4) potential career** **and if such relevance is seen by those who design the programme but not by the learners, suggest ways to help learners see/understand the relevance** **2. explain how each element of the sequence(s) of the assessment, learning & teaching activities proposed might indeed have the desired impact on the learner's future (in terms of preparing learners for (1) life and/or (2) desired participation in society and/or (3) further studies and/or (4) potential career)**
	making syllabus design and enhancement choices	**3. check LOs with real learners [clarity (whether learners understand LOs)]** **4. check LOs with with their colleagues & with other stakeholders of the learning process (e.g. parents/adults responsible for the learner) [if colleagues & these other stakeholders have a shared understanding of the relevance of the LOs - if they also see a particular LO as relevant for see the relevance of LOs for (1) learners' life and/or (2) desired participation in society and/or (3) further studies and/or (4) potential career]**

		5. find and take into account particular characteristics of an educational programme and of concrete diverse learners in order to check the viability of LOs and the viability and effectiveness of sequence(s) of the assessment, learning & teaching activities proposed **6. justify syllabus design choices in terms of the desirable impact on the individual learner's future and a given context in which learning can take place**

Level 7: Skills

Two elements of this Skill were distinguished: 'formulating learning outcomes for different types of educational programmes' and 'ensuring that the different planned teaching, learning & assessment activities can lead jointly to the programme intended outcomes'. For the first element, it was considered instrumental to make a distinction between contexts/countries where the set of learning outcomes to be achieved at the end of an educational programme is defined by school teachers and context/countries where this is not the case.

This resulted in the "formulating learning outcomes for different types of educational programmes" element being articulated in 1 measurable item (1a or 1b, depending on the context) and 'ensuring that the different planned teaching, learning & assessment activities can lead jointly to the programme intended outcomes' element being articulated in 3 measurable items (2-4):

Descriptor	**elements**	**Measurable learning outcomes**
Ability to formulate learning goals for different types of educational programme(s) and ensure that the different planned teaching, learning and assessment activities can lead jointly to the programme intended outcomes	formulating learning outcomes for different types of educational programmes	**1a. Given a desired school graduate profile (= what school graduates should be able to demonstrate in terms of knowledge, skills, competences, attitudes, etc.), revise/formulate the programme learning outcomes (PLOs) so that the desired profile can indeed be fully achieved** **[in countries/contexts where teachers are expected/allowed to co-define desired learner profiles]** **1b. Define the desired school graduate profile for a particular educational programme (of a given length, level, type of education), in consultation with relevant stakeholders and relevant reference documents**
	ensuring that the different planned teaching, learning & assessment activities can lead jointly to the	**2. Revise - in consultation with others, if necessary, - if assessment, learning and teaching activities of programme components (courses/modules/etc) are consistent/coordinated among the programme team and can lead to learners achieving a given PLO** **3. If a combination of assessment, learning and teaching activities of programme components (courses/modules/etc) is not sufficient to achieve a given PLO, suggest ways of making**

	programme intended outcomes	**improvements to the programme [comment: we are referring to a particular programme of a particular educational institution]** **4. Identify unnecessary overlaps/duplications in assessment, teaching and learning activities across the different programme components, and suggest ways to remove these [in order to achieve alignment at the programme level]**

Level 7: Autonomy and Responsibility

This descriptor was articulated in 5 measurable items:

Descriptor	**Elements**	**Measurable learning outcomes**
Commitment and sense of responsibility to choose appropriate curriculum strategies at the level of a school section/ department/ team/ unit, taking into account expected impact on students' learning, time available, costs and human resources; as well as to manage the learning progression in the programme, working as part of an educational, multidisciplinary team	**Choose appropriate curriculum strategies in school, taking into account expected impact on students' learning, time available, costs and human resources**	**1. Analyse the requirement placed by the overall programme of studies and its different components on different learners (i.e. time and effort required and/or materials/equipment and/or intended impact on learners' future)** **2. Analyse the requirement placed by the overall programme of studies and its different components on the material and human resources of a school** **3. Propose viable alternatives to originally designed assessment, learning and teaching activities if time/financial/material/human or any other resources available make the original plan not feasible.**
	Manage the learning progression in the programme, coordinating with colleagues and teams working in a school	**4. Coordinate with colleagues and teams working in a school, showing flexibility and openness *[as perceived by peers]*, in order to identify any challenges to learners' progression** **5. Coordinate with colleagues and teams working in a school, showing flexibility and openness *[as perceived by peers]*, in order to resolve any identified challenges to learners' progression**

Stage 2: Descriptor Rubrics at level of 'elements'

Level 6: Skills

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RUBRIC **2.1. L6 SKILLS**	1 Beginner (not satisfactory)	2 Intermediate (satisfactory)	3 Advanced (outstanding)
A. formulate learning outcomes for different types of course units within educational programme(s)	*A1. Develop LOs which are not clear (e.g., with many concepts per outcome), do not use action verbs properly, mostly rely on lower order thinking skills, do not consider affective and psychomotor domain, and rarely connected to what students have previously learned.*	*A1. Develop appropriate clear LOs that include measurable goal(s) for student learning, use specific action verbs, at appropriate level, utilise multiple domains, and are connected to what students have previously learned.*	*A1. Develop clear, specific, measurable, student-focused learning outcome(s) which* *(a) use well-selected specific action verbs and include a condition, action, and criterion for success,* *(b) progress toward more challenging higher order thinking skills such as application, analysis, evaluation, or creation* *(c) represent a more holistic view of learning including knowledge, skills, and values* *(d) consistently connected to what students have previously learned and integrated with other disciplines*
	A2 Show an understanding of the elements of well formulated LOs	*Identify the missing elements of LOs formulated by others, but is still not able to propose enhancements.*	*Critically evaluate the quality of LOs formulated by others considering the essential elements and rewrite it appropriately.*
B. apply constructive alignment (CA) in (re)designing syllabus/ course units	*B1 Student is able to show only a basic understanding of the constructive alignment concept, by successfully aligning learning outcomes only with appropriate teaching methods, but not with assessment methods, or is successful only in some other combination of the three CA elements.*	*Student aligns learning outcomes with appropriate teaching and assessment methods but only for lower level knowledge based learning outcomes. Students is still unable to constructively align learning outcomes which refer to higher-order thinking, skills or values with student-centred teaching methods and assessment.*	*Student can align higher level- and skills- and values- based learning outcomes* *to teaching methods which encourage active learning, and to both assessment for learning and of learning which encourage elaboration, practical application of knowledge and problem solving.*
	B2 Student needs additional help from teacher in order to make connections between learning outcomes, teaching and assessment methods.	*Student can critically evaluate the quality of a syllabus (both course and unit) in terms of constructive alignment, but is still not able to propose enhancements based on active learning, problem solving and practical application.*	*Student can critically evaluate the quality of a syllabus (both course and unit) in terms of constructive alignment, and redesign it appropriately.*

Level 6: Autonomy & Responsibility

RUBRIC ***2.1. L6 Autonomy & Responsibility***	1 Beginner (not satisfactory)	2 Intermediate (satisfactory)	3 Advanced (outstanding)
Critically reflect on the impact of teaching decisions on the learner's future	*A. Develop clear, specific, measurable, student-focused learning outcome(s) which are connected to what students have previously learned and integrated with future outcomes and other disciplines.*	*Develop LOs that contribute to preparing learners for the future. 'Future' is understood as any of these 4/a combination of some of these 4 - depending on the subject/level of studies]:* *(1) life,* *(2) participation in society, as well as* *(3) further studies and* *(4) potential career*	*Incorporate these future-directed LOs in teaching/teaching plans, in a way that enables teachers to check for students' understanding of these LOs and to rewrite the LOs based on students feedback, if necessary.* *Ask for and incorporate feedback from other colleagues when revising LOs.*
make responsible syllabus design and enhancement choices	*B. Student can critically evaluate the quality of a syllabus (both course and unit) in terms of constructive alignment, and redesign it appropriately, but is unable to comment on the relevance of teaching for learner's future, how viable the plan is for students with diverse needs or in special/unexpected contexts.*	*Analyze the relevance of each LO for the learners' future. 'Future' is understood as any of the following or a combination of some of the following - depending on the subject/level of studies]:* *(1) life,* *(2) participation in society, as well as* *(3) further studies and* *(4) potential career* *Critically evaluate how well particular teaching and assessment activities achieve the associated future-directed LOs.* *Analyze the applicability of LOs and syllabus design (both course and unit) for meeting diverse students' needs in different school contexts.*	*Propose enhancements to LOs and syllabus (both course and unit) design in order to meet diverse student needs in diverse school contexts.* *Adapt teaching plans to unforeseen circumstances (e.g. switch to online classes due to the pandemic, shorter teaching time due to class disruptions etc.) without sacrificing constructive alignment principles or achievement of future-directed LOs.*

Level 7: Skills

RUBRIC **2.1. L7 SKILLS**	1 Beginner (not satisfactory)	2 Intermediate (satisfactory)	3 Advanced (outstanding)
A. Formulate learning outcomes for different types of educational programme(s)	*A1. Develop LOs which do not take into account characteristics of the particular educational programme (educational programme of a given length, level, type of education)*	*Develop LOs for particular educational programmes (educational programmes of a given length, level, type of education) which are linked to a desired learner profile but do not lead to developing the desired learner profile fully. [If applicable] define the desired learner profile without consulting all relevant stakeholders.*	*Develop LOs for particular educational programmes (educational programmes of a given length, level, type of education) which fully express a desired learner profile, either given or defined in consultation with relevant stakeholders and relevant reference documents.*
	A2. If PLOs are given, identify some of the gaps between the desired learner profile and profile expressed in the PLOs given	*If PLOs are given, critically evaluate the given programme LOs by identifying all of the gaps between the desired learner profile and profile expressed in the PLOs given, but not able to propose concrete ways to enhance it.*	*If PLOs are given, critically evaluate the given programme LOs whether they express the learner profile and rewrite them to fully express the desired learner profile.*
B. Apply constructive alignment (CA) at programme level	*B. Identify assessment, learning and teaching activities of programme components related to a particular PLO, but cannot evaluate whether these activities are sufficient to achieve the particular PLO and/or whether there are unnecessary overlaps/duplications in assessment, teaching and learning activities across the different programme components.*	*Identify (a) when the totality of assessment, learning and teaching activities of the different programme components (courses/modules/etc) are not sufficient to achieve a given PLO and/or (b) when there are unnecessary overlaps/duplications in assessment, teaching and learning activities across the different programme components; however, not able to propose concrete ways to achieve fully constructive alignment.*	*Suggest ways of making improvements to the programme if (a) the totality of assessment, learning and teaching activities of programme components (courses/modules/etc) are not sufficient to achieve a given PLO and/or (b) there are unnecessary overlaps/duplications in assessment, teaching and learning activities across the different programme components.*

Level 7: Autonomy & Responsibility

RUBRIC ***2.1. L7 Autonomy & Responsibility***	1 Beginner (not satisfactory)	2 Intermediate (satisfactory)	3 Advanced (outstanding)
A. Choose appropriate curriculum strategies in school, taking into account expected impact on students' learning, time available, costs and human resources	*A. Student can articulate resources required to carry out the overall programme of studies and its different components as intended, taking into account (1) different learners (i.e. time and effort required and/or materials/equipment and/or intended impact on learners' future), and (2) material and human resources of a school.*	*Analyse a specific school/subject programme context in terms of different learners, materials, and human resources available in order to identify gaps between desirable and available resources and specific needs of particular learners that exist in a particular context.* *State what challenges in learners' progression these might lead to.*	*Propose viable alternatives to originally designed school/subject programme component(s) if time/financial/material/human or any other resources available make the original plan not feasible.*
B. Manage the learning progression in the programme, coordinating with colleagues and teams working in a school	*B. Identify colleagues and teams working in a school with whom you would need to collaborate/coordinate in order to resolve any identified challenges to learners' progression.*	*Propose an action plan to collaborate/coordinate with relevant colleagues and/or (multidisciplinary) teams working in a school in order to resolve the identified challenges to learners' progression.*	*Coordinate with colleagues and teams working in a school - in a manner that is perceived as flexible and open - to implement an action plan focused on resolving identified challenges to learners' progression.* *[for contexts where interns/student teachers are treated as members of staff]*

Proposed assessment tasks

The group achieved agreement on three possible assessment tasks that could be used across different Teacher Education programmes in Europe to assess different elements of the Sub-Dimension 2.1. These are presented below.

TEACHER EDUCATION

Proposed task 1: Lesson plan

Purpose: To assess whether students can formulate learning outcomes for different types of course units within educational programme(s) and apply constructive alignment (CA) in (re)designing syllabus/ course units.

Description of the task:

Students are given a blank template and they fill in the required details regarding resources, timetabling, differentiation, etc. In this way, students are guided into knowing what is expected of them and it is easier to link the different parts and make it coherent.

The task includes the following components:

1. **Learning outcomes (**Formulating learning outcomes (LOs) for the unit [expected to show links to wider programme LOs/cross-curricular themes etc.…]

2. **The Teaching and Learning Activities with Quality Elements**
   - 2.1. Knowing or listing of **resources** available and/or needed for this unit.
   - 2.2. Describing **the teaching and learning events** proposed to achieve the LOs. Proposing homework for the lesson/unit where relevant or appropriate.
   - 2.3. **Lesson Structure** Knowing the **timetable** [order of activities, teaching pedagogy..] for the activities.
   - 2.4. Proposing strategies for **differentiation for different learning need**s.

3. **Assessment of Student Learning**

Assessment rubric

Assessment Item	**Level of achievement/poor**	**Level of achievement/intermediate**	**Level of achievement/excellent**

Learning outcomes (LOs) *1/ [formulation)]* *2/ [context/national curriculum/etc.]* *3/ higher order &/or not only KN* *4/ connected to what learners have previously learned]* *5/ take into account the place of the unit in the whole programme/syllabus [identifying the pre-requisite learning for this unit [in consultation with classroom teacher].*	In the lesson plan: Outcomes not clear or ambiguous because of sentence structure or use multiple ideas. Learning outcomes rely on lower order knowledge and skills. Learning outcomes consider some of the learning domains but not all. Where appropriate learning outcomes are not, or only vaguely, linked to institutional, regional or national curricula. Learning outcomes are not linked with the context of prior learning and learning-forward. The lesson planned is not linked with other elements of the programme or, where appropriate, with the national curriculum.	In the lesson plan: Outcomes are clearly written, use relevant action verbs and are measurable. Learning outcomes address different learning levels [of a taxonomy] Learning outcomes consider all domains of learning. Where appropriate learning outcomes are linked to institutional, regional or national curricula. Learning outcomes are linked with the context of prior learning and learning-forward. The lesson planned is linked with the most important but not all relevant elements of the programme and/or, where appropriate, with the national curriculum.	In the lesson plan: The outcomes are clearly written, measurable, use specific action verbs and include criteria for success. The learning outcomes challenge and address higher order learning skills such as application, analysis, evaluation etc. The learning outcomes not only consider all domains of learning but also link these in a holistic way. Where appropriate learning outcomes are linked specifically and with cross-reference to institutional, regional or national curricula. Learning outcomes are linked with the context of prior learning and learning-forward. Lesson links seamlessly with previous lessons and wider (national) reference documents.
Constructive alignment of the elements of the lesson plan	The proposed teaching and learning activities, and some of their quality elements [resources, teaching and learning events, ordering of activities and use of time, differentiation], and student assessment are not or only poorly aligned with the learning outcomes; or the proposed assessment is aligned with the learning outcomes, but all three elements are not aligned.	The proposed teaching and learning activities, with their quality elements [resources, teaching and learning events, ordering of activities and use of time, differentiation], and student assessment and/or the proposed assessments are aligned with the learning outcomes at the level of knowledge-based learning outcomes but higher-order learning, values, skills not yet aligned.	The proposed teaching and learning activities, with their quality elements [resources, teaching and learning events, ordering of activities and use of time, differentiation], and student assessment and/or the proposed assessment for and of learning are aligned with the learning outcomes at all learning levels and they encourage the practical application of learning and further problem solving

Teaching and Learning Activities Quality Element 1: **Choosing/ identifying** resources (materials) required for the TLA activities	The resources/materials used in the proposed activities are not aligned with the lesson learning outcomes and/or are not appropriate for the teaching and learning activities and/or for the specific group.	Most of the resources/materials used in the proposed activities are aligned with the lesson learning outcomes and are appropriate for the teaching and learning activities and grade level.	All the resources/materials used in the proposed activities are deliberately aligned with the lesson learning outcomes and are appropriate for the teaching and learning activities and for the specific groups of students within a class group.
Teaching and Learning Activities Quality Element 2: **Describing** the teaching and learning events proposed to achieve the LOs.	The teaching and learning activities proposed are not clearly directed to help learners achieve or are not aligned with the intended outcomes.	The teaching and learning activities proposed are aligned with and are likely to promote learning processes that can help learners achieve the intended learning outcomes.	The student proposes unique and challenging learning experiences that require learners to demonstrate a variety of applicable skills and competencies that incorporate higher-order thinking and creative methods of teaching and learning which are well aligned with the learning outcomes at all levels.
Teaching and Learning Activities Quality Element 3: **Knowing** the timetable, managing time and logical order for the activities.	The student's lesson plan does not maximize instructional time or allocates too much or too little time to activities. Some evidence of ordering of activities but the logical sequence of the activities is not clear.	The student's lesson plan assigns realistic time to each teaching and learning activity. The activities are clearly and logically sequenced and transition points between activities are planned and realistically timed.	The student's lesson plan makes excellent use of the time available for the different teaching and learning tasks. Activities are sequenced in a way that develops student learning logically to the learning outcomes.
Teaching and Learning Activities Quality Element 4: **Differentiation** for different learning needs	The student's lesson plan shows no or limited strategies for differentiation for different learning needs, or the student's notion of differentiation is limited. Student has not used contextual information about (individual) differences	The student's lesson plan contains a strategy for differentiation for each teaching and learning activity. The student's understanding of differentiation includes a number but not all groups of different learners. Student has made some use of contextual information about (individual) differences	The student's lesson plan contains a well-developed and well-informed strategy for differentiation in each teaching and learning activity. Student has a wide concept of differentiation. Student has made good use of contextual information about (individual) differences
Assessment of Student Learning	The student's lesson plan shows little evidence that the learners understand how their work will be evaluated.	The student's lesson plan makes the standards of high-quality work mostly clear to learners.	The student's lesson plan makes the standards of high-quality work clear to learners.

	The lesson plan monitors understanding through a single method, or without eliciting evidence of understanding from learners. The lesson plan makes only minor attempts to engage learners in self- or peer assessment.	The lesson plan occasionally elicits evidence of learners' understanding. The lesson plan invites learners to assess their own work and make improvements; half or less of them do so.	The lesson plan consistently elicits evidence of learners' understanding. In the lesson plan, learners are encouraged and explicitly facilitated to assess their own work and make improvements.

Proposed task 2: Interactive assessment for Learning Outcomes

Purpose: The purpose of this task is to assess the outcome: '*Show an understanding of the elements of well formulated LOs',* using an app-based MCQ/prompted response instrument.

Description of the task:

Students complete an on-line exercise that tests their knowledge of the language and correct formulation of learning outcomes. The instrument consists of a number of items/questions and a summative score is generated with the possibility also of more detailed feedback on individual questions. The instrument is in beta stage of development and four examples of the items are presented below.

Decide about the following sentences. Is it a possible Learning Ourcome or not.

Click on the Yes or No button.

This training session will discuss the new policy for reporting travel expenses.	Yes	No
Learners can reliably demonstrate how to use de-escalation techniques to neutralize conflicts.	Yes	No
This lecture will list ten ways to de-escalate a confrontation in the workplace.	Yes	No
The learner understands how to properly report travel expenses.	Yes	No
By the end of this course, successful students will be given opportunities to learn effective communication.	Yes	No

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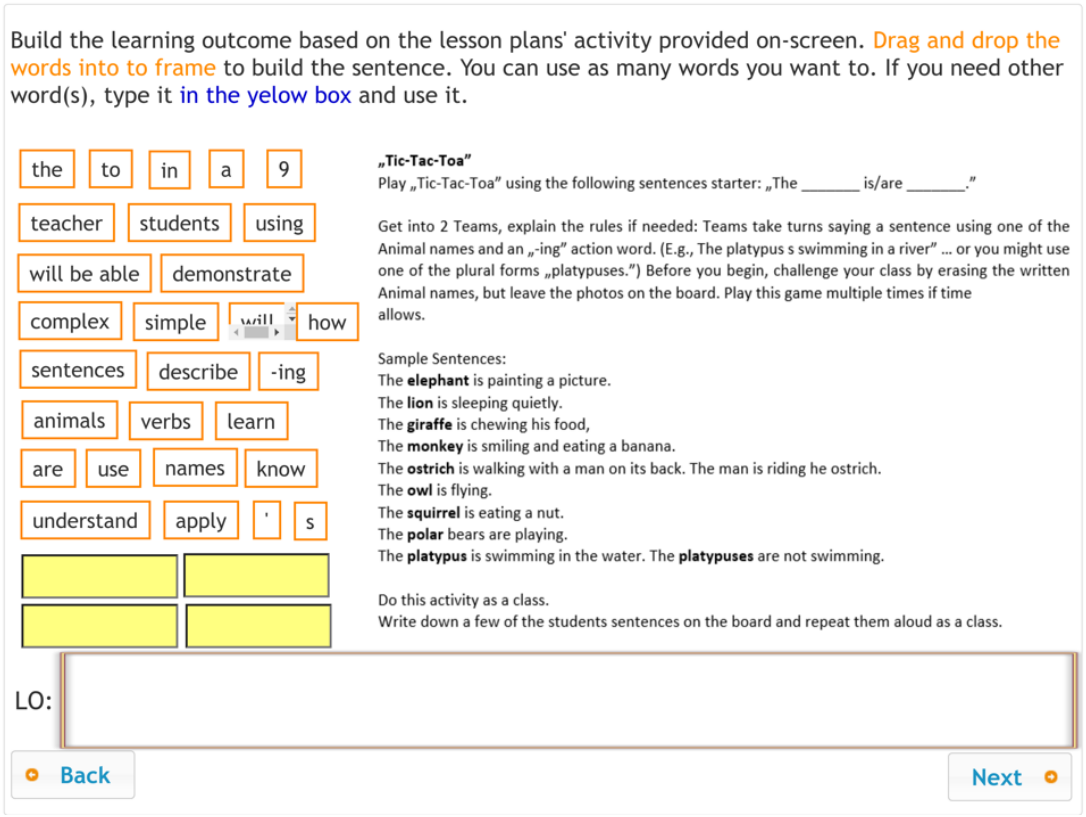
Build the learning outcome based on the lesson plans' activity provided on-screen. Drag and drop the words into to frame to build the sentence. You can use as many words you want to. If you need other word(s), type it in the yelow box and use it.
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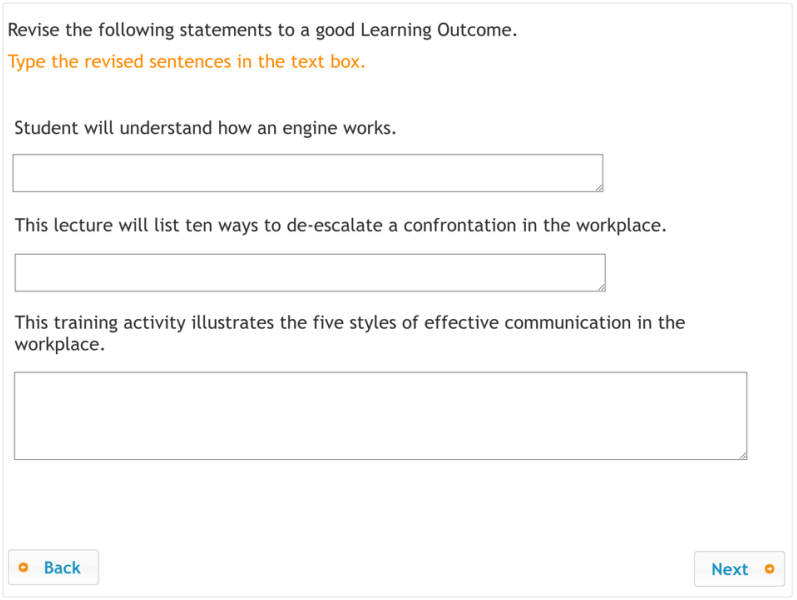
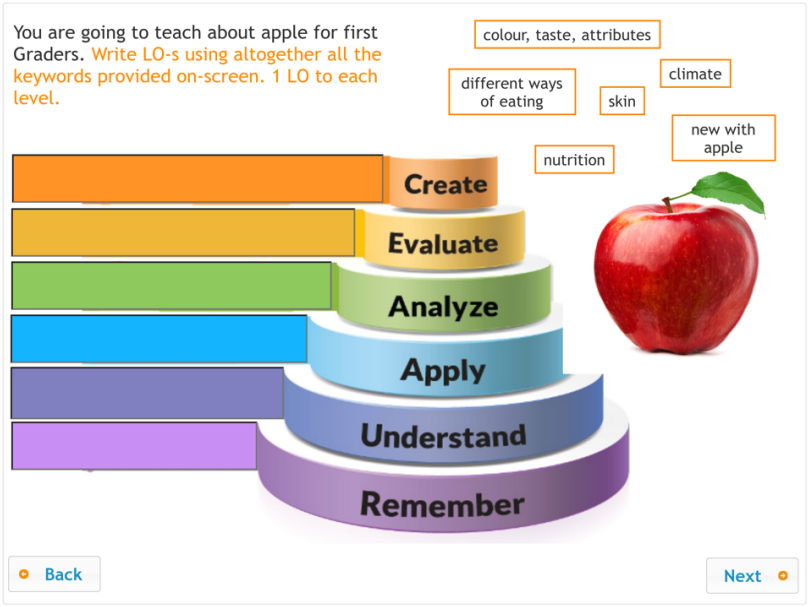
„Tic-Tac-Toa"
Play „Tic-Tac-Toa" using the following sentences starter: „The _____ is/are _____."
Get into 2 Teams, explain the rules if needed: Teams take turns saying a sentence using one of the Animal names and an „-ing" action word. (E.g., The platypus s swimming in a river" ... or you might use one of the plural forms „platypuses.") Before you begin, challenge your class by erasing the written Animal names, but leave the photos on the board. Play this game multiple times if time allows.
Sample Sentences:
The elephant is painting a picture.
The lion is sleeping quietly.
The giraffe is chewing his food,
The monkey is smiling and eating a banana.
The ostrich is walking with a man on its back. The man is riding he ostrich.
The owl is flying.
The squirrel is eating a nut.
The polar bears are playing.
The platypus is swimming in the water. The platypuses are not swimming.
Do this activity as a class.
Write down a few of the students sentences on the board and repeat them aloud as a class.
LO:
Back
Next

TEACHER EDUCATION





Comments

The development of this tool is at a very early stage and will require a number of refinements that address context and quality of feedback, to name just two.

MENU OF IDEAS FOR ASSESSMENT TASKS TO ASSESS LEVEL 7 WIDER COMPETENCES FOR SUB-DIMENSION 2.1. "Curriculum development, evaluation and enhancement"

2.1 Level 6 Wider Competencies

Analyse given learning outcomes (LOs) in a lesson plan to decide if they reflect teaching for a learner's future

Task 1: Analysing LOs in Lesson Plans

Student-teachers are divided into pairs of small groups. Given a Lesson Plan with LOs, they have to analyse the document and decide what LOs fit better with the idea of "a teaching that impacts on the learner's future" and explicitly why. The Lesson Plan has to be prepared before with bad/good LOs. Pairs/groups return to the entire group, share ideas, and agree on the best LOs and why (list of criteria for why they are acceptable).

Then each student-teacher has to develop LOs for another Lesson Plan, following what was decided in the group.

This task will also be appropriate for LOs of a topic / longer period of time; ideally set in a realistic scenario. A specific year group, subject area and topic are identified. The task can be differentiated according to the level and standard of the student teachers, at the initial level, a set of LOs are given and they have to filter them according to the appropriateness of age group and topic. For an intermediate level, the student teachers need to identify the appropriate LOs from a given list AND match them to pre-set learner profiles. For a high level, student teachers will be asked to consult with teachers of that given year group and subject area, THEN write appropriate LOs for different levels of pupils.

As a low level competence, the student teachers can edit and rewrite the LOs based on the whole group discussion. As an intermediate level competence, student teachers can rewrite the LOs based on the whole group discussion, and then identify the good LOs from a given list of LOs for a NEW lesson plan. As a high level competence, student teachers can 1. edit, modify or rewrite the LOs based on the feedback gathered from the whole group discussion. they will then be given a NEW lesson plan and they need to write LOs for it.

Task 2: Analysing the quality of a syllabus

Analyse given LOs in a section of a syllabus to decide if they reflect teaching for a learner's future

Student teachers are given a detailed description of a class (either in written format or a video), with particular learning needs and learning receptiveness / dispositions. Then they are asked to analyse the quality of a syllabus built on the idea of "a teaching that impacts on the learner's future" and propose enhancements to LSo and the syllabus if needed.

2.1 Level 7 Wider Competencies

TEACHER EDUCATION

Task 1: Identifying best strategies in a teaching scenario

choose appropriate curriculum strategies in school

Student teachers are given a teaching scenario with multiple strategies and they are required to choose the best strategies which fit the required students' needs and available time and resources. Student teachers are given a detailed description of a class (either in written format or a video), with particular learning needs and learning receptiveness / dispositions, and are asked to develop strategies to address the needs of these students and facilitate their learning. Strategies need to be pedagogically enriching and yet feasible for a teacher to integrate in one's day-to-day schedule.

For initial level student teachers, strategies are chosen from a given list. For the intermediate level, the student teachers need to analyse the context AND evaluate given strategies, pinpointing their strengths and weaknesses. For the high level, student teachers need to develop their own strategies for a given context AFTER evaluating it and explain why.

Task 2: Guided assignment to develop an effective learning programme with colleagues and/or peers

manage the learning progression in the programme, coordinating with colleagues and teams working in a school

Students are asked to work in groups and to:

- Develop / use a given observation tool (semi-structured focus group or group interview) that can provide a standardised way of collecting information from colleagues, about a required lesson plan.
- Conduct a focus group with teachers, peers working with the student group / class, or with pupils themselves. They will explore the different components needed to build an effective learning programme.
- Use the information yielded from the focus group to develop / review a lesson plan (filling in a given template) taking into account the necessary learning outcomes, strategies, assessment techniques etc. as reported by colleagues.
- The focus group conducted with teachers and other educators can be helpful to gather data about the learning progress being made; that carried out with pupils can promote pupils' metacognitive reflection process.

After the data from the focus groups is collected:

For initial level student teachers, the task is to identify the colleagues to work with who can help them with pupils' progression. For the intermediate level, the student teachers will use the data from the focus groups AND consult with colleagues to devise an action plan. For high level student teachers, the action plan needs to be developed AND implemented (if internship or teaching practice is provided).

4.2 Dimension 6 "Development as Professionals and Life-Long Learners"

6.1 "*Acting as learners and researchers*"

6.2 "*Acting as learners in an international context*". - "*Acting as learners in an international context*" (sub-dimension 6.2)

The discussion about what needs to be assessed and how this can be done in internationally comparable ways across different project countries focused on the *Skills* and *Autonomy and Responsibility/Wider Competences* of Dimension 6 "Development as Professionals and Life-Long Learners". At Stage 1 the group focussed on the three sub-dimensions of Dimension 6. However, the group discovered that, when it comes to observable and measurable indicators of behaviour, the indicators for the subdimensions teacher as a learner and teacher as a researcher had very much in common and in fact referred to very corresponding concepts. In order to avoid redundancy, the group decided to merge the original two subdimensions 6.1 and 6.2 to a new sub dimension: 6.1: Acting as learners and researchers. The old sub-dimension 6.3 *"Acting as learners in an international context"* became sub-dimension 6.2 and, at a later stage of the discussion, a new sub-dimension 6.3 *"Resilience and well-being"* was added. This new sub-dimension did not, however, form part of the discussion about assessing learners' development in Dimension 6 in an international setting.

The table below contains descriptors for the *Skills* and *Autonomy and Responsibility/Wider Competences* for Levels 6 and 7 for (the 2023 Framework version) Sub-Dimensions 6.1 and 6.2, which are those relevant to what follows.

Sub-Dimension	**Level**	***Skills***	***Autonomy and Responsibility***
6.1 ***Acting as learners and acting as researchers***	**Level 6**	***The ability to apply a research based, evidence informed approach to analyse and improve teaching and learning practice in the classroom and to promote own professional growth***	***Commitment and sense of responsibility to continuously and critically investigate and improve own teaching practice and professional quality in an evidence informed way.***

	Level 7	***The ability to apply a research based, evidence informed approach to analyse and innovate teaching and learning practice in the classroom and beyond (at meso level: section, department, school)***	***Commitment and sense of responsibility to continuously and critically investigate and innovate one's own teaching and learning practice and professional quality and that of others in the section, department, school and beyond, in an evidence informed way.***
6.2 *Acting as learners in an international context*	**Level 6**	***Ability to use other languages, particularly English, for the purposes of continuous professional development***	***Commitment and sense of responsibility to develop connections with (international) peers in order to continue developing as professionals and global citizens***
	Level 7	***Ability to identify, join and collaborate with international peer teams focussed on continuous professional development***	***Commitment and sense of responsibility to foster an atmosphere of engagement in international collaborations that permit communities of teachers to feel and act as global citizens and members of a global professional community***

Stage 1: 'Breaking down'

Sub-Dimension 6.1 Level 6: Skills

Descriptor	**Measurable learning outcomes**
6.1 The ability to apply a research based, evidence informed approach to analyse and improve teaching and learning practice in the classroom and to promote own	**1. Identify obvious challenges to successful learning in (own) teaching practice at classroom level** **2. Analyse causes of challenges to successful learning in the classroom by** ● **Identifying sources and procedures to gather information on problem and possible/plausible solutions** ● **Designing research projects at micro-level (classroom learning)** ● **Conducting research at micro-level (classroom learning)** ● **Analysing research findings in light of their implications for solutions for identified challenges** **3. Design research informed improvements of teaching and learning practice (educational design) to overcome challenges to successful learning in the classroom**

professional growth	**4. Implement (or plan implementation in case there is no own classroom available) improvements in classroom practice based on systematic analysis of learning challenges and plausible solutions.** **5. Evaluate (or plan the evaluation of) the effectiveness of the improvements as implemented.** **6. Critically reflect on the contribution of research-based learning to own professional growth**

Sub-Dimension 6.1 Level 6: Autonomy and Responsibility/Wider Competences

Descriptor	Measurable learning outcomes
Commitment and sense of responsibility to continuously and critically investigate and improve own teaching practice and professional quality in an evidence informed way.	**1 Reflect on the quality of own teaching practice and professional impact on learning and development of learners** **2 Seek feedback and information about one's impact on the learning and development of learners** **3 Triangulate from multiple sources (e.g. research, literature, peer feedback, data on pupil-progress) to understand and improve own teaching practice and professional quality** **4 Plan and realise own professional development**

Sub-Dimension 6.1 Level 7: Skills

Descriptor	Measurable learning outcomes
The ability to apply a research based, evidence informed approach to analyse and innovate teaching and learning practice in	**1 Identify complex issues that impede quality learning, that can be addressed using educational research and whose solution will benefit multiple stakeholders in a particular educational context/situation** **2 Design, conduct and lead a collaborative group/team research project aimed to provide solutions for improving teaching and learning practices beyond one's own immediate scope of practice**

the classroom and beyond (at meso level: section, department, school)	**3 Develop an effective educational design for innovative teaching and learning practices at meso level (beyond the classroom: at the level of section, department and/or school), in the light of the conclusions of the research project** **4 Develop a plan for implementation and evaluation of the innovative educational design** **5 Critically reflect on the contribution of the collaborative research-based (collective) learning process to team quality**

Sub-Dimension 6.1 Level 7: Autonomy and Responsibility/Wider Competences

Descriptor	**Measurable learning outcomes**
Commitment and sense of responsibility to continuously and critically investigate and innovate one's own teaching and learning practice and professional quality and that of others in the section, department, school and beyond, in an evidence informed way.	**1 Advocate for an evidence/research-based approach to educational innovation** **2 Convince peers and/or other relevant stakeholders (including learners and school leaders) of the relevance and applicability of particular research (findings) for bringing about improvements in a specific educational context** **3 Apply an evidence-based approach to monitor, steer and underpin own professional practice and development**

Sub-Dimension 6.2 Level 6: Skills

Descriptor	**Measurable learning outcomes**
Ability to use other languages, particularly English, for the purposes of continuous professional development	**equivalent of, for example, B2 in CEFR**

Sub-Dimension 6.2 Level 6: Autonomy and Responsibility/Wider Competences

Descriptor	Measurable learning outcomes
Commitment and sense of responsibility to develop connections with (international) peers in order to continue developing as professionals and global citizens	1a. Identify international peer groups (study groups, special interest groups, working groups, etc.) which one can join in order to continue developing as a professional and/or a global citizen 1b. Identify persons in the field connecting to whom can help continue developing as a professional and/or a global citizen 2. Follow the discussions/interactions/activities of an international peer group and/or web-publications/podcasts of the ind*ividual international experts so as to continue developing as a professional and/or a global citizen*

Sub-Dimension 6.2 Level 7: Skills

Descriptor	Measurable learning outcomes
Ability to identify, join and collaborate with international peer teams focussed on continuous professional development	1a. Identify international peer groups (study groups, special interest groups, working groups, etc.) which one can join in order to continue developing as a professional and/or a global citizen 1b. Identify persons in the field connecting to whom can help continue developing as a professional and/or a global citizen [same as L6 WiderComp] 2. Contribute to the discussions/interactions/activities of an international peer group linked to own continuous development as professional and/or global citizen

Sub-Dimension 6.2 Level 7: Autonomy and Responsibility/Wider Competences

Descriptor	Measurable learning outcomes
Commitment and sense of responsibility to foster an atmosphere of engagement in international collaborations that permit communities of teachers to feel and act as global citizens and members of a global	1. Share lessons learned thanks to participating in international peer discussions/collaborations with other (pre-service) teachers 2. Help peers - other (pre-service) teachers - get engaged with the international peer groups (study groups, special interest groups, working groups, etc.) which one can join in order to continue developing as a professional and/or a global citizen

professional community	

Stage 2: Descriptor Rubrics

RUBRIC 6.1 **Level 6 SKILLS**		**Ability to apply a research based, evidence informed approach to analyse and improve teaching and learning practice in the classroom and to promote own professional growth**		
Elements/criteria		1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
Identify obvious challenges to successful learning in (own) teaching practice at classroom level		*The student needs help to notice lack of successful learning in (own) teaching practice and/or only provides a general description of a possible obstacle for learning when asked for clarification/explanation.*	*The student identifies an obstacle to successful learning in (own) teaching practice and provides clear arguments on why said obstacle(s) is a challenge in a specific classroom or situation.*	*Student continuously and pro-actively focuses on student learning in (own) teaching practice by making learning visible, notices obstacles to learning and provides clear and in-depth arguments on why and how identified obstacle(s) is a challenge in a specific classroom or situation.*
Analyse causes of challenges to successful learning in the classroom by:	***a) Identifying sources and procedures to gather information on problem and possible/plausible solutions***	*The student collects some information and examines research on the topic/challenge identified by others*	*The student identifies a limited number of sources of evidence and can propose one possible solution/ improvement which is based only on one approach.*	*The student critically reflects on identified barriers and challenges from different perspectives (e.g. learner, curriculum, own teaching behaviour) linking them to contemporary research and others' practices, formulating multiple possible causes.*
		Analyses of the (possible) causes of the challenge are only superficially guided by findings from sources and empirical research and alignment with	*Suggested intervention for improvement is aligned with the outcome of the analyses.*	*Goals for improvement are explicitly based on relevant research literature from multiple perspectives/in a multidimensional way, resulting in competing explanations and possible solutions. There is a strong alignment between the outcome of the analyses and suggestions for improvement.*

		suggested improvement is absent or not evident.		
	b) Designing research projects at micro level	*The student does not formulate a clear research question but is only able to propose a general design based on a research question provided by others.*	*The student formulates a research question which is not very specific but will probably generate some general insight in causes for a specific challenge in his own/a classroom.*	*The student formulates a research question directly tied to an identified challenge in own/a classroom and proposes an adequate approach (either quantitative and/or qualitative) needed to answer the research question in all aspects.*
		The proposed methodology is flawed and only allows the student to investigate a part of the research question. *Proposed hypotheses are based on informal and nonscientific sources, and the student does not prove to have an understanding of the strengths and limitations of proposed methodology.*	*The proposed approach is clearly stated, but not sophisticated enough to address classroom challenges in full complexity. Proposed hypotheses are based on more formal and scientific sources.*	*The formulated hypotheses and methods are based on contemporary and relevant, national, and international, scientific sources, and have a firm theoretical background.* *The student critically reflects on strengths and limitations of chosen methods (sample, design, instruments, lit review approach etc.) considering the possible solutions which can be generated in order to solve a challenge identified in (own) classroom.*
	c) Conducting a research project at micro level	*The student relies heavily on the help of the tutor and/or others in order to obtain the needed information/data.*	*The student is successful in conducting most parts of the project relatively independently.*	*The student conducts the research project entirely according to the planned design, showing high level of independence.*

	d) Analysing research findings in light of their implications for solutions for identified challenges	*Interpretation of results is based on personal views/opinions and intuition, or on informal literature. It lacks scientific underpinning and is not adapted to specific*	*Interpretation of data is partly based on basic theoretical and empirical background, and partly on informal sources and personal opinions.* *Conclusions do not always take the limitations of used methodology into account.*	*Interpretation of data gathered is based on a firm theoretical and empirical background, and contemporary scientific literature, and is tied clearly and directly to specific contextual factors of own practice.* *Conclusions are based both on the strengths and limitations of the used research methodology, and future research ideas are proposed.*
		The student does not (or only with help) formulate implications for solutions for (own) classroom based on the research findings which are realistic and appropriate. It remains unclear how the research findings will serve the design of the solution.	*The student independently formulates solutions based on the research findings and some basic but relevant literature. Suggested solutions need guided adjustment to serve as design principles.*	*The student independently formulates implications for solutions based on and strongly aligned with the research findings and highly relevant literature. Conclusions are translated into design principles that can be applied to the design process without further adjustment.*
Design research-informed improvements of teaching and learning practice (educational design) to overcome challenges to successful learning in the classroom		*The student does not independently translate findings from their research and investigation project into an educational design (lesson/method) aimed to overcome the challenge to successful learning.*	*The student almost independently translates some/most findings from their research and investigation project into an educational design (lesson/method) aimed to overcome the challenge to successful learning*	*The student fully independently translates all findings from their research and investigation project into an educational design (lesson/method) aimed to overcome the challenge to successful learning in all its aspects.*
		Suggested design is not realistic and/or aligned	*Suggested design is realistic and/or aligned with prior research activities, bur needs further adjustments to be*	*Suggested design is highly realistic and context sensitive, aligned with prior research activities and based on recent scientific insights.*

	with prior research activities.	*transferable and/or make it fit for purpose*	
	Implementation of the design is likely to fail and/or not expected to contribute to solution of the problem/challenge identified	*The student does not make a realistic, credible and convincing assessment of the expected impact/effect of the application of different solutions on the learning of pupils.*	*The student makes a realistic, credible and convincing assessment of the expected impact/effect of the application of different solutions on the learning of pupils.*
Implement (or plan implementation - in the case there is no classroom available) improvements in classroom practice based on systematic analysis of learning challenges and plausible solutions	*The student implements (or suggests in a plan) changes in teaching practice which are inappropriate due to lacking analyses of the problem/challenge and/or insufficient underpinning of the intervention/solution and/or inadequate implementation.*	*The student implements (or suggests in a plan) only a part of the solution developed.*	*The student fully implements (or provides a full and complete plan to) developed solution (educational design) in a clear and transparent way, while continuously being aware of learners' needs and interests (or with a continuous focus on the learners' needs and interests).*
Evaluate (or plan the evaluation of) the effectiveness of the improvement as implemented	*The students' evaluation/evaluation plan does not systematically address the main focus: the contribution to tackling the challenge to successful learning in the classroom.*	*The student evaluates (or plans to evaluate) teaching practice after implementation but does not go about systematically. Evaluation (planned evaluation) is not explicitly focused on the effects of the implemented solution on the learners' learning, but there is alignment with problem/challenge originally stated.*	*The student evaluates (or plans to evaluate) teaching and learning practice after implementation of the revision in a systematic, transparent and repeatable way, using multiple data/sources informing about both process and outcome. The evaluation is specifically focused on the original challenge identified. Conclusions derived from the evaluation (or aimed at in the evaluation plan) contain 'lessons learned' and plans and suggestions for further refinement of (own) teaching practice.*

Critically reflect on the contribution of research based learning to own professional growth.	*The student, only when asked to do so and with help from others, reflects on the contribution of research-based activities to own learning and professional development.*	*The student reflects on the contribution of research-based activities to own learning and professional growth.*	*The student reflects deeply and to the point on the contribution of research-based activities to own learning and professional growth.*
	Conclusions are superficial. There are no artefacts of evidence for learning and professional growth.	*Conclusions are aligned with learning experiences reported after the activities. There are some artefacts of evidence for learning and professional development.*	*Conclusions are strongly aligned with learning experiences reported after the activities. Evidence for learning and professional development is richly illustrated by artefacts from (changed) teaching practice and own teaching.*
	Next steps for professional learning and development are not formulated or are not self-evident from the perspective of the 'zone of proximal development'.	*Next steps for professional learning and development are formulated and are congruent to the perspective of the 'zone of proximal development. The direction of intended further development is (partly) underpinned by literature/research.*	*Next steps for professional learning and development are formulated deliberately and SMART in a professional development plan. The direction of intended further development is underpinned by relevant and state of the art literature/research.*

RUBRIC 6.1 **Level 6 Autonomy & Responsibility / Wider Competences**	**Commitment and sense of responsibility to continuously and critically investigate and improve own teaching practice and professional quality in an evidence informed way**		
Elements/criteria	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary

Reflect on the quality of own teaching practice and professional impact on learning and development of learners	*Does not or only incidentally monitor and reflect on quality of own teaching practice on own initiative.*	*Regularly monitors and reflects on quality of own teaching practice on own initiative.*	*Continuously monitors and reflects on quality of own teaching practice on own initiative.*
	When reflecting, effectiveness of own teaching behaviour on learning and development of learners is not a focal point.	*When reflecting, effectiveness of own teaching behaviour on learning and development of learners is at least one of the focal points.*	*Central focal point of reflection is the effectiveness of own teaching behaviour on learning and development of learners.*
	Process of reflection is superficial and does not go beyond own feelings/intuition (the self). Student does not rely in theoretical insights or research outcomes.	*Process of reflection involves own behaviour and professional identity in relation to classroom context. Reflection is incidentally guided by research on effective teaching and learning.*	*Process of reflection is made transparent and structurally guided by contemporary research and developments on effective teaching and learning. Reflection is deep and involves all relevant perspectives.*
Seek feedback and information about one's impact on the learning and development of learners	*Student incidentally seeks for feedback on own initiative.*	*Student actively seeks feedback and demonstrates being able to translate feedback into improvement of teaching practice and own professional quality.*	*Student actively and continuously seeks feedback and demonstrates being able to translate feedback into improvement of teaching practice and own professional quality.*
	The use of different sources is very limited.	*Feedback is sought for in different sources (tutor, peers, learners) and from different perspectives/angels, but is general, not very focused.*	*Feedback is sought for in different sources (interaction with tutor, peers, learners) and from different perspectives/angels. Main focus is the learning and development of learners.*
	When given feedback, student does not demonstrate being able to translate feedback into action.	*Feedback is occasionally and/or partially translated into action.*	*Feedback is deliberately translated into action, adapted to conclusions from research and specific contextual factors.*

	Feedback sought for can be characterised as 'tips and tricks'.	*Quality of feedback is not, or only incidentally verified and evaluated with reference to research and literature.*	*The quality of feedback is systematically verified and critically evaluated with reference to research and literature.*
Triangulate from multiple sources (e.g. research, literature, peer feedback, data on pupil-progress) to understand and improve own teaching practice and professional quality	*Student does not use more than one source on own initiative. If encouraged by tutor or assignment, the student refers to a source in a superficial way. Student does not demonstrate being able to use the chosen source to understand and improve own teaching practice and professional quality.*	*Student, partly on own initiative, uses a number of sources to understand and improve own teaching practice and professional quality. Student adapts conclusions from sources to own context, though not in a critical way. Sources used are limited in scope and not state of the art.*	*Student demonstrates a 'stance of enquiry', by structurally using state of the art sources on effective teaching and learning, to understand own teaching practice and improving professional quality. Student selects sources in a critical way with impact on learning and development of learners as focal point. Student structurally demonstrates evidence-informed decision making when it comes to improving teaching practice and professional quality.*
Plan and realize own professional development	*Student only incidentally translates outcomes from reflection into intentions or actions for professional learning on own initiative. When externally stimulated to make personal development plans, plans are very broad and not well aligned with professional needs.*	*Student translates outcomes from reflection into intentions or actions for professional learning on own initiative.*	*Student systematically and independently translates outcomes from reflection into SMART plans for professional development. There is a clear and unambiguous alignment between professional needs, goals and actions.*
	Goals and development tasks/activities (if set) are superficial and not realistic. Student is not explicit about how realisation of PD-plans can or will be evaluated.	*Set goals and intended development tasks/activities are realistic. Needs assessment, goals and activities are aligned and partly underpinned with theoretical insights and research outcomes. Plans are not yet formulated SMART and it is not very clear what indicators for successful professional*	*Professional development plans are justified by and underpinned with recent relevant research findings and by theoretical insights. PD goals are explicitly tied to enhancement of learning and development in the classroom.*

		development look like and how they will be assessed	

RUBRIC 6.1 **Level 7 SKILLS**	**Ability to apply a research based, evidence informed approach to analyse and innovate teaching and learning practice in the classroom and beyond (at meso level: section, department, school)**		
Elements/criteria	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
Identify complex issues that impede quality learning, that can be addressed using educational research and whose solution will benefit multiple stakeholders in a particular educational context/situation	*The student identifies an obstacle to successful learning in (own) teaching practice and provides clear arguments on why said obstacle(s) is a challenge in a specific classroom or situation.*	*Student continuously and pro-actively focuses on student learning in (own) teaching practice by making learning visible, notices obstacles to learning and provides clear and in-depth arguments on why and how identified obstacle(s) is a challenge in a specific classroom or situation.*	*Student continuously and proactively focuses on identifying obstacles for learning which stem from the broader context (e.g. normative teaching practices in school; school norms and climate; state regulations and similar) and provides clear and in-depth arguments on why and how identified obstacle(s) impedes quality learning, why it is a challenge for the school or community and why ways to overcome it/them should be searched for in an intentional manner.*
Design, conduct and lead a collaborative group/team research project aimed to provide solutions for improving teaching and learning practices beyond one's own immediate scope of practice	*[a] The student identifies a limited number of sources of evidence and can propose one possible solution/ improvement which is based only on one approach. Suggested intervention for improvement is aligned*	*The student critically reflects on identified barriers and challenges from different perspectives (e.g. learner, curriculum, own teaching behaviour) linking them to contemporary research and others' practices, formulating multiple possible causes.*	*The student critically reflects on identified barriers and challenges from the perspective of other teachers, learners outside own classroom, school administration, local and state regulations, school norms and regulations, other schools in the area linking them to contemporary research and to future directions identified by contemporary research.*

	with the outcome of the analyses. *Analyses of the (possible) causes of the challenge are only superficially guided by findings from sources and empirical research and alignment with suggested improvement is absent or not evident.*	*Suggested intervention for improvement is aligned with the outcome of the analyses.*	*Goals for improvement are explicitly based on relevant research literature from multiple perspectives/in a multidimensional way, resulting in competing explanations and possible solutions. There is a strong alignment between the outcome of the analyses and suggestions for improvement.*
	b)The student formulates a research question which is not very specific but will probably generate some general insight in causes for a specific challenge in his own/a classroom. *The proposed approach is clearly stated, but not sophisticated enough to address classroom challenges in full complexity. Proposed hypotheses are based on more formal and scientific sources.*	*[b]The student formulates a research question directly tied to an identified challenge in own/a classroom and proposes an adequate approach (either quantitative and/or qualitative) needed to answer the research question in all aspects.* *The formulated hypotheses and methods are based on contemporary and relevant, national, and international, scientific sources, and have a firm theoretical background.* *The student critically reflects on strengths and limitations of chosen methods (sample, design, instruments, lit review approach etc.) considering the possible solutions which can be generated in order to solve a challenge identified in (own) classroom.*	*Student can formulate research goals at the meso-level, and propose mixed-method research designs which include multiple perspectives.* *The research project is collaborative, and has specified roles for everyone involved* *It is clear how the proposed research design will provide solutions which can be implemented not only in own classroom, but wider.*

	[c] The student is successful in conducting most parts of the project relatively independently.	*[c] The student conducts the research project entirely according to the planned design, showing high level of independence.*	*Student shows project management skills and leadership skills needed to conduct the proposed project.*
	[d]Interpretation of results is based on personal views/opinions and intuition, or on informal literature. It lacks scientific underpinning and is not adapted to specific . *The student does not (or only with help) formulate implications for solutions for (own) classroom based on the research findings which are realistic and appropriate. It remains unclear how the research findings will serve the design of the solution.*	*Interpretation of data is partly based on basic theoretical and empirical background, and partly on informal sources and personal opinions. Conclusions do not always take the limitations of used methodology into account.* *The student independently formulates solutions based on the research findings and some basic but relevant literature. Suggested solutions need guided adjustment to serve as design principles.*	*Interpretation of data gathered is based on a firm theoretical and empirical background, and contemporary scientific literature, and is tied clearly and directly to specific contextual factors of own practice. Conclusions are based both on the strengths and limitations of the used research methodology, and future research ideas are proposed.* *The student independently formulates implications for solutions based on and strongly aligned with the research findings and highly relevant literature. Conclusions are translated into design principles that can be applied to the design process without further adjustment.*
Design research-informed improvements of teaching and learning practice (educational design) to overcome challenges to successful learning in the classroom	*The student almost independently translates some/most findings from their research and investigation project into an educational design (lesson/method) aimed to overcome the challenge to successful learning*	*The student fully independently translates all findings from their research and investigation project into an educational design (lesson/method) aimed to overcome the challenge to successful learning in all its aspects.*	*The student and other research team-members translate their research findings into new practices aimed to overcome the identified challenges in a given context.*

	Suggested design is realistic and/or aligned with prior research activities, bur needs further adjustments to be transferable and/or make it fit for purpose	*Suggested design is highly realistic and context sensitive, aligned with prior research activities and based on recent scientific insights.*	*Suggested solutions are highly realistic and context sensitive, aligned with prior research activities and based on recent scientific insights. In addition, they are innovative for the context in which they are being implemented.*
	The student does not make a realistic, credible and convincing assessment of the expected impact/effect of the application of different solutions on the learning of pupils.	*The student makes a realistic, credible and convincing assessment of the expected impact/effect of the application of different solutions on the learning of pupils.*	*The student makes a realistic, credible and convincing assessment of the expected impact/effect of the application of different solutions on the learning of pupils.*
Implement (or plan implementation - in the case there is no classroom available) improvements in classroom practice based on systematic analysis of learning challenges and plausible solutions	*The student implements (or suggests in a plan) only a part of the solution developed.*	*The student fully implements (or provides a full and complete plan to) developed solution (educational design) in a clear and transparent way, while continuously being aware of learners' needs and interests (or with a continuous focus on the learners' needs and interests).*	*The student, together with other research-group members, suggests a plan of how to implement the developed solution in a clear and transparent way.* *The implementation plan shows awareness of specific needs of different stakeholders* *The student, together with other research-group members, integrates evaluation activities into each step of the implementation plan.*

Evaluate (or plan the evaluation of) the effectiveness of the improvement as implemented	*The student evaluates (or plans to evaluate) teaching practice after implementation but does not go about systematically.* *Evaluation (planned evaluation) is not explicitly focused on the effects of the implemented solution on the learners' learning, but there is alignment with problem/challenge originally stated.*	*The student evaluates (or plans to evaluate) teaching and learning practice after implementation of the revision in a systematic, transparent and repeatable way, using multiple data/sources informing about both process and outcome. The evaluation is specifically focused on the original challenge identified.* *Conclusions derived from the evaluation (or aimed at in the evaluation plan) contain 'lessons learned' and plans and suggestions for further refinement of (own) teaching practice.*	*Evaluation plan is systematic and transparent, with multiple data/sources informing about both process and outcome.* *Evidence for learning and professional team development is richly illustrated not only by artefacts teaching and learning practice, but from "lesson learned" during team-work and project implementation planning.* *Conclusions derived from the evaluation (or aimed at in the evaluation plan) contain 'lessons learned' and plans and suggestions for further refinement of designed solutions at the meso-level.*
Critically reflect on the contribution of research-based learning to own professional growth.	*The student reflects on the contribution of research-based activities to own learning and professional growth* *Conclusions are aligned with learning experiences reported after the activities. There are some artefacts of evidence for learning and professional development.* *Next steps for professional learning and development are*	*The student reflects deeply and to the point on the contribution of research-based activities to own learning and professional growth.* *Conclusions are strongly aligned with learning experiences reported after the activities. Evidence for learning and professional development is richly illustrated by artefacts from (changed) teaching practice and own teaching.* *Next steps for professional learning and development are formulated deliberately and SMART in a personal professional development plan. The direction of intended further development is underpinned by*	*Next steps for professional learning and development are formulated deliberately and SMART in a team development plan.* *The direction of intended further development is underpinned by relevant and state of the art literature/research.* *The student shows to have the capacity to deliberately and proactively steer his own and others professional development.*

	formulated and are congruent to the perspective of the 'zone of proximal development. The direction of intended further development is (partly) underpinned by literature/research.	*relevant and state of the art literature/research.* *The student shows to be able to deliberately and proactively steer his own professional development.*	

RUBRIC 6.1 **Level 7 Autonomy & Responsibility /Wider Competences**	**Commitment and sense of responsibility to continuously and critically investigate and innovate one's own teaching and learning practice and professional quality and that of others in the section, department, school and beyond, in an evidence informed way.**		
Elements/criteria	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
Advocate for an evidence/research-based approach to educational innovation	*The student does not differentiate between an advocacy based and evidence/research-based approach to educational innovation.*	*The student partially distinguishes between advocacy-based and evidence/ research-based practices and can explain differences only in a general way.*	*The students can clearly distinguish between advocacy-based and evidence/ research-based practices. The student can teach this difference to others.*
	The student hardly gets involved in discussions of best practices with others and gives poor quality feedback to peers when asked directly. Student does not show awareness how to innovate educational practices either in own practice or broader, but is mainly focused on the self.	*Student advocates for practices and educational designs he/she personally likes, and tries to force these on others, showing some awareness of specific contexts at the level of different sections, departments or school.*	*Student continuously shows awareness not just of learning obstacles in own classroom but at section, department, school levels and beyond, assuming responsibility to initiate discussions between different stakeholders in order to both solve problems and to innovate educational practices at the meso-level.*
	When seeking feedback the student is usually focused on whether what	*When seeking feedback from peers and sources, the student*	*The student seeks feedback from multiple sources proactively and continuously and holds*

	he/she is doing the "right" or "wrong" way without collecting information from multiple sources, failing to understand how different practices work in different contexts (e.g. in another classroom; school, community).	*focuses on elements which are aligned with his/her personal preferences, mostly disregarding specific contexts and/or innovative elements.*	*others accountable to give him/her high quality constructive feedback rich in opportunity to innovate educational practice.*
Convince peers and/or other relevant stakeholders (including learners and school leaders) of the relevance and applicability of particular research (findings) for bringing about improvements in a specific educational context.	*When explaining how a particular research finding can bring improvements in a specific educational context, student shows very poor communication and argumentation skills. The student uses very few evidence-based findings, and needs additional help to tie practices to research findings. His/her arguments are usually based on the "this is how I was taught" or "this is how the section, department, school always functions" attitude, prioritising tradition to innovation.*	*When advocating for certain improvements, student uses arguments based more on own subjective experience than on research findings.* *Student shows preference to research findings speaking in favour of his/hers personal practices, and needs to be prompted to incorporate other points of view.*	*Student uses arguments based on contemporary research findings to hold the relevant stakeholders accountable to continuously challenge the status quo and implement innovative educational practices in a section, department, school and beyond.* *Student can critically evaluate solutions at section, department, school levels and beyond, and continuously prioritises evidence/research-based approaches to problem solving and educational innovation.*
Apply evidence-based approach to monitor, steer and underpin own professional practice and development	*Student rarely follows contemporary research and literature and is not aware where or how to get information on professional training courses and seminars.*	*Student follows contemporary research and plans for future training but is focused on topics of personal preference and on like-minded peers/institutions as sources.*	*Student continuously follows contemporary educational research with a wide focus (not just research from one profession) on topics identified as obstacles for learning not only in own classroom, but in one's section, department, school and beyond.*
	When planning for professional growth the student has "tunnel vision" and is focused on perfecting his/her teaching performance in a couple of practices, neglecting to adopt a wider stance. Professional development consists mostly of learning from social-media posts,	*Professional growth plans include communicating and teaching others about own preferred practices, which are occasionally evidence-based.*	*Professional growth plans include seeking continuous feedback from different evidence-based sources and is aimed to broaden one's professional comfort zone. In addition, they include opportunities to teach other relevant stakeholders and well as reflections on those opportunities.*

	without critical reflection of the evidence underpinning said posts.		

RUBRIC 6.3	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
	LEV 6 Wider Competence: [Capacity and commitment to] develop connections with (international) peers in order to continue developing as professionals and global citizens		
develop connections with peers beyond one's immediate network in order to continue developing as professionals and global citizens	*Identify (international) peer groups (study groups, special interest groups, working groups, etc.) which one can join in order to continue developing as a professional and/or a global citizen* *Identify persons in the field connecting to whom can help continue developing as a professional and/or a global citizen*	*Through following the discussions/ interactions/ activities of international peer groups and/or web-publications/podcasts of the individual international experts, identify how each such resource person/group can contribute to own continuous development as a professional and/or global citizen and develop/articulate own system of consulting resources persons/groups that works best for own continuous development as a professional and/or global citizen*	*Systematically explore updates shared by resource persons/groups and/or attend their synchronous sessions so as to continue developing as a professional and/or a global citizen; while adjusting one's 'system' as own development needs and professional development possibilities offered by international peers/peer groups evolve.*
	LEV 7 Skills: [Ability to] identify, join and collaborate with international peer teams focused on continuous professional development		
develop connections with peers beyond one's immediate network in order to continue developing as professionals and global citizens	*Identify how/in which aspects different (international) peer groups (study groups, special interest groups, working groups, etc.) which one can join, can help one continue developing as a professional and/or a global citizen* *Identify how/in which aspects individual experts who share professional development resources via blogs, podcasts, or various social media channels can help one continue developing as a professional and/or a global citizen*	*Follow the discussions/ interactions/ activities of the relevant international peer groups and/or web-publications/podcasts of the individual international experts identified as best suited for own developmental priorities with the aim of obtaining a wide range of insights that can help one continue developing as a professional and/or a global citizen*	*Contribute to the discussions/interactions/activities of an international peer groups linked to own continuous development as professional and/or global citizen in ways that allow to increase the 'learning gains' from such interactions*

	LEV 7 Wider Comp: [Capacity and commitment to] foster an atmosphere of engagement in international collaborations that permit teaching communities to feel and act as global citizens and members of a global professional community		
engage peers in learning from international peer groups and experts	*Share lessons learned thanks to participating in international peer discussions/collaborations with other (pre-service) teachers*	*Help peers - other (pre-service) teachers - identify international peer groups (study groups, special interest groups, working groups, etc.) and individual experts who could be the 'best match' for the peers' immediate professional development priorities and preferences*	*Help peers - other (pre-service) teachers - get engaged with the international peer groups (study groups, special interest groups, working groups, etc.) which one can join in order to continue developing as a professional and/or a global citizen*

The Assessment tasks proposed

The group achieved agreement on two possible assessment tasks that could be used across different Teacher Education programmes in Europe to assess different elements of the Sub-Dimension 6.1. Both tasks permit students to demonstrate all elements of Sub-Dimension 6.1 Skills at both Level 6 and Level 7.

Assessment task 1 for sub-dimension 6.1: Design, conduct and report on a classroom/department-based research project

Purpose: This task is designed to give students from a random programme of teacher education (both level 6 and/or level 7) at their point of graduation the possibility to demonstrate their mastery of skills and wider competencies within the domain of acting as learners and acting as researchers. Crucial for this task is that all students (regardless of whether they graduate at level 6 or level 7 and whether being in the situation of having responsibility for their own classes/teams or not) can show all the elements of Sub-Dimension 6.1 Skills.

The task is preferably done in its most comprehensive form, because this allows for assessing coherence between the different elements.

The task can be applied in contexts ranging from situations in which the (student)teachers have no direct responsibility for their own teaching practice/classrooms (scenario 1), to situations where they have full responsibility (scenario 2).
Validity of the outcomes of the assessment is dependent on scenarios/contexts available. The more authentic the situation, the larger the validity. This is especially true for the wider competences.

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Description of the task.

1 Students identify a problematic situation in a/the classroom (for Level 6) or the section/department school (for Level 7) that is problematic from the point of view of the learning/development of individual learners or groups of learners. The situation must be 'puzzling': the teaching and learning process of one or more pupils (or even the whole class/school) does not show the intended/expected outcome(s). It is still unclear what possible causes for the problem may be and how they affect the process of learning, development and or wellbeing.

2 Student produces a first description of the problem in context and first ideas of possible (competing?) causes and explanations, resulting in a (draft) research question and hypotheses

3 Based on the result of 2, the student produces a research plan, containing information on topics like:

a. What the student will do to identify and study research and literature to find possible/plausible explanations (and solutions) for the challenge

b. What the student will do (and why) to gather empirical data in the context of the classroom (and beyond) (observations, interviews with teachers/mentors/pupils/stakeholders/specialists), analyses of pupils' work, etc

c. What the student is aiming for as results

d. Time schedule

For level 7, this will need to be a team research project.

4 The student conducts the research project, presents the findings in a short report which concludes in design principles for an educational design

5 Based on 1-4 and after consulting relevant stakeholders/experts and additional literature, the student develops a proposal for improved practice (lesson plan, lesson series, method, unit, materials or a combination)

6 The student reflects (in a written document/ presentation/vlog/podcast) about the process and the outcome, giving specific attention to their own (and possible other/team members') professional learning by research, design and action and ways to improve/sharpen this process.

Assessment rubric

The rubric presented above can function as the basis for an assessment rubric. Depending on the context, elements/criteria that fit the situation can be applied, without changing the description of the level achieved.

Assessment task 2 for sub-dimension 6.1: Review of a specific teaching technique

Purpose: The main purpose is to assess whether students can perform a meaningful literature search, and choose a specific teaching technique (e.g. Jigsaw) based on an identified learning challenge in a/own classroom, and explain how they would use this technique in a/their own classroom. By doing this research they develop their capacity to incorporate research-based novel techniques into their teaching, as well as their commitment to life-long learning. This allows for the assessment of most of the Level 6 skills descriptors. The subsequent discussion with the peer group can be used to assess the Level 6 Wider Competences descriptors. The task can be broadened to include the impact at the school level and professional development of other teachers, which makes it possible to assess Level 7 skills and wider competencies.

Description of the task:

Students are given a task to write up a **review of a specific teaching technique**, and subsequently **moderate discussion** in a group of peers on its use for teaching their respective school subject, but also on the possible impact for other school teachers. Doing this task they move away from broader theoretical concepts, for example collaborative learning or inquiry-based teaching, to specific techniques, for example Jigsaw or Fishbowl. In addition to performing a literature search and evaluating the possible impact of their chosen technique, students need to come up with specific examples of how they would use the technique in a/own classroom (and beyond). Reflection on what they learned from this task for their future professional development can be added. In order to do this task successfully, students first need to perform a literature search of available teaching techniques and are encouraged to focus on techniques focusing on active learning and student-centred learning. When describing the technique they need to clearly tie it to a challenge for successful learning in their own classroom (for teaching their subject). Doing this can enable the university teacher to assess their ability to identify these challenges, their orientation toward evidence-based practices, the quality of the literature review (both planned and conducted). The depth of this lit review can be decided upon by university teachers, and in that respect this can be either a smaller or a bigger task.

Students usually work on this task individually (in case of 10-20 students in the course), but it can be modified as a group assignment (2-3 students) if the course has 30 or more students. Depending on the depth and breadth of the task, it can be either a week-long assignment, or a task lasting up to a semester.

To allow students to demonstrate more Skills/Wider Competence related to Sub-Dimension 6.1, the following additional tasks can be used:

Students can:

1. design and develop research-informed improvements of teaching and learning practice (educational design) to overcome challenges to successful learning in the classroom based on this technique. Again, the depth and breadth of this can be decided by the university teacher. If in a position to do so, students can then implement these improvements into their classroom (or plan to do so).

For Level 7, students can describe/discuss how useful the technique is for other subject teachers/schools, and how they would implement it beyond their/one particular classroom.

2. make a plan to evaluate the use of the chosen technique for a specific learning challenge.

3. have a group discussion in which other students can be assessed on whether they are challenging the evidence-base of the technique, the correspondence between the plan and actual learning challenges, and reflection on their professional growth. This reflection can be either written (e.g. learning diary) or oral (e.g. during group discussions) and can focus both on the content (what new and innovative techniques did they learn?) and the process (what did I learn from doing the task?). In addition, it can focus on how the process contributed to the professional growth of the group (for Level 7).

Assessment rubric

The rubric presented above can function as the basis for an assessment rubric. Depending on the context, elements/criteria that fit the situation can be applied, without changing the description of the level achieved.

MENU OF IDEAS FOR ASSESSMENT TASKS TO ASSESS LEVEL 7 WIDER COMPETENCES FOR SUB-DIMENSION 6.1. *Acting as learners and acting as researchers*

1. Oral examination based on problem solving questions

- e.g. would you endorse this and this educational program in your school and why?

- e.g. how would you go about introducing a new innovative educational practice in the school you work at?

2. Problem based learning scenarios - students are given a real-world scenario describing a situation which represents an obstacle for learning impacting at least several teachers or the entire school, and need to go through the problem-solving process to propose possible innovative solutions

- e.g. the new state curriculum for a specific subject is of poor quality
- e.g. sudden drop in grades at the school level

3. Simulation of „job interview"

- e.g. How will you contribute to the community of teachers in our school?
- e.g. What are some innovative practices you would like to see in our school, and what resources would you need to implement them?

4. Professional development portfolios with artefacts as proofs of learning (especially applicable for programs which include internships in schools)

- e.g. proof of attending professional training programmes, seminars, conferences
- e.g. list of contemporary evidence-based literature and reflections on how they tie to own practice; examples of work implementing these practices
- e.g. descriptions of discussions, projects etc done together with colleagues from the school or beyond

5. Games based on reward systems for the highest quality artefacts proving acting as researchers and learners (easily adaptable to ICT)

- e.g. number and quality of contemporary research read

4.3 Assessment elements for the Sub-Dimension 4.2: "Values and Diversity"

The discussion about what needs to be assessed and how this can be done in internationally comparable ways across different project countries focused on *Skills* and *Autonomy and Responsibility/Wider Competences* descriptors of Sub-Dimension 4.2 "Values and diversity", which is part of Key Dimension 4 "Values and social leadership." The 4.2 descriptors for *Skills* and *Autonomy and Responsibility/Wider Competences* for Levels 6 and 7 can be seen in the table below:

Level	***Skills***	***Autonomy and Responsibility***
Level 6	***Ability to foster (learners') respectful behaviour towards others, in own/a classroom***	***Commitment and sense of responsibility to foster intercultural learning, through empowering learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own***
Level 7	***Ability to foster (learners') respectful behaviour towards others, within school community and in broader educational contexts***	***Commitment and sense of responsibility to empower learners to engage in transformative collaborations with persons coming from backgrounds different than learners' own***

Stage 1: 'Breaking down'

Level 6: Skills

Descriptor	**Measurable learning outcomes**
The ability to foster (learners') respectful	**1. Help learners view each person's individuality, and diversity more broadly, as worthy of respect** **2. Help learners analyse situations in which they can easily find themselves and where cultural diversity is not valued, pointing out consequences and possible causes of undesirable behaviour and (for older learner groups) ways of resolving such incidents in culturally-inclusive manners** **3. Help learners actually practise respectful behaviour towards every individual and group**

behaviour towards others, in own /a classroom	

Level 6: Autonomy and Responsibility

Descriptor	**Measurable learning outcomes**
Commitment and sense of responsibility to foster intercultural learning, through empowering learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own	**1. Empower learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own** **2. Equip learners to learn from persons of diverse backgrounds and identities**

Level 7: Skills

The ability to foster (learners') respectful behaviour towards others, within school community and in broader educational contexts	**1. Help learners see diversity as an asset for individuals, groups and societies at large, and thus, worthy of respect** **2. Help learners analyse situations beyond their immediate context(s) where diversity is not valued, pointing out consequences, possible causes of undesirable behaviour and (for older learner groups) ways of resolving such incidents in (culturally-)inclusive manners** **3. Encourage learners to actually practise respectful behaviour towards every individual and group, when learners are engaging with persons beyond their immediate context(s)**

Level 7: Autonomy and Responsibility

	1. Empower learners to facilitate mutual understanding among persons of different (cultural) backgrounds in an intercultural dialogue

Commitment and sense of responsibility to empower learners to engage in transformative collaborations with persons coming from backgrounds different than learners' own	**2. Empower learners to foster effective and appropriate intercultural collaboration at group level and empower learners to build on the potential of a group's (cultural) diversity [= developing learners' ability to work in/lead a diverse team, intercultural teamwork & leadership]** **3. Engage learners (and other relevant stakeholders) in building a more interculturally-cohesive society through designing and implementing actions/ practices that allow culturally-different individuals and groups to work together at different societal levels (from the level of one's classroom to the level of school/local community/the city where the school is located and even to an international level)**

Stage 2: Descriptor Rubrics

Level 6: Skills

RUBRIC **4.2. L6 SKILLS**	1 Beginner (not satisfactory)	2 Intermediate (satisfactory)	3 Advanced (outstanding)
1. Help learners view each person's individuality, and diversity more broadly, as worthy of respect	*Help learners view each person's individuality, and diversity more broadly, as worthy of respect through talking to learners about it, rather than through creating opportunities for learners to experience benefits of diversity first-hand and/or engage in reflecting and articulating to peers why each person's individually and diversity more broadly are worthy of respect.*	*Help learners view each person's individuality, and diversity more broadly, as worthy of respect through creating opportunities for learners to experience benefits of diversity first-hand*	*Help learners view each person's individuality, and diversity more broadly, as worthy of respect through giving learners opportunities to experience benefits of diversity first-hand and, as a next step, reflect on own and others' experiences of benefits of diversity in order to articulate why each person's individually and diversity more broadly are worthy of respect*

2. Help learners analyse situations in which they can easily find themselves and where diversity is not valued, pointing out consequences and possible causes of undesirable behaviour and (for older learner groups) ways of resolving such incidents in (culturally-)inclusive manners	*Design Learning, Teaching and Assessment (LTA) activities that invite learners to explore situations in which they can easily find themselves and where diversity is not valued. However, the LTA activities only invite learners to identify such situations.*	*Design LTA activities that invite learners to explore situations in which they can easily find themselves and where diversity is not valued. The LTA activities invite learners to both identify and analyse such situations, pointing out consequences and potential causes of such undesirable situations.*	*Design LTA activities that invite learners to explore situations in which they can easily find themselves and where diversity is not valued. The LTA activities invite learners to propose (culturally-)inclusive solutions to such situations, based on previous identification and analysis of such situations.*
3. Help learners to actually practise respectful behaviour towards every individual and group	*Propose LTA activities that would allow learners to practise respectful behaviour towards every individual and group without being able to judge the effectiveness of such activities for a particular learner group.* *Reward learners who demonstrate their respect for others & appreciation of diversity*	*Analyse how effective particular implemented LTA activities are with respect to helping concrete learners practise respectful behaviour towards every individual and group; without suggesting ways to revise the LTA activities to make them more effective for a particular group of learners.* *Send verbal and other messages that encourage learners to value diversity & be respectful to those perceived as different within the classroom setting (incl. demonstrate respectful behaviour towards every individual and group, and helping learners reflect on this through verbal comments if relevant)*	*Propose ways to revise LTA activities to make them more effective in helping a particular group of learners practise respectful behaviour towards every individual and group.* *Suggest how individual learners can move towards more inclusive/respectful behaviour directed at/in relation to every individual and group [give constructive feedback based on learners' current performance]*

Level 6: Autonomy & Responsibility

RUBRIC: 4.2 L6 Wider Comp	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
1. Empower learners to seek and create opportunities to engage constructively - with openness and respect - with persons coming from backgrounds different than one's own	*Help learners identify existing opportunities for active involvement and interaction with different individuals and groups.*	*Equip learners with knowledge, skills, attitudes, etc. necessary to utilise existing opportunities for active involvement and interaction with different individuals and groups.*	*Empower learners to take control of learning from interaction with different individuals and groups, either through creating opportunities for such interaction; or through overcoming difficulties and misunderstandings that might arise when interacting with different individuals and groups in order to continue further collaboration and learning.*
2. Equip learners to learn from persons of diverse backgrounds and identities	*Help learners recognise that they can learn through engaging constructively with any individual and group (focus on both knowledge & skills).*	*Help learners reflect on their encounters with persons from diverse backgrounds and identities to articulate what they have learned and what they can still learn (focus on knowledge).*	*Help learners internalise what they learn from persons of diverse backgrounds and identities in order to continue developing their competence (focus on processes and skills).*

Level 7: Skills

RUBRIC: 4.2 L7 SKILLS	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary

1. Help learners see diversity as an asset for individuals, groups and societies at large, and thus, worthy of respect	*Explain how diversity (e.g. building on diverse perspectives/working with persons from different backgrounds) can be an asset for individuals, groups and societies at large, and thus, worthy of respect, giving examples relevant for the subject(s) taught and learners' age group and characteristics.*	*Create opportunities for learners to be exposed to situations in which diversity can be seen as an asset for individuals, groups and societies at large.*	*Give learners opportunities to explain why diversity can be an asset for individuals, groups and societies at large, and thus, worthy of respect* *Demonstrate respectful behaviour towards every individual and group, and helping learners reflect on importance of such behaviour through verbal comments if relevant.*
2. Help learners analyse situations beyond their immediate context(s) where cultural diversity is not valued, pointing out consequences, possible causes of undesirable behaviour and (for older learner groups) ways of resolving such incidents in culturally-inclusive manners	*Design LTA activities that enable learners to identify situations* beyond their immediate context(s) *where diversity is not valued.*	*Design LTA activities that enable learners to analyse situations* beyond their immediate context(s) *where diversity is not valued, pointing out consequences and potential causes*	*Design LTA activities that enable learners to propose (culturally-)inclusive solutions to situations* beyond their immediate context(s) *in which diversity is (originally) not valued*

3. Encourage learners to actually practise respectful behaviour towards every individual and group, when learners are engaging with persons beyond their immediate context(s)	*Propose LTA activities that could allow learners to practise respectful behaviour towards every individual and group, beyond their immediate context(s).* *Reward learners who demonstrate their respect for others & appreciation of diversity, especially for those beyond the learners' immediate context(s).*	*Implement LTA activities that could allow learners to practise respectful behaviour towards every individual and group, beyond their immediate context(s), in order to observe effectiveness of the activities designed.* *Send verbal and other messages that encourage learners to value diversity & be respectful to those, beyond their immediate context(s), who are perceived as different.*	*Revise LTA activities aimed at helping learners practise respectful behaviour towards every individual and group, beyond their immediate context(s), based on how well they function for a concrete cohort of learners.* *Suggest in a contextually appropriate way how learners can move towards more inclusive/respectful behaviour in relation to individuals and groups beyond their immediate context(s) [give constructive feedback based on learners' current performance].*

Level 7: Autonomy & Responsibility

RUBRIC: 4.2 L7 Wider Comp	1 Low level/beginner	2 Intermediate level/good	3 High level/exemplary
1. Empower learners to facilitate mutual understanding among persons of different backgrounds in an intercultural dialogue	*Equip learners with knowledge, skills, attitudes, etc. necessary to identify situations where misunderstandings potentially occur among persons of different backgrounds in an intercultural dialogue.*	*Equip learners with knowledge, skills, attitudes, etc. necessary to explain to persons of different backgrounds why a misunderstanding has occurred in an intercultural dialogue.*	*Empower learners to facilitate mutual understanding among persons backgrounds in an intercultural dialogue in such ways that (1) no misunderstandings occur or (2) those misunderstandings that occur are resolved in mutually satisfactory manners.*

2. Empower learners to foster effective and appropriate intercultural collaboration at group level and empower learners to build on the potential of a group's diversity [= developing learners' ability to work in/lead a diverse team, intercultural teamwork & leadership]	*Equip learners with knowledge, skills, attitudes, etc. necessary to identify the potential of the diversity present in a given group.*	*Equip learners with knowledge, skills, attitudes, etc. necessary to organise work of a diverse group in such a way that every member of the group can contribute according to their strengths.*	Empower learners to lead a diverse team utilising the potential of not only the individual members, but also of collective efficacy and creativity.
3. Engage learners (and other relevant stakeholders) in building a more interculturally-cohesive society through designing and implementing actions/ practices that allow culturally-different individuals and groups to work together at different societal levels (from the level of one's classroom to the level of school/local community/the city where the school is located and even to an international level)	*Identify conflicts/ problems/ challenges in interactions among culturally-different individuals and groups which one could help to address through engaging learners and other relevant stakeholders.*	*Design a remedial action/intervention that will engage learners (and other relevant stakeholders) in building a more interculturally-cohesive society.*	*Lead a group of learners (and other relevant stakeholders) through the implementation of the intervention.* *Analysing the effectiveness of this intervention in terms of building a more interculturally-cohesive society.*

Proposed assessment tasks

One possible task that focuses on a number of measurable learning outcomes associated with Level 6 Skills and that can be used in all Teacher Education programmes is proposed below. It shows how much (or how little) of this skill can be fully demonstrated and assessed through paper products. The other elements of the 4.2 descriptors will require student teachers to implement or at least observe how Learning, Teaching and Assessment activities they propose are implemented by others. For the moment, this is still possible only in some Teacher Education contexts.

Purpose: To assess whether student teachers can (1) identify a point in a syllabus for learners to further develop respectful behaviour towards others and (2) propose concrete activities learners can engage in.

Description of the task:

First, the student teachers are given a syllabus of a course which they might be asked to teach when they complete their degree.[5] The instructor also specifies key characteristics of the learning context and the learner group to be kept in mind throughout this task (school type/characteristics, size of the group & the diversity present within the learner group).

Student teachers are asked to identify **one point in which they could introduce activities in order to:**

foster (learners') respectful behaviour towards others, in own/a classroom

More specifically, **two** activities should be introduced, one for each of the following goals:

1. Help learners view each person's individuality, and diversity more broadly, as worthy of respect

2. Help learners analyse situations in which they can easily find themselves and where cultural diversity is not valued, pointing out consequences and possible causes of undesirable behaviour and (for older learner groups) ways of resolving such incidents in culturally-inclusive manners

Each activity should be described in detail, making explicit what learners will be asked to do, in which order, using which resources/materials, and how, when & by whom feedback will be given.

Student teachers also need to explain why each activity is appropriate for (1) a particular goal related to the general aim of fostering (learners') respectful behaviour towards others and (2) the learning context and the learner group.

Assessment rubric

Assessment Item	Level of achievement/poor	Level of achievement/intermediate	Level of achievement/excellent
Clarity of the task descriptions	There is lack of clarity about some of the following elements of the task descriptions:	For each of the two tasks it is clear what learners will be asked to do, in which order,	For each of the two tasks it is clear what learners will be asked to do, in which

[5] Can be given or student teachers can be asked to select one. If your student teachers have an opportunity to later pilot the activities proposed with a real group of learners, the syllabus to analyse must be the one they will actually be teaching as part of their internship.

	what learners will be asked to do, in which order, using which resources/materials; and how, when & by whom feedback will be given.	using which resources/materials; and how, when & by whom feedback will be given	order, using which resources/materials; and how, when & by whom feedback will be given. Student teacher also makes it clear what they will do if 'plan A does not work out'.
Appropriateness of the tasks proposed to foster respectful behaviour	For goal 1: the activity proposed focuses on explaining to learners why each person's individuality, and diversity more broadly, as worthy of respect	For goal 1: the activity proposed gives learners an opportunity to experience benefits of diversity first-hand	For goal 1: the activity proposed giving learners opportunities to 1) experience benefits of diversity first-hand, and, as a next step, 2) reflect on own and others' experiences of benefits of diversity in order to articulate why each person's individually and diversity more broadly are worthy of respect
	For goal 2: the activity proposed invites learners to 1) identify situations in which they can easily find themselves and where diversity is not valued	For goal 2, the activity proposed invites learners to 1) identify situations in which they can easily find themselves and where diversity is not valued; and 2) analyse such situations, pointing out consequences and potential causes of such undesirable situations.	For goal 2, the activity proposed invites learners to 1) identify situations in which they can easily find themselves and where diversity is not valued; 2) analyse such situations, pointing out consequences and potential causes of such undesirable situations; and 3) propose (culturally-)inclusive solutions for improving such situations.
Appropriateness of the tasks proposed to the context and learner group characteristics	It is clear from the explanation why the tasks proposed are appropriate for <u>some but not all</u> of the following elements of the context and learner group characteristics: the course into which activities are incorporated, the school	It is clear from the explanation why the tasks proposed are appropriate for <u>most</u> of the following elements of the context and learner group characteristics: the course into which activities are incorporated, the school type/characteristics, the size of the	It is clear from the explanation why the tasks proposed are appropriate for <u>all</u> of the following elements of the context and learner group characteristics: the course into which activities are incorporated, the school

	type/characteristics, the size of the learner group & the diversity present within the learner group.	learner group & the diversity present within the learner group.	type/characteristics, the size of the learner group & the diversity present within the learner group.
Relevancy - linkage	The topic chosen for including the two activities is not clearly suitable for fostering learners' respectful behaviour towards others.	The topic chosen for including the two activities is suitable for fostering learners' respectful behaviour towards others.	The topic chosen for including the two activities is not only suitable but is an excellent opportunity for fostering learners' respectful behaviour towards others.

6. Where can we go from here?

The CALOHEE2 project of trying to develop a set of trans-nationally agreed assessments in Teacher Education in Europe brought together a group of committed and dedicated professionals in primary, post-primary and tertiary education who engaged with one another with energy and an openness to listening and learning from each other. The assessment descriptors, examples of tasks, and in some cases assessment rubrics presented here are the outcome of many hours of teamwork both online and in-person. They document a point-in-time in teacher education in Europe and reflect current research, practice and topical concerns that are shared in almost all countries in the region. As a result, what is offered here will need to be revised in the future as Europe, educational practice and teaching and learning change and develop. The group was able to address assessment in only some dimensions due mainly to the two factors of time and the lack of operational definitions of dimensions which are needed in order to consider how these might be assessed. Also, as has been pointed out earlier in this report, the group had to address significant challenges in understanding the structures of teacher education in different countries, including the very important differences that emerged around the distinction between Levels 6 and 7 in the pathways to entry to the teaching profession.

As we look forward from this project, certain possibilities and challenges have become evident. A first is the potential that is offered by rich-environment computer based assessments, notwithstanding the task of ensuring that these can be adapted to cultural differences and different curricula. However, the group was also aware that rich technological engagement is not available to all learners internationally and may well be confined to affluent parts of Europe alone. Also, the ever-widening use of English alone as the language of technology and technological use is worth noting and monitoring. In educational settings, with their strong cultural ties, the use of common assessment tasks will need to be adapted to these settings and to a variety of languages.

The possibility of using common assessment tasks as a tool for programmatic review in individual higher education institutions across countries also suggests itself, and the further building of assessment tasks for this purpose is proposed. The data generated about the learning that is occurring in individual programmes could be used to inform changes in academic paths and programmes. Allied to this suggestion is one that sees a project of empirical research on the actual implementation of a common assessment task, such as one of those suggested in this report, in the case of seven or eight programmes across Europe and over a period of two to three years.

Furthermore, the “Level 6/7 dilemma” raised in the context of the Assessment Reference Frameworks discussed in Section III, remains open. Thus, it may be useful in a future project to review the Reference Frameworks presented in this report taking into consideration also other existing ‘structural’ solutions for Teacher Education (such as Level 5/pre-university/short-cycle higher education programmes, as well as further education teacher education programmes). This would allow for a truly coherent solution.

Finally, as is the case in all international projects, but perhaps especially in the case of teacher education that is so often deeply enmeshed in cultural heritage, nationhood, national economic policies, and social structures, the outcomes of this project demonstrate that agreement and common understandings can be achieved but only on the basis of deep mutual respect and a shared concern for the welfare of future learners, future societies and the sustainability of the planet.

Appendix 1. Table of comparison of assessment tasks used by teacher education programmes in contributing countries

	micro-teaching/ micro-intervention plan	a teaching unit plan	observation of teaching performance (at university)	observation of teaching performance (in school classroom)	workshop unit plan	observation of workshop teaching	project based learning task	problem based learning task	reflexive essay	learning diary	student report	written seminar	oral presentation	blog	wiki content	teaching/ assessment technique review	journal paper review	moderating discussions	portfolio	written exam	oral exam
2.1. SKILLS - Ability to define appropriate learning goals for different types of educational programme(s)	Turkey, Italy, Poland	Netherlands, Turkey, Hungary, Italy, Malta, Croatia, Poland	Turkey, Hungary, Croatia, Poland	Netherlands, Turkey, Hungary, Italy, Malta, Croatia, Poland	Italy, Croatia	Italy, Croatia	Hungary, Malta, Poland	Netherlands, Italy, Malta, Poland	Italy, Malta, Poland	Italy, Poland	Netherlands, Italy, Poland	Hungary, Italy	Malta, Poland			Croatia		Malta, Croatia, Poland	Netherlands, Hungary, Italy, Malta, Croatia, Poland	Turkey, Hungary, Italy, Poland	Hungary, Italy, Poland
2.1. SKILLS - ensure that the	Hungary, Italy, Poland	Netherlands, Hungary, Italy,	Hungary, Croatia, Poland	Italy, Malta, Croatia, Poland	Italy, Croatia	Italy, Croatia	Hungary, Malta,	Italy, Malta, Poland	Italy, Malta, Poland	Italy, Poland	Italy, Poland	Hungary, Italy	Netherlands, Malta, Poland					Malta, Croatia, Poland	Hungary, Italy, Malta, Croatia	Poland	Poland

different planned teaching, learning and assessment activities can jointly lead to the programme intended outcomes		Malta, Croatia, Poland					Poland												, Poland		
2.1. WIDER COMPETENCIES - Capacity and commitment to choose appropriate curriculum strategies in school, taking into account expected	Poland	Italy, Malta, Poland	Poland	Hungary, Italy, Malta, Poland	Italy, Croatia	Italy, Croatia	Italy, Malta, Poland	Italy, Malta, Poland	Hungary, Italy, Malta, Poland	Hungary, Italy, Poland	Hungary, Italy, Poland	Italy	Malta, Poland			Hungary	Poland	Malta, Poland	Hungary, Italy, Malta, Croatia, Poland	Poland	Poland

impact on students' learning, time available, costs and human resources;																				
2.1. WIDER COMPETENCIES - … to manage the learning progression in the programme,	Poland	Italy, Malta, Poland	Poland	Hungary, Italy, Malta, Poland	Croatia	Italy, Croatia	Poland	Poland	Poland		Malta, Poland		Hungary, Poland						Hungary, Poland	Poland	Poland
2. 1. WIDER COMPETENCIES - leading an educational, multidisciplinary team		Malta		Malta			Hungary														

6. 1. SKILLS - Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at institutional level		Malta		Malta	Croatia	Italy	Germany, Poland	Germany, Poland	Poland	Poland	Turkey, Italy, Germany, Poland	Hungary	Turkey, Hungary, Poland			Croatia	Hungary, Italy	Poland	Poland	Poland	Poland

6.1. WIDER COMPETENCIES - Capacity and commitment to encouraging incorporation of evidence-/research-based enhancements into teaching practice at school level		Netherlands		Netherlands	Croatia		Italy, Germany, Poland	Netherlands, Germany, Malta, Poland	Netherlands, Poland	Poland	Netherlands, Germany, Poland		Malta, Poland			Hungary, Croatia		Poland	Netherlands, Hungary, Poland		

Note: Germany, Turkey and the The Netherlands do not teach all the parts of the 2.1. and 6.1. dimensions on Level 7.

Appendix 2. Examples of Good Practice

A2. 1 Croatia

A2. 1.1 Fact sheet of the assessment task 'digital learning tool'

Course outcome	**Digital learning tool** *(= a modularly structured sequence to promote the teaching-related, but also the adaptive and media-didactic competences of prospective teachers in the commercial-administrative field)*
Competence goal according to CALOHE2 framework:	**L 7 6.1 Acting as learners (skills):** While participating in a current research project, students review current educational research on media didactics to create an evidence-based, digital learning tool as supportive material for prospective teachers at the institutional level to address the challenge of advancing digitalization.
Impact	● Students actively participate in the further development of teacher education in Germany by developing the digital media packages; ● Systematic examination of current developments and challenges in vocational education and training research in Germany; ● Preparation for planning, carrying out and reflecting on their own (small) research project in the Master's thesis
Activities of the students	● Conception, implementation, refinement and documentation of their own research subproject (i.e., the digital learning tool) ● Preparation of presentations of interim and final results of the four mentioned work steps
Assessment	Grading of the digital learning tool and the written report of the entire course of the project (including evaluation and reflection)
Timing	During an entire semester
Recommended number of students	Approximately 10-15 students; teams of 2 to 3 students per subproject
Contact for further questions	Andreas Maur, M.Sc. anmaur@uni-mainz.de cChair of Business and Economics Education Johannes Gutenberg-University, Mainz (Germany)

In the module "Project", students acquire competences in research and project management by working in a current project of the department. Topics change according to the current need for research. Currently, the project module is based on the funded project “TWIND” (Integrated Didactics of Technology and Economics). The assessment task addresses the skill dimension of L 6.1 “acting as learners” as it encourages students to review current educational research on media didactics to create an evidence-based, digital learning tool as supportive material for prospective teachers at the institutional level to address the challenge of advancing digitalization as a current trend in the sense of the dimension 6.1 requiring highly specialized knowledge.

A digital learning tool is structured in modules, starting with an introductory, practical problem situation, which is solved by working through the further sub-modules (e.g., familiarization with the content, working through application tasks). Student teachers can thus work on the digital learning tool in a self-directed and flexible way. The students assess (1) conception, (2) implementation, (3) refinement and (4) documentation of their own (partial) research project. The conception (1) includes finding an evidence-based thematic structure, creating learning videos, information materials as well as self-learning tasks. The conception is then tested by other students. In this implementation phase, the fellow students work through the digital learning tool completely and hand the completed tasks as well as a filled-in evaluation sheet back to the developers of the media package. The criteria for the evaluation are: didactic design, content, media design, social aspects (e.g., gender neutrality), practicality, storytelling of the explanatory videos and additional comments. This step allows for a change of perspective to factor in the feasibility of the tool at the institutional level as addressed by the L 6.1 skills descriptor. The students then reflect on the work process and the entire course of the project (3). In this step, the developers of the media package modify the created materials on the basis of the feedback and prepare a final presentation of the media package, especially of the process of task development, the work process, and the entire process of the project. Finally, the students write a project paper on the developed media package (4). The paper consists of a reflection of the creation of the digital learning tool from step 3, the current state of research as well as a meta-theoretical description of the procedure. These four steps represent the individual facets of the competence described above.

The students go through the project module in several work steps, which are accompanied by the teacher and one tutor. By presenting intermediate results in the creation of a digital learning tool, the students receive feedback and input from the lecturer and tutor. The creation of the digital learning tool and the writing of the project work (including reflection on the creation of the learning media) take place over an entire semester. On average, about 10 students per semester take part in the project module, working in small teams to create the digital learning tools on previously set topics. The criteria for assessing the written project work (step 4) and the media package (step 3) are made up of various sub-aspects, e.g., didactic design, correctness of subject content, practicability of the digital learning tool and fulfilment of formal criteria. The overall grade is a combination of 60% digital learning tool and 40% project work.

On the one hand, the project module proves to be good practice because the students get involved in current projects of the department and to actively contribute to teacher training in Germany by creating sustainable learning material. On the other hand, they acquire the ability to systematically deal with current developments and challenges in VET research, regarding the enhancement of digital learning opportunities in classroom teaching. A central challenge of the project module for the students is the limited time frame in

which the digital learning tool is created, implemented, and evaluated. In addition, it is necessary to prove one's own teamwork skills, to combine different creative ideas of the team members for the creation of the digital learning tool.

In addition, the competences to be acquired in the project module are expanded and deepened in the course "Current topics in VET research" (Masters seminar). This is done by developing one's own research question, which is later to be answered by planning, implementation, evaluation, and reflection of one's own research project in the master's thesis.

A2. 1.2 Fact sheet of the assessment task 'review of a teaching technique'

Course outcomes	● choose appropriate teaching methods ● choose and design appropriate assessment methods ● apply knowledge about teaching and assessment in educational programs for children and adults ● create educational materials
Competence goal according to CALOHE2 framework:	**L 7 6.1 Acting as learners (wider competency):** While participating in this task, students review current educational research and practices on teaching methods and reflect on how useful specific techniques are in teaching a wide variety of school subjects
Impact	● preparation for commitment to life-long learning ● students acquire specific teaching tools and resources ● students develop skills they will need as school psychologists to support other teachers at school level
Activities of the students	● research educational resources in order to find examples of specific teaching techniques which promote active learning and critical thinking ● writing a short review of the technique together with the explanation why this specific technique is useful for teachers in general, and with a concrete example how they would incorporate this technique into a psychology lesson ● present the technique in class, and moderate a discussion on its usefulness for teaching in general
Assessment	grading of the written review based on a rubric (clarity and detail of their description and explanation of the technique, concreteness of the example, and how

	adequate the example is for the given technique); optionally can include peer-assessment
Timing	week long homework assignment
Recommended number of students	Approximately 10-15 students; suitable up to 30; review is done individually, subsequent discussion in a larger group
Contact for further questions	dr. sc. Aleksandra Huic, assis. prof. ahuic@ffzg.hr Chair of School Psychology, Centre for Teacher Education Faculty of Humanities and Social Sciences University of Zagreb, Croatia

In Croatia, students learning to teach psychology, as part of the Methods in teaching psychology course (6 ECTS, first or second year of MA general psychology studies), write up a short **review of a specific teaching technique**, and subsequently **moderate discussion** on its use for teaching psychology and other school subjects. Students first do some research, using both the books on teaching methods (e.g. Arends, R. I. (2012). *Learning to teach*. McGraw-Hill Companies) and internet sites dedicated to teaching methods and find examples of specific teaching techniques used to promote active learning and critical thinking in students. By doing this research they develop their capacity to incorporate research-based novel techniques into their teaching, as well as their commitment to life-long learning. In addition, they become better acquainted with different techniques which stem from larger teaching methods. For example, debate is a specific technique of the classroom discussion method; or jigsaw is a specific technique of the collaborative learning method. This written task consists of a short description of the chosen technique together with the explanation why this specific technique is useful for teachers in general, and of a concrete example how they would incorporate this technique into a psychology lesson. This needs to be a very specific example of how they would use the technique to teach some part of the state mandated psychology curriculum.

In order to promote student centred learning, and student autonomy, students are free to choose whichever technique they wish, but are encouraged to choose novel techniques useful for higher order thinking (since psychology is only taught in high schools, using these kinds of techniques is developmentally appropriate). The task is a part of a wider portfolio and used to assess students' abilities to choose appropriate teaching methods, to choose and design appropriate assessment methods; to apply knowledge about teaching and assessment in educational programs for children and adults, and to create educational materials. With regard to CALHOEE framework, this specific task is especially useful to assess the 6. 1. wider competency *"capacity and commitment to encouraging incorporation of evidence-/ research-based enhancements into teaching practice at school level".*

Students usually work on this task individually (in case of 10-20 students in the course), but it can be modified as group assignment (2-3 students) if the course has 30 or more students. . They are assessed on the clarity and detail of their description and explanation of the technique, on the concreteness of their example, and on how adequate the example is for the given technique. These criteria are shared with the students in advance. Peer assessment is also incorporated. In face-to-face lessons we have group discussions in class, (and during pandemic induced on-line classes, we have online forum-like discussions) in which we reflect on

the usefulness of each technique for promoting active learning/critical thinking, on the need to commit to life-long learning and constantly getting acquainted with new techniques, and on the usefulness of a particular technique for teaching other school subjects at different school levels. This is especially important because many of the students will work as school psychologists and will provide support to other school teachers in their teaching. Student feedback shows this assignment is eye-opening to the students, especially regarding how many different teaching techniques exist and the importance of continuous professional development in this area. The university teacher facilitates this group discussion and assesses the quality of the discussion only formatively, by giving overall feedback to the group. Each student gets specific constructive feedback on their written assignments, which carry 6.25% of their overall grade.

A2. 1.3 Fact sheet of the assessment task 'workshop unit plan'

Course outcomes	● choose appropriate teaching methods ● choose and design appropriate assessment methods ● apply knowledge about teaching and assessment in educational programs for children and adults ● create educational materials
Competence goal according to CALOHE2 framework:	**L7 2.1. Curriculum development, evaluation and enhancement (skills and wider competencies)** Workshop unit is usually planned as part of a wider program, can be aimed at different populations (children, teachers, parents), and needs to be age appropriate and realistic for the school context and available resources. **L 7 6.1 Acting as learners (skills and wider competency):** Workshops need to propose plans to address school/institutional level problems, and not to be based on evidence-based practices.
Impact	● task is useful to assess a wide variety of skills and wider competencies ● preparation for commitment to life-long learning and evidence-based practice ● orientation towards PLOs aimed at developing skills and values ● students develop skills they will need as school psychologists in order to solve school-level problems, and work in teams ● students practice giving argumentation on why a certain school level problem needs to be addressed and what is the best way to address it according to available research and evidence

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Activities of the students	● research scientific and other educational resources in order to identify solutions and best practices ● writing a theoretical introduction with a short overview on what is already known on the topic ● writing up the workshop plan with all required elements (just like a lesson plan) ● tie the plan with a wider program, make sure it's age appropriate, and realistic in terms of available resources ● deliver the workshop in front of colleagues (part of a second course)
Assessment	grading of the written workshop plan based on detailed criteria (see below)
Timing	homework assignment – students usually take from one to three weeks to complete
Recommended number of students	In small groups (2-3 students)
Contact for further questions	dr. sc. Aleksandra Huic, assis. prof. ahuic@ffzg.hr Chair of School Psychology, Centre for Teacher Education Faculty of Humanities and Social Sciences University of Zagreb, Croatia

Writing up a workshop unit plan differs from a classic lesson plan in several aspects. First, in Croatia, topics for lesson plans need to follow the state mandated psychology curriculum, while workshops usually cover cross-curricular topics and topics not part of the specific school subject curriculum (e.g. gender issues; communication skills). Second, unlike lesson plans, workshop unit plans need to incorporate an introduction to the topic in which students need to demonstrate their knowledge of the theoretical background of the topic, and their knowledge of the available research-based practices on how to teach the chosen topic in school. Third, students need to provide argumentation on how their workshop will answer a specific school-related problem. Research data on the prevalence of certain problems are usually part of that argumentation. Fourth, workshop unit plans typically include learning outcomes aimed at developing skills and values, unlike classic lesson plans which rely more heavily on knowledge related learning outcomes. Fifth, as psychology is only taught in high-schools, but school psychologists can work both in elementary, middle and high schools, and both with pupils, other teachers and parents, this is an opportunity for pre-service teacher students to create a teaching plan for any kind of population of any age (children from 1st grade upwards, parents, teachers). They are free to choose, but need to demonstrate they are using age appropriate techniques in their plan. Sixth, given that the topics for the workshop are chosen to provide solutions to a school-related problem, and that these problems are usually multifaceted and unlikely to be solved with one workshop, students describe how they would incorporate their one workshop unit into a broader program consisting of

several lessons. This is usually not the case when planning classical curriculum-based lessons. For example, if students identify school violence as a school-related problem, they will first provide an introduction defining the phenomena, provide recent data on the prevalence of school-violence, both in the world and in Croatia, describe research explaining what works in school-violence prevention and interventions. Based on their theoretical knowledge and evidence-based practices they will likely propose a series of workshops focusing on both the risk and protective factors, explain which population the workshop is aimed at (children of which age, other teachers, parents) and why, and then describe one 45-90 minute workshop in more detail (with outcomes, methods, assessment, evaluation i.e. all the elements usually found in a lesson plan).

As evident from the description, the workshop unit plan is usually much more extensive than a classic lesson plan. Students work on it in small groups (2-3 students). Feedback/assessment criteria focus on: a) clarity of learning outcomes; b) whether learning outcomes are age appropriate; c) whether learning outcomes focus on active learning and critical thinking, as well as on real-life competencies; d) whether different methods and techniques are used for teaching within a single unit; use of methods which promote active learning/skills practice is required; f) constructive alignment – whether proposed learning outcomes are aligned with the planned methods and assessment (usually formative); h) how realistic the unit is for the proposed time-frame; and how feasible and realistic the workshop is for the wider school context; i) appropriateness of teaching methods in which students' personal life experience is evoked – e.g. not to put students in the role of victims, not to evoke traumatic events in class, how to deal with topics which evoke strong emotions, opinions and value related attitudes etc.). These criteria are communicated with students in advance.

Given that the workshop can be planned for different educational levels and usually does not fall into the regular curriculum, it can be useful in order to assess part of the 2.1 SKILLS - "ability to define appropriate learning goals for different types of educational programme(s)". In addition, given that students usually explain how one workshop will, together with other workshops in a wider program, lead to the intended outcomes of the entire program, it can be useful to assess the other part of the 2.1. SKILLS – "ensure that the different planned teaching, learning and assessment activities can jointly lead to the programme intended outcomes". As mentioned earlier, when planning the workshop students need to demonstrate their plan is age appropriate, evidence-based, school-level appropriate, and realistic in terms of different resources used. As such it is useful to assess a part of the 2.1. WIDER COMPETENCIES – "Capacity and commitment to choose appropriate curriculum strategies in school, taking into account expected impact on students' learning, time available, costs and human resources", and the 6.1. SKILLS (ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at institutional level") and WIDER COMPETENCIES („capacity and commitment to encouraging incorporation of evidence-/ research-based enhancements into teaching practice at school level").

Student feedback shows this is one of the more difficult assignments, since it requires integration from their theoretical knowledge in psychology, and their knowledge of teaching and assessment methods. In addition, they find it hard to focus on skills and values related learning outcomes, which stand in contrast to the „usual" knowledge related outcomes. However, they recognize the nature of their future work not only as teachers, but as school psychologists, requires them to have developed competencies in workshop planning and delivery.

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A2. 2 Italy

The context

The single cycle course degree in Teacher Education is a 5-years path closed to 250 students each year. It is a qualification title to teach in the Italian kindergarten and primary school. The curriculum of the degree course includes socio-psycho-pedagogical and disciplinary subjects, a 4-years internship and a final dissertation (thesis). The curriculum is almost completely defined by the Ministry of Education. Many courses (at about 20) have an internal workshop where students are divided into 8-9 groups and do activities followed by a tutor (each tutor supervises max 30 students). Three experiences will be described, all supported by the Moodle platform.

Course outcome	**To produce a critical analysis of a digital resource for teaching (course) and to design a learning unit using the TPCK framework (workshop)**
Competence goal according to CALOHE2 framework:	**5.3 skill Ability to respond to the local social needs through identification and application of the best global educational practices.** **2.1 skill (second part) the different planned teaching, learning and assessment activities can jointly lead to the programme intended outcomes**
Impact	● Support for the personal planning during the annual internship
Activities of the students	● (lectures) To choice a digital resource, to map some features, to prepare and share analysis, to review it, and to select some analysis for the implementation during the workshop ● (workshop) to discuss and analyze the curriculum design (kindergarten of primary school) integrated with the TPCK framework, to produce a plan of a learning unit using TPCK framework, and share and discuss with mates
Assessment	Self-assessment grid and grading of the two activities using a 4-level rubric according to some given criteria

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Timing	During an entire semester
Recommended number of students	Approximately 200 students (lectures) using the Moodle platform; teams of 4 people (mandatory workshop)
Contact for further questions	Emilia Restiglian, PhD emilia.restiglian@unipd.it Associate professor in Education, University of Padova (Italy)

In the 2nd year students have to follow a course named "**Methodologies and technologies for teaching**" (8 ECTS - 60h) + 2 workshops (2 ECTS – 24h). The two parts are strictly linked and activities are jointly planned.

The course includes a 6-hours Information Literacy activity. Starting with a 2-hours lecture useful to present strategies for research and analysis of Information Literacy, students in pairs are asked to produce a critical analysis of a digital resource for teaching. This resource is selected in a collaborative way and can be a website, software, app, video, platform, digital product. After the choice of the digital resource, students have to map some features of the chosen resource using Cooglee and prepare an analysis (name, author/editor, type, access, brief description, age of pupils, objectives, discipline and/or topic, educational functions, prerequisites, teaching activity that can be designed using this resource, students' engagement, pros/cons, url). Furthermore, students have to share their analysis in the Moodle platform, review the analysis, select some analysis and then implement them in the following workshop (the workshop is internal to the course).

The workshop (12+12 hours) is about the design of a learning unit using the TPCK framework (Mishra & Koehler, 2006). Students are divided in groups of 4 people and are offered a case within a kindergarten or a primary school (pupils' class, discipline, competences and learning outcomes are described). Each group has to analyze the curriculum design integrated with the TPCK framework: model, approach, format, activities, pedagogical, technological and social affordances of selected resources. Then they have to produce a plan of a learning unit using the TPCK framework, later they share and discuss their work within the workshop large group (30 students). At the end they fill a self-assessment grid.

A 4-level rubric has been created to assess the two activities. Criteria are the following: degree of consistency between chosen technologies and learning outcomes, degree of matching between teaching approach and technologies, degree of compatibility between the technologies identified, curricular objectives and teaching approach, degree of integration between teaching approach, content and chosen technologies, degree of adequacy and consistency between selected technologies, activities required to pupils and knowledge to be developed.

The Information Literacy activity is helpful to assess the 5.3 skills *Ability to respond to the local social needs through identification and application of the best global educational practices*.

The workshop assesses the second part of 2.1 *skills to ensure that the different planned teaching, learning and assessment activities can jointly lead to the programme intended outcomes*.

A brief questionnaire administered in the academic years 2018-19 and 2019-20 points out the outcomes of the two tasks, particularly significant for the 3rd year internship, for disciplinary workshops and as a model adoption at school (some students already work).

In the 3rd year, students have to follow "**Educational research**" (4 ECTS - 30h).

During the last 6 hours of the course, students in workgroups (4-5 people) are asked to write the draft of a scientific article.

The activity is proposed as a workshop and completes the theoretical part of the course. The workshop is mandatory for attendant students (at about 200). In the last two years, the workshop has been organized using the zoom platform (breakout rooms) that is considered a good setting because of the lack of classrooms equipped for group works. Students can meet when they want to complete the task (asynchronous assignment).

Each group has to choose a scientific article from a national or international journal about education; to read the article and search for research hypotheses or aims, research phases, research methodology and tools, data analysis, data discussion, and conclusions. Then students have to consider the theoretical part (including the bibliographical recognition), the research hypothesis or aims and build a research tool (questionnaire or interview) to answer the research hypothesis or aims. The questionnaire needs to have a title, an introduction (a short but complete one), some biographical information, and almost 15 closed items. It has to be administered by using Google forms to 15 people. Students have to include descriptive statistics to analyze data, and results will be presented using graphs and tables. The interview needs to include 4-5 questions and be administered to almost five people. Students have to consider the questions list, the interview transcriptions, the categories recognition, the synthesis, and the data discussion.

Workgroups will have to make some final reflective considerations writing short feedback that will include the article choice's motivation, observations about the work procedures, the potential difficulties, and the whole path.

Non-attendant students (at about 50) have to do similar individual work.

A 4-level rubric has been created to assess the product. Criteria are the following: degree of completeness between task and group work; degree of coherence between the research tool and the hypothesis/aim; degree of precision in the use of a specific language; degree of an in-depth analysis of the gathering data.

The workshop is helpful to assess, in particular, the first part of the 6.1 skills *Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at an institutional level.*

The workshop helps students reflect on the teacher as a researcher and better take up the internship path in the 4th and 5th years. Furthermore, the workshop gives students some elements for the final thesis (a research thesis).

Course outcome	**To write the draft of a scientific article in the education area**
Competence goal according to CALOHE2 framework:	**6.1 skill (first part) Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at an institutional level.**
Impact	● Support for a better implementation of the internship path in the 4th and 5th years. ● Basics skills for the final thesis (a research thesis).
Activities of the students	● To choose and analyse a scientific article ● To build a research tool starting from article hypothesis or aims ● To administer the questionnaire or the tool ● To include some final reflective considerations in the task
Assessment	Grading using a 4-level rubric according to some given criteria
Timing	6 hours
Recommended number of students	Approximately 250 students (Moodle platform and zoom)
Contact for further questions	Emilia Restiglian, PhD emilia.restiglian@unipd.it Associate professor in Education, University of Padova (Italy)

In the 4th year, students have to follow a course named "**Basics and didactics of Geography**" (8 ECTS - 60h) + 1 workshop (1 ECTS – 12h). It is an example of a disciplinary course, and its workload (8 ECTS lectures + 1 ECTS workshop) is very similar to many other courses of the course degree (they have the same "title": Basics and didactics of Mathematics, Physics, Biology, Music, Art, Sport, etc.).

Lectures and workshops were very strictly connected in the past, e.g., immersive experiences in some exciting locations from a geographical point of view (e.g., the Po river delta), always in a strong relationship with lectures. The 2019 lockdown forced the Professor to manage classes differently, so she proposed filling a personal journal to track formative experiences during the course and use the journal as an assessment task. So, at the end of each lesson, students have to note personal reflections, discussions, and impressions as

students and future teachers (autobiographical writing). As an explorer, the student focuses on the environment to value the present and future self. As the geographer does, the journal fixes the exploration output and the researcher's involvement. Students can record activities using comments and drawings, sketches, maps, and graphs. Each activity must start with the date, place, and (significant and appropriate) title. It is fascinating to think about doing all these activities at home, as it is helpful for children to explore their environment starting from what they can see at home.

The assessment task asks students to act as geographers when searching for something. The task is very personal, as students' environments are very different from one another. Students become able to reflect deeply on dealing with what surrounds them. In this sense, they develop something that is not useful only at a personal level but multiplies its value at a school level. During the (direct) internship, students can transfer a geographical "lent" to work with children improving their teaching practice. Acting as a (geographical) researcher allows students to identify aspects (settings, children's behaviours, relationships with colleagues and families, also the most undetectable ones) that can help daily decisions about contents and methodologies, times, settings, etc. We can also define this process as a challenging experience supporting children's successful learning.

The task is helpful to assess, in particular, the 6.1 skills *Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of solutions for challenges experienced by teams at an institutional level.* Students learn how to reflect on external (personal) resources that can help them act as researchers (and effective teachers) during the internship (and hopefully also as future teachers).

Some criteria have been given to assess the task: the transferability of the knowledge and geographical skills acquired in teaching; the ability to articulate the different meanings of landscape, territory, environment, space, and place in an operational way using, in line with the Ministerial indications; the use of an appropriate vocabulary; the level of a problematic, critical, and possibly proactive approach that highlights the strengths and weaknesses of the moments experienced by the student and the future teacher; the further reflection on impressions, sensations, and discoveries and students' value in one's teaching profession.

Students' opinions were gathered through a questionnaire after completing the task, appreciating its high value. It is "a bridge" between the course (lectures) and the workshop. Furthermore, the task allows connecting the academic-theoretical learning and the personal learning that facilitates a "deep understanding and feeling" of geographical experiences.

Students' representatives helped to choose this assessment task cause of its strong effectiveness for their formative path.

Course outcome	**To fill a personal journal (autobiographical writing) to track formative experiences during the course with the point of view of a geographer**
Competence goal according to CALOHE2 framework:	**6.1 skills (first part) Ability to systematically follow the educational research and developments (publications, events, resources, etc.) in search of**

	solutions for challenges experienced by teams at an institutional level.
Impact	● Personal formative value (according to a students' interview) ● Support for a better implementation of the internship path in the 5th (last year).
Activities of the students	● To record activities from the personal environment, personal reflections, discussions, and impressions as students and future teachers on a personal journal using comments, drawings, sketches, maps, and graphs.
Assessment	Journal grading according to some given criteria.
Timing	During an entire semester
Recommended number of students	Approximately 250 students
Contact for further questions	Emilia Restiglian, PhD emilia.restiglian@unipd.it Associate professor in Education, University of Padova (Italy)

A2. 3 Malta

Some context

One of the themes covered with Malta's First Year students during Field Placement (this entails a number of days in schools where students observe teachers teaching a class; and a 5-week period of assessed teaching) is specifically Scheme of Work (SOW) and lesson planning.

Here students discuss what a SOW is, its content, relevance, need and structure and how lesson planning is informed by this. As a follow up task, students are asked to draw a SOW for ONE area and ONE level (year group) for a period of 3 weeks (for example, 6 PE lessons). This task helps students transfer principles from the curriculum (wider philosophical and pedagogical vision) into tangible learning outcomes distributed across lessons; connect these to learning content as dictated by syllabus, textbooks and learning needs.

In the same study unit relevant to Field Placements, students orally share their observation experiences as well as write these down as part of their tasks. This happens in their first year of the course. In their second year, students share their Teaching Practice placement experiences. These are orally shared in tutorials and are also presented as narratives in their reflective tasks.

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The tasks have been taken from the "*School Experience*" study units, LLI5001 and LLI5002 respectively. These tasks are common to all Early Childhood and Primary Education students, and are carried out during small group tutorials in relation with weekly observations in schools.

Task 1 – Preparation of Scheme of Works

Course outcome	**To plan a sample language and mathematics scheme of work for the week in which students will carry out their next observation visit.**
Competence goal according to CALOHE2 framework:	**2.1: Wider Competencies - capacity and commitment to choose appropriate curriculum strategies in school, taking into account expected impact on students' learning, time available, costs and human resources.**
Impact	· Knowing how to link the observed lessons with their own planning. · Learning how to plan over a period of time using Learning Outcomes, topics and themes.

Activities of the students	Students need to answer the following questions, either individually or in groups: Plan a sample language and mathematics scheme of work for the week in which you will carry out your next observation. Compare and contrast the sample language and mathematics schemes of work you have planned with the copies or notes you have taken on the schemes of work (or forecasts) planned by the class teacher for the week in which you carried out your last observations. a. To what extent do the entries fit in with the theme suggested? b. Reflect on the balance between knowledge, skills and processes. c. Is the scheme of work demonstrating sequencing? Are the components logically related to one another? d. What is your impression regarding the type and use of key resources. Are the resources appropriate to the age and ability of the pupils? e. Discuss the suitability or otherwise of the key activities. Are the activities linked to the learning they are intended to promote?
Assessment	Developing a scheme of work for the 5-week assessed practicum.
Timing	This is a yearly study unit and it starts with observations in schools and tutorials with assigned tasks, leading to an assessed practicum period.
Recommended number of students	Approximately 70 students
Contact for further questions	Michelle Attard Tonna, PhD michelle.attard-tonna@um.edu.mt Senior Lecturer, Faculty of Education, University of Malta

Task 2 – Questioning techniques

Course outcome	**To orally share observation experiences as well as write these down. Such experiences are also presented as narratives in their reflective tasks.**
Competence goal according to CALOHE2 framework:	**6.1: WIDER COMPETENCIES - Capacity and commitment to encouraging incorporation of evidence-/ research-based enhancements into teaching practice at school level.**
Impact	· Linking day-to-day teaching and learning observations with theoretical understandings. · Critically reflect on pedagogical techniques being used, particularly questioning techniques.
Activities of the students	Students need to answer the following questions, either individually or in groups: Consider one lesson you observed. In relation to the Introduction, Explanation and Closure of the lesson: a. Discuss the type of questions set by the teacher at the different points and reflect on what the question achieved, and whether a pedagogically better question could have been formulated by the teacher. How much did the question support learning? b. Discuss the space given to students to ask questions, and how much attention the teacher gives to these questions to ensure that deep learning and understanding is promoted.
Assessment	Faculty Examiners will assess questioning techniques used by students during their practicum, and ensure they fit the criteria being used during this study unit.
Timing	This is a yearly study unit and it starts with observations in schools and tutorials with assigned tasks, leading to an assessed practicum period.

Recommended number of students	Approximately 70 students
Contact for further questions	Michelle Attard Tonna, PhD michelle.attard-tonna@um.edu.mt Senior Lecturer, Faculty of Education, University of Malta

Appendix 3. Guidelines for Developing and Evaluating Assessment Tasks

In this Appendix, we turn to the question of how to design a full international assessment system and consider the components that should be included to adequately evaluate students' knowledge and skills especially in the field of teacher education in an international context. The entire scope of activity starting with framework development, following with task development until final assessment construction, scoring, and reporting is a very long and time-consuming process. In this Appendix we discuss: (A3.1) a short guideline regarding framework development, (A3.2) a brief description about the modes and types of assessments and new assessment needs including the potentials in computer-based assessments over traditional testing, (A3.3) the general principles of assessments including the comparison of the different assessment methods, (A3.4) the type of tasks, which can be applied in the different assessments, (A3.5) on those issues, which are especially important in designing international assessments and, finally, the closing section of the Appendix (A3.6) focuses on issues in teacher education.

A3. 1: The basics of framework development

All assessments must be based on frameworks, which are central to the entire enterprise of all assessments, including international assessments. The framework documents describe the knowledge and skills to be assessed in each subject area, and the assessments represent the collection of measures (items, tasks, etc.) from which inferences about student performance in the subject area will be derived. Together they form the basis for describing student achievement in the given assessment. Without well grounded and well elaborated assessment frameworks we can not answer questions about "what the results mean and 'why the results are what they are."

The development of any kind of assessment framework and assessment is a complex multistep process. For any given subject area, the entire sequence of activities—from framework development, through assessment development and administration, to the reporting of initial results—spans several years, even in the case of national assessments. An overview of the sequence of activities in the framework and assessment development process, based on the 1996 NAEP national science assessment, is portrayed in Figure 1, which has not been changed too much in the last 20 years (see later about the advantages of technology-based assessments).

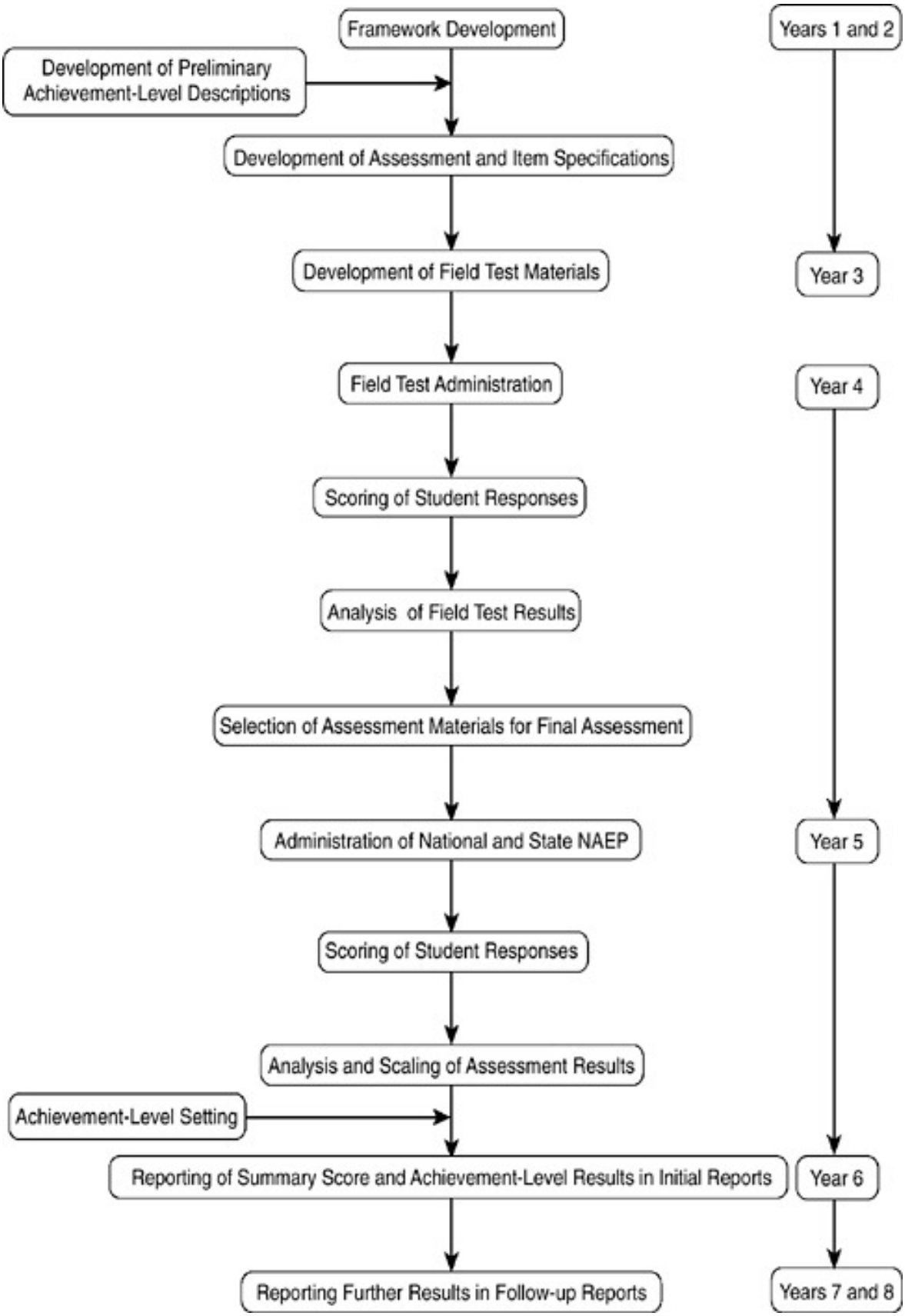
Framework Development
Years 1 and 2
Development of Preliminary Achievement-Level Descriptions
Development of Assessment and Item Specifications
Development of Field Test Materials
Year 3
Field Test Administration
Year 4
Scoring of Student Responses
Analysis of Field Test Results
Selection of Assessment Materials for Final Assessment
Administration of National and State NAEP
Year 5
Scoring of Student Responses
Analysis and Scaling of Assessment Results
Achievement-Level Setting
Reporting of Summary Score and Achievement-Level Results in Initial Reports
Year 6
Reporting Further Results in Follow-up Reports
Years 7 and 8

Figure 1. A generalised overview of NAEP's assessment development process (Pellegrino, Jones, & Mitchell, 1999).

The frameworks must contain the subject-area knowledge and skills students should know and be able to do. If the framework specifies knowledge with for example a three-dimensional model, like it has been done in the eDia (electronic diagnostic assessments; see Csapó & Szabó, 2012; Csapó & Csépe, 2012; Csapó & Szendrei, 2011; Molnár & Csapó, 2019) system in Hungary (the three dimensions: disciplinary, application and reasoning), for each of the dimensions must the framework describe not only the different level of knowledge and skills students should know and be able to do, but the proportions and types of items and tasks that should appear on the final version of the assessments. These specifications provide a detailed blueprint for assessment development even for a series of assessments over time ensuring (beyond appropriate research design - see latter) the comparability of the different assessments. The framework and specifications documents thus must serve as guides for the development of assessment materials in each subject area.

The first phase of the CALOHE-project was devoted to developing sophisticated qualifications reference frameworks plus assessment reference frameworks for five 'subject-areas', one of them being Teacher Education (Wagenaar, 2021). Although this process proved to be challenging for this group, due to different national settings and context, finally agreement at a more abstract (less sensible for specific contexts) level was reached. At present, the abstract formulations of (a selection of) Program Learning Outcomes are being broken down into more concrete, 'measurable' parts, in order to make them fit for assessment and comparison. The result of this activity should be tested against the criteria mentioned here.

Please, note that "the presence of standard-based goals in the frameworks and the general fit of the assessment item pools to categories in the major framework dimensions do not ensure that the goals of the framework have been successfully translated into assessment materials." (Pellegrino, Jones, & Mitchell, 1999, p. 132). As the translation of the goals of the frameworks into assessment instruments and scoring rubrics are among the hardest tasks in this process. Assessment tasks are often not well designed to measure the complex aspects of student knowledge and skills described in the frameworks. Also, when tasks are well designed, the scoring rubrics are not consistently designed to attend to key differences in students' types and levels of understanding of the knowledge and skills specified in the framework. Rather, item developers put more emphasis on easily quantifiable aspects of a response with little consideration of the relevance of those distinctions, which can be important to differentiate the levels of students' understanding.

To sum up, the framework must contain the following information: (1) what do we want to measure: the exact description of the construct under investigation and the description and analyses of its subskills/ knowledge elements; (2) the different level of knowledge and skills students should know and be able to do, that is, the preliminary achievement-level descriptions, (3) the proportions and types of items and tasks that should appear in the assessments.

A3. 2: The changing modes and types of assessments: from paper-based to computer-based assessment, and from summative to personalised diagnostic assessment

The most prominent educational developments of the past few decades have been aimed at establishing the feedback mechanisms of different levels of educational systems. Therefore, both the theory and the practice of educational assessment have seen considerable advances. Large-scale international assessments have become regularly administered by collaborative teams of experts of the leading test centres of the world. As a result, a huge improvement of data transfer technology and data analysis methods could be witnessed. Systems of assessment and evaluation in national contexts taking into account both the international trends and the local characteristics have been gradually set up. Due to the rapid development, the means of paper-based assessments most widespread and accepted at the millennium imposed serious constraints on their usability. To facilitate potential improvement and meet the twenty-first century needs of the new kinds of assessment and evaluation, an essential qualitative change had to be made (Scheuermann & Pereira, 2008).

The direction of these developments has been determined by technology, especially by computers, thus offering extraordinary opportunities. We can administer tasks in a more realistic, application-oriented, engaging and authentic context with computer-based assessment; we can use innovative item development opportunities, producing dynamic, interactive multimedia items. We can design more valid assessments. Technology-based assessment makes it possible to provide instant, objective, standardised feedback, thus replacing previous long feedback times, and to use adaptive test algorithms to fit the difficulty level of the tasks to the knowledge and skill level of the students (see Csapó et al., 2012).

Adaptive testing makes assessment results more exact and makes assessment fully personalised. In traditional testing, each person receives the same tasks in the same order. In contrast, in adaptive testing, each person completes different tasks, with the most diagnostic power from an item bank. The results can be compared because the items are scaled and defined on a common difficulty and ability scale, even though the students took different tests. The difficulty level of tasks thus administered is tied to the ability level of the students, offering them an optimal challenge. Testing therefore does not become boring or cause anxiety. This can have a positive effect on students' interest and test-taking motivation, which is crucial for the frequent use of tests. This type of testing was even implemented in the PISA 2018 main survey for the domain of reading.

Main advantages of computer-based assessments are as follows:

- The economy of testing,
- The diversity of test editing and development and the speed of test administration and data flow,
- The opportunity to provide instant, objective, and standardised feedback,
- The motivation of the students for testing changes, Innovative item development opportunities, multimedia, dynamic, and interactive items, applying second- and third-generation tests,
- An adaptive test algorithm has become available, which allows a more exact assessment of levels of knowledge and skills and abilities,
- The circle of test takers could be extended (e.g. audio version of tasks and instructions could be played, which makes testing of children who cannot read possible),

- Technology serves as an effective means of logging and analysing contextual data (e.g. the time needed for the execution of a task could be measured; besides the number of attempts made by the student to modify their solutions, the number and location of a student's clicks during a test could also be mapped). Consequently, instead of the only indicator used in paper-based testing, which is the test result, a rich and well-structured database is available, which makes a more thorough following and analysis of the student's movements and behaviour possible during the test, Indicators of test goodness criteria could increase.

To sum up, today, computer-based assessment offers more effective assessments (e.g. they are cheaper, the data flow is faster and safer, indicators of test goodness are higher, student motivation is higher, and feedback is quicker) than traditional paper-based or face-to-face testing. Using at least some of the advantages of computer-based assessment, international summative tests have already been transitioned from paper-and-pencil to digitally-based assessments, and all important assessments will probably follow suit within a reasonable time.

In 2021 there is no longer any question whether we can develop complex, real-world, authentic, high-quality tests. COVID-19-related school closures and digital teaching have reinforced the idea that the 'one-size-fits-all' approach is not effective, either in general or in educational assessment in particular. The almost exclusively used summative test results have limited usefulness with regard to learning and teaching processes to personalise intervention and student-level feedback in general (Csapó & Molnár, 2019).

They are good for accountability purposes (see Koretz, 2018) in 'normal teaching times', but they do not meet the individual needs of students. They do not provide actionable feedback for learners to aid in improving their learning process. The COVID-19-related interruptions or modifications in high-stakes national assessment provide an opportune moment to re-think the essence of assessment (Cairns, 2020).

This crisis is a good reminder that beyond summative, high-stakes testing a more a learning-centred, low-stakes approach, using the power of prompt, proper – that is, efficient – feedback is also relevant and appropriate. This approach was not possible in the days of paper-based testing, but is now fully realisable with technology-based assessment. Like the world of video games, tasks and tests which match students' ability level (adaptive or tailored tests) and assessment with regular and objective feedback are also motivating in education, can even result in flow, and enable teachers to tailor instruction and support students' development more effectively.

A3. 3: Assessment General Principles

No matter what the assessment type is, all assessments should have specific psychometric characteristics. These are validity, reliability, and utility. Fairness, although defined separately, should be considered in association with validity.

Validity refers to the appropriateness of the uses and interpretations of assessment results (or scores). It answers the question: Does the test measure what it is intended to measure? It is a matter of degree rather than an all-or-none construct. Thus, the validation process is an ongoing process that includes a collection of evidence to indicate the appropriateness of the inferences made from the assessment results. There are three main approaches: construct-related evidence, content-related evidence, and criterion-related evidence. Construct validity is considered to be "umbrella validity," as other validity types fall under it.

- *Construct-related evidence* answers the question: "Does the test measure the construct that it is intended to measure?" It requires testing certain hypotheses regarding the differences of the examinees on the construct of interest. Commonly used methods include testing the relationship between test scores and other related variables, the differences in groups, factor analysis, and a multitrait-multimethod analysis (Crocker & Algina, 2008).
- *Content-related evidence* answers the question: "Is the test fully representative of what it aims to measure?" The suggested procedure is to have experts independently evaluate whether the items fully represent the domain of interest. Content validity is commonly used with achievement tests, in which a list of instructional objectives (learning outcomes) is used to identify the domain of interest. A test with good content validity evidence matches the instructional objectives. Several methods have also been developed to quantify content validity, such as CVR (Lawshe, 1975), rWG (James et al., 1984), modified kappa (Polit et al., 2007). A related but not identical term to content validity is face validity. It refers to the degree to which items appear to be suitable to their aims by the typical examinees.
- *Criterion-related evidence* answers the question: "How well does the assessment score predict the examinee's future performance or estimate current performance on a criterion measure?" To provide criterion-related validity evidence, one must correlate the scores with an external criterion. There are two types: concurrent validity (estimate the scores on a criterion assessed simultaneously) and predictive validity (predict scores on a criterion measure obtained later). In these validation studies, the important task is to find a suitable criterion. Criterion should be relevant to the task of interest and be uncontaminated.

Fairness in psychometric context refers to how a test is used and interpreted equitably and impartially.

Reliability, very broadly, refers to consistency in measurement. Similar to validity, it is not a matter of all-or-none and not a characteristic of the test itself. Reliability is a prerequisite condition for validity, but it is not a sufficient condition. Reliability is also defined as the degree to which a measure is free from error. Measurement errors might arise in different stages of testing, including development, administration, scoring, or interpreting. Therefore, examiners/researchers/practitioners should be careful in all stages of testing. There are different types of reliability: test-retest, alternate forms, internal consistency, person separation reliability, and inter-rater.

- *Test-retest reliability* is an estimate of stability over time. It is obtained by administering the same test to the same examinee group twice and calculating the correlation coefficient.

- *Alternate forms reliability* is a measure of equivalence and requires developing two similar forms of a test. These forms should be administered to the same group of examinees at similar times. Then, again a correlation coefficient is calculated to estimate the relationship between them.
- Another type of reliability study includes administering one form of a test to a group of examinees once. The analysis produces an *internal consistency* measure, which is helpful to examine the test homogeneity. There are different methods: split-half (correlating two halves of the test and applying Spearman-Brown formula), Kuder-Richardson (on tests with dichotomous items), Cronbach's alpha (on tests with dichotomous and/or non-dichotomous items). The advantage of these methods over former ones is that reliability can be estimated without constructing an alternate test and without administering the test twice.
- *Person reliability* (answering the question: Does your test discriminate the sample into enough levels for your purpose?): WLE Person separation reliability or EAP/PV reliability are often used by anchored datasets analysed with the tools of item response theory (in this case not all of the students solved all of the items).
- *Inter-rater reliability* refers to the degree of consistency of ratings from two or more raters (or scorers). Percentage of agreement or correlation coefficient between rater scores can be used. It can be increased by using well-defined scoring rubrics and training the raters.

Usability (or utility or practicality) refers to the practical value of using the test. One cannot ignore the practical considerations while selecting the assessment method. It is crucial to consider practical features like time required, ease of administration and scoring, cost of testing.

A3. 4: Assessment Methods

In this sub-section, we firstly compare assessment methods. Then we have a subsection discussing the implications for teacher education.

A3. 4.1. Comparison of Assessment Methods

A variety of assessment methods are available. Table 1 below presents the pros and cons of assessment methods commonly used in higher education.

Table 1. Comparison of Assessment Methods

Assessment method	***Pros***	***Cons***

Achievement test	A commonly used method for a long time. Can provide direct evidence of student mastery of learning outcomes. Wide variety of formats from true/false to open-ended items. Having different formats also allows addressing different levels of learning outcomes. If well-developed or standardised/published exams constructed by professionals are used, they are most likely to have good psychometric characteristics.	Developing good exams requires time and skill. Reliability and validity generally are unknown. If open-ended items are used, scoring takes time. Norms generally are not available.
Portfolio	Is comprehensive and provides learners the chance to show what they learn. Can be used in different disciplines. Can include a wide variety of types, from a collection of assignments to critical incidents. The latter is useful, particularly for developmental purposes. Encourages learners to be reflective learners.	Requires time to plan, monitor, and score. Difficult to score reliably. Difficult to standardise in order to compare across learners. Test-retest reliability may not be high.
Oral exam	Tests communication, understanding, capacity to think quickly under pressure.	Suffers from low reliability if standardisation is not done for the procedure. Labour and time-consuming.

Self-report questionnaires	Are flexible in format (paper-and-pencil vs. online) and can include questions in different formats (closed-ended vs. open-ended) about many issues. Can be used to follow-up opinions across time to understand trends. Can be administered to large groups of respondents relatively quickly (particularly in online format). Not costly to administer. Responses to closed-ended questions are easy to report in tables or graphs.	Provide indirect evidence about student learning. What people say they do or know may be different from what they do in practice. Their validity depends on the quality of the questions, response options, and characteristics of the sample. Open-ended responses can be difficult and time-consuming to analyse.
Observation	A good option for evaluating how learners' knowledge and skills are put into action. Most "natural" and least intrusive assessment option. Useful for estimating performance and giving immediate feedback if only a simple, standardised protocol is used.	The possibility of confounded results due to the "observer effect." Lengthy training for observers and a well-developed observation protocol are required for high reliability. Labour and time-consuming.
Simulation	Allows for authenticity - more closely related to actual practice. Utilises multiple variations of normal and abnormal conditions. Maintains a high level of standardisation compared to workplace-based assessment.	Requires more testing time than for other performance assessments. How to reduce the complex information in a simulation is not well-established. Expensive and time-consuming.

A3. 4.2. Types of items: from first generation to third generation item development

There are three ways to assess students' knowledge and skills in the 21st-century. First, using the more traditional approaches, the so-called first-generation tests, whose design is based closely on existing static paper-and-pencil tests. Second, using new formats of assessment, including multimedia, constructed response, automatic item generation and automatic scoring tests - they are the so-called second-generation tests. Or developing and using third generation tests which allow students to interact with complex

simulations and dynamically changing items. The later way of assessment is dramatically increasing the number of ways students can demonstrate their skills (see Molnár et al., 2017). The main differences in paper-based and computer-based items can be described in three levels: the type of stimulus, the type of response captures and the type of items.

The type of stimulus. In paper-based tasks, the type of stimulus is mainly limited to the use of static text and images, while in computer-based tasks this can be done with static or digital text (using hyperlinks), images, sound, animation, video, simulation or by microwords, problem scenarios, where the test taker may even interact with the - eventually dynamically changing - problem environment to be able to solve the problem.

The type of response capture. The type of response capture may also be different for the two test environments. While on a paper-based test the answer is basically given by circling, using check marks or icons, underlining, connecting, drawing or writing letters, words, sentences, in a computer-based task the answer possibilities expand immensely (depending on the nature of the hardware used). There may be different options for a tablet or a desktop computer. Although the direction of technological advancement is clearly towards tablets and touch screen computers, where the use of peripherals (ie. keyboard and mouses) no longer necessary, due to its prevalence, it is also important to address. When using the mouse, students can (1) click on form elements (radio button, check box), (2) use a drop-down list, (3) click on images, parts of images, (4) click on text, parts of text, (5) click to colour shapes, images or parts of them, (6) number elements based on the order in which they are clicked, (7) connect or draw an arrow between any kind of task elements, (8) drag and drop letters, words, sentences, text, numbers, shapes, images, sounds, videos, animations, simulations, that is, any kind of task element. Types of response captures that prompt you to use the keyboard can include input fields that require you to type letters, numbers, words, or text boxes that prompt you to type longer text, sentences, or even press certain keys at a rate. In addition, it is possible to upload audio or video (motion) after using the in-built microphone or video camera of the computer.

The type of items. More traditionally used item types are true-false items, multiple-choice items (single solution), complex multiple-choice items (multiple solution) and matching items. All of these item types can be scored automatically and they are commonly used in paper-based tests, but its scope expands significantly due to the stimuli used in computer-based testing (instead of widely used radio buttons you can use images or other task elements when answering).

- In true-false items students have to decide whether the statement made in the task is true or not. Please, note that the probability of succeeding on a true-false item is 0.5 percentage.
- In multiple-choice items the test taker is presented with a question or incomplete statement and a series of 3-5 potential answers. This item type is versatile because they can measure a variety of knowledge and skill levels. Because many multiple-choice items can be answered in a given period, the format allows a wide range of content to be sampled within a single examination. The major limitation of the format is that they are difficult to construct. The most difficult aspect of writing a multiple-choice item is the development of plausible distractors. This item type is often used in large-scale assessments.
- Complex multiple-choice items are like multiple choice items, but with multiple solutions.

- Matching items typically present a list of items and a list of definitions (please, note there must be at least one option more on the one side than on the other). The test-taker is asked to match the statements. This type of item is not generally used in high-stakes tests, because they offer examinees the opportunity to make guesses simply by the process of elimination. As such, guessing becomes too great by these types of items, favouring generally lower skilled students.

Constructed responses or productive item types are those item types, where the tasks require the test-taker to produce or construct the answer. Beyond items requiring data (e.g. letter, number, words, sentences, any kind of text; like essay items) entry, manipulative responses with matching or colouring-based tasks can also be implemented as productive item types. For example, typical matching type, but productive items can be built with drag-and-drop manipulation, where a task element must be supplemented with another task element(s), or the individual task elements must be sorted or grouped according to different features even with multiple solutions. Most of these so-called constructed responses can also be automatically scored by an online system.

Scenario-based tasks belong to the group of constructed responses too. The realisation of it requires a digital, technology-based platform. Using videos, multimedia elements and interactive graphics, scenario-based tasks ask students to demonstrate their knowledge and skills to solve problems within realistic situations by interacting with the problem scenario. These questions offer several ways to show what students know and can do. In teacher education, the task might simulate a classroom setting where students must select materials. Because several concepts are built into a single scenario, one task can cover a range of assessment areas and difficulty levels. Students who have taken these tasks find them engaging. Scenario-based assessments are more expensive to develop than pencil-and-paper or multiple-choice tests. However, they are less expensive to score than many performance-based assessments that ask students to develop a product or a portfolio.

In the following, we demonstrate the development of assessment methods through the case of problem-solving. Figure 2 provides an example from a first-generation problem-solving test, which belongs to the latest first generation task, as it is colourful and puts the problem in a real-life environment. The outline is basically static. The left-hand column presented information in realistic formats (such as a map, picture or drawing) and on the right was a story of a family trip or a class excursion and a prompt student to solve problems (e.g., using the information provided and supplementing it with school knowledge) as they would arise during the trip” (source: Molnár et al., 2013). Multiple-choice items were used in the assessment.

The next morning, four of my friends came over. By 11, we were really hungry, so we ordered pizza. Anna and Julie asked for a ham pizza, which they ate between them. The boys each ordered a small mushroom pizza, and I went for a medium Mexican pizza. How much did all this cost?

A. Ft3,360 B. Ft3,570

C. Ft3,780 D. Ft2,460

When the pizzas were delivered, we got a coupon for 20% off our next order. My parents thought our lunch smelled so good that they decided to get some pizza too. So Dad took the coupon, got into the car and brought back a Stuart Little pizza in the largest size for himself and a pineapple pizza one size smaller for mum. How much money did Dad need to take to the pizzeria?

A. Ft1,400 B. Ft1,700

C. Ft2,100 D. Ft2,400

It all worked out nicely for them in the end!

Figure 2. Example for first-generation problem-solving task

Second-generation problem-solving tasks contain multimedia elements, like sound, video, simulation or animation as stimulus but still uses traditional response captures. For example, students have to look at a video, and based on the video answer questions. In teacher education, test takers can look at a short video about a school lesson and based on this real-life scenario make the decision about what to do, how to react etc.

Nowadays, the direction of these developments offers extraordinary opportunities. We can administer tasks in a more realistic, application-oriented, engaging and authentic context with computer-based assessment; we can use innovative item development opportunities, producing dynamic, interactive multimedia items. Third generation tests are designed to require more cognitive skills and therefore additional aspects of problem solving that are relevant in today's life but are not captured by classical first-generation tests of problem-solving skills. Figure 3 and 4 provide an example from the field of ICT literacy and problem solving.

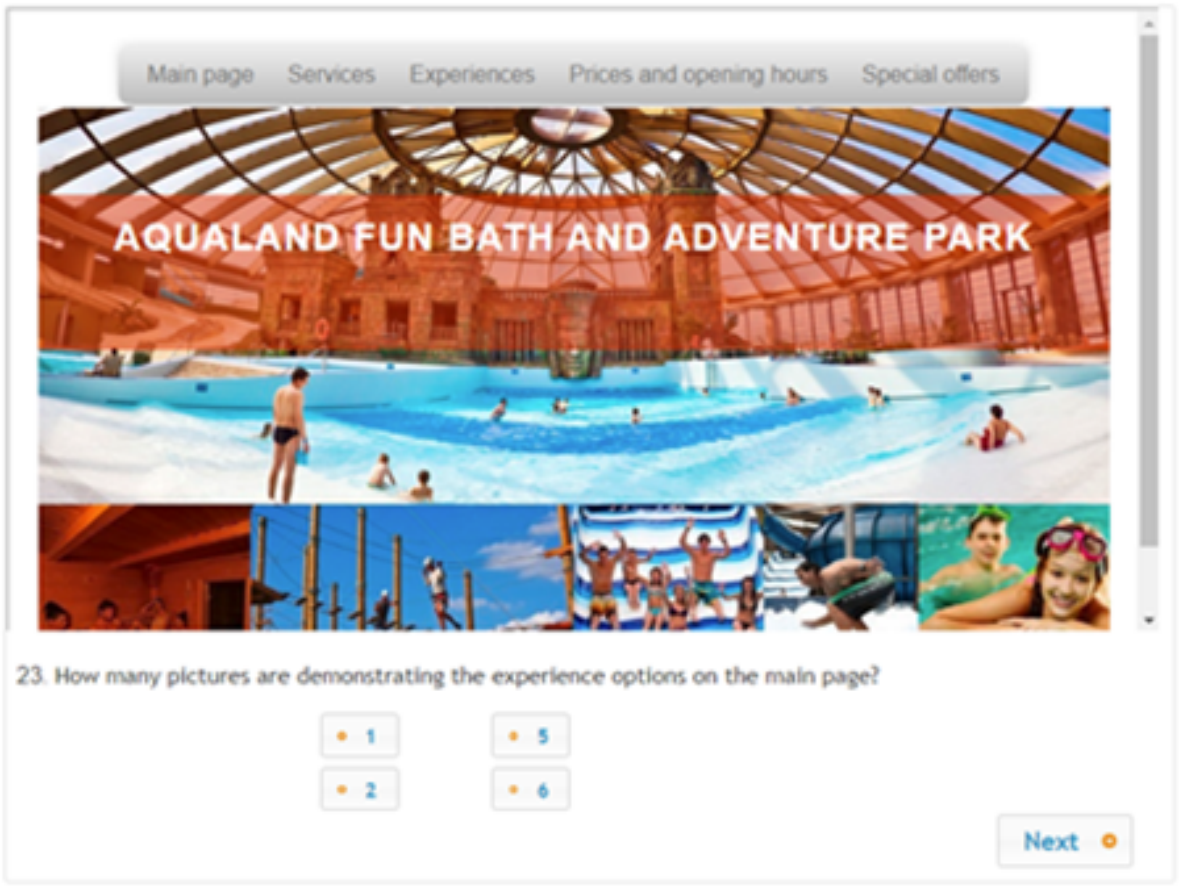

Figure 3. Third generation item using third generation stimulus (simulated web page) with first generation response capture

Figure 4 illustrates an example from a third-generation problem solving test. On the left side, in the first phase of the problem-solving process, the free exploration phase, the relations between the input and output variables needed to be explored by interacting with the problem environment. During this interaction process, students were expected to manipulate the values of the input variables as many times as they liked within 180 seconds and to identify the resultant changes in the output variables (direct effects) to acquire new knowledge. To do this, they were expected to click on a button with a + or – sign or by using a slider linked to the respective input variable and press the Application button, which made it possible to test the effect of the set values of the input variables on the output variables. The effect in terms of the changes in the values of the output variables was presented on a graph next to each output variable, similarly to the history of the earlier settings of the input variables within the same scenario, which was also presented on a graph next to each input variable. This first phase of the problem-solving process, including the free exploration and the model building process, is often called the knowledge acquisition phase. In the second part of each of the problems, in what is called the knowledge application phase, students were expected to reach the given target values of the output variables within a given time frame (90 seconds), at most in four clicks of the Application button. In this phase the right concept map was presented to the students on screen to make the different parts of the problem-solving process as independent as possible.

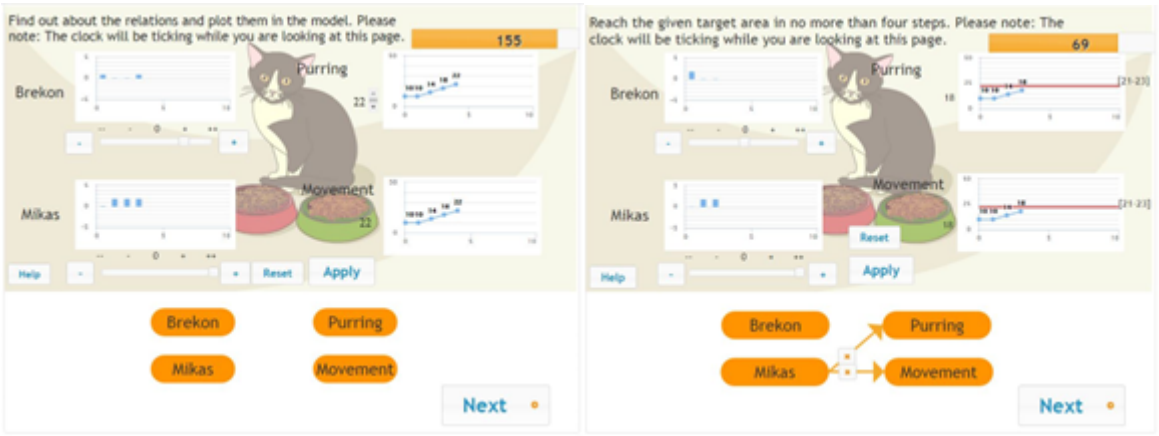

Figure 4. Third generation item using third generation stimulus (interactive problem scenario) with first generation response capture and with third generation response capture

These scenario-based item types can be merged and adapted in assessments in the field of teacher education too. Using simulations, videos, interactive micro words, changing input variables for stimulus and questions, the values of effectiveness, the results of the manipulations within the tasks (by logfile analysis: manipulation strategy, time-on-task, number of clicks) for response captures.

A3. 5: Additional Issues for International Comparative Assessment

- **Translation/adaptation:** Translation errors are a major cause of concern in the methodology of international assessments. As the testing is done to allow comparisons across countries, it is required to adapt the test to the language of these countries. If adaptation is not made appropriately, these errors will influence the psychometric characteristics of tests. For instance, a poor translation can confuse the test-taker's ability to understand the item, thus influencing test scores' validity. A good translation must "reflect not only the meaning of the original item, but should also try to maintain the same relevance, intrinsic interest, and familiarity of the item content" (p. 544, Ercikan, 1998). Test adaptation process involves more than "translation;" they should include psychological, linguistic, and cultural differences in the target populations. Acknowledging the need for technical literature in the field, the International Test Commission (ITC) developed guidelines for test translation and adaptation first in 1999, then in 2017. There are 18 guidelines under six sections. The rationale for each guideline is included, along with the steps to meet guidelines. An essential step in an adaptation process is to select translators. These translators should have enough knowledge about "(1) the languages involved, (2) the cultures, (3) the content of the test, and (4) general principles of testing" (p. 11, ITC, 2017). The most popular translation designs are backward translation and forward translation (Hambleton et al., 2004). Backward translation (i.e., translating the source version of the test into the target language, then translating them back to the source language, and comparing them for possible discrepancies) is commonly used in practice. A different group of translators performs translation and back translations. The forward translation is basically a direct translation of the text from the source language to the target language. Then, the equivalence is checked by another group of translators. Revisions are made on the test in the target language. Despite the merits of these

designs, the adapted tests should be field-tested before the final administration. Even before the field tests, it is recommended to gather data from subject-matter experts regarding the construct equivalence of different language versions of the test. In the field testing stage, the test is administered to a large sample well-representing the population. At this stage, several statistical analyses are recommended, including but not limited to factor analysis, multidimensional scaling, internal consistency measures, and nomological network comparison. These are used for addressing construct bias. In addition, methods such as delta plot, Mantel-Haenszel statistic, and IRT-based procedures are used to assess item bias.

- **DIF: differential item function**: DIF is a measure of how much harder or easier an item is for a respondent of a given group as compared to respondents from other groups of equal ability. The concept of it was developed as an alternative to *item bias* to avoid an implicit (negative) evaluation of the consequences of an item functioning differently for a group of test takers (Bundsgaard, 2019). There are different types of DIF-s (e.g. gender, language, country). From another angle, however, this phenomenon can be seen not only as a threat to validity, but also as an insight into what distinguishes students from different countries/languages etc, and possibly their education, on a content level, providing even more pedagogically useful information.
    - Language DIF: the items can show language DIF - considering whether issues in translating the item might be the source of the language DIF.
    - Country (culture) DIF: If students from one country find a specific item much harder or easier than students from other countries - with the same ability level-, it can impair the comparison of countries. Therefore, in international large scale assessments great efforts are directed towards analysing for DIF and removing or changing items that show DIF.
- **Sampling Design**. Sampling is a very important issue and poses interesting challenges in international comparative assessments. If the sample is not representative, significant exclusions of some of the groups (e.g. low achievers) can be suspected, that is, results are biased. Results can be also biased by not random (every member of the population has the same chance to be in the final sample) sampling or low participation rates, and so on. What is the solution? We can distinguish several types of sampling. The two big groups are probability (random selection, every member of the population has the same chance of being selected) and convenience (non-probability, non-random selection based on convenience or other criteria, allowing you to easily collect data) sampling. Generally, we can distinguish the following procedures:
    - simple random sampling (every member of the population has an equal chance of being selected, the sampling frame should include the whole population).
    - systematic sampling (every member of the population is listed with a number and individuals are chosen at regular intervals - it is important to note and make sure that there is no hidden pattern in the original list consisting the member of the population),
    - stratified sampling (the population is divided into homogeneous subpopulations (strata) based on specific characteristics, which are defined as core features of the population (e.g., subject taught by the teacher, etc.). Every member of the population studied should be in exactly one group, one stratum. Each stratum is then sampled using another probability sampling method, such as cluster or simple random sampling. If the population's

characteristics are diverse and we want to ensure that every characteristic is properly represented in the sample, stratified sampling is the best sampling method.)
    - cluster sampling (the population is divided into subgroups, but each subgroup have similar characteristics to the whole sample. By cluster sampling instead of sampling individuals, you randomly select entire subgroups.)
    - multistage sampling (the population is divided into subgroups, into clusters and if the clusters themselves are large, you can also sample individuals from within each cluster using one of the techniques above or after clustering select some clusters at the first stage. At each subsequent stage, divide up those selected clusters into smaller clusters, and repeat the process until you get to the last step, when selecting some members of each cluster for the final sample. E.g. first stage: making list of school districts within a country and select 20 districts; second stage: list all schools within those school districts and select 10 schools from each district; third stage: you obtain a list of all teachers within those schools. You select 10 teachers from every school, and collect data from those teachers.).
    - stratified multistage sample: a combination of stratified and multistage sampling. It is often used by large-scale assessments to help ensure that the units are representative of the larger population.
    - Convenience sampling belong to the non-probability sampling methods. It uses respondents who are "convenient" to the researcher. Theoretically, there is no pattern in acquiring these respondents—they may be recruited merely asking people who are present in the street, in a school, who are willing to fill out a questionnaire, for example. It has an extremely high degree of bias.
- Type of analyses: scaling and test equating; using plausible values (see https://www.oecd-ilibrary.org/docserver/9789264248373-en.pdf?expires=1630309496&id=id&accname=guest&checksum=62C5DACA9ECD72D05F7ED69B626E8B1E)

A3. 6: Issues for Teacher Education

Once *what* is to be assessed has been determined (see section 1), choices must be made regarding the 'measurement tools' to be used. Different instruments can be used and combined in more or less comprehensive systems that provide information on different/multiple aspects of student teachers' knowledge, skills and competences.

In a research synthesis on approaches to evaluating teacher effectiveness, Goe, Bell and Little (2008) categorised several kinds of assessment tools often used in case of (direct, 'in classroom') measuring teaching quality. The authors give descriptions of classroom observations, principal observations, the use of instructional artefacts, portfolios, teacher self-reports, student surveys and value-added models, the last one referring to how much academic growth can be explained by individual teacher behaviour. For each category the authors give an overview of research conducted with a focus on the quality of the tools (validity, reliability, see section 2, basic principles) and from strengths and weaknesses.

Important to notice is that the quality of a method (or a mix of methods), like validity, is not only determined by the method itself, but also by the purpose of the assessment (e.g., formative vs summative).

As stated earlier, before deciding upon *how* to conduct assessments, there must be some general agreement amongst stakeholders on the *what* (what are we looking for) and the *why (*purpose). As for the *why:* it is clear that one of the (main) purposes is international comparison. Wagenaar (2021, p3), CALOHEE2 project coordinator, a little ambiguous, states that 'The key question to be answered is whether it is desirable and possible to evidence learning by developing and applying instruments which on the one hand respect diversity, autonomy of higher education institutions and the particular mission and profile of individual study programmes and on the other hand allow for measuring the achievements of learning on the basis of internationally agreed references or standards, to judge whether these are respected and achieved.' This means that assessments should allow for international comparison, based on certain standards (of quality teaching) on the one hand, with respect for diversity, autonomy of higher education institutes on the other hand.

As to the question 'what are we looking for?': our colleagues in another task group are formulating concrete indicators of knowledge, skills and (wider) competences that will possibly be the object of assessment in the next phase of piloting/experimenting.

When posing the question 'what are we looking for?', it is important to realise that the answer to this question is very much coloured by our underlying conception of teaching. In case of (performance) assessment, those conceptions are very often taken for granted within a community, and they may vary across communities. This is especially to be acknowledged when conducting assessments from an international comparative perspective.

When looking at assessment in TE, in Europe (as well as in the US) we have seen a development from knowledge testing (paper and pencil) to (integrated) portfolio assessment concentrating on the process of reflection on personal and professional development. The pros and cons of usability, validity and reliability of the methods (and methods alike) were described in section 3.1). In general, these methods tend to lack enough quality to allow for (high stakes) comparison on the one hand, or for *systematic* assessment for learning and professional development on the other.

In some places examples of assessment in teacher education can be found that align with what is known about impactful/effective teaching. A huge and still growing knowledge base on effective teaching no longer takes (standardised) performance measures of levels of reading, writing and maths into account as indicators for effectiveness, but also achievement in other subject areas and more general constructs as metacognition, thinking skills and motivation to learn (Muis et al, 2014). Based on insights derived from that research, assessment systems are developed and implemented (worldwide, Van de Grift, Maulana & Helms-Lorenz, 2007, 2014) in which high quality instruments like standardised observations and student questionnaires are at the heart of the process (e.g. Maulana & Helms-Lorenz, 2016). Frameworks for Program Learning Outcomes (and assessment criteria) in those cases are partly grounded in international scientific insights (validity) data collected through the application of the instruments mentioned, allow for international comparison, as well as for deliberate professional growth (diagnostic/ formative function) (Maulana, Lorenz & Van de Grift, 2017).

Measures of teacher classroom behaviour/performance, combined with pre- and post-lesson interviews and study of authentic materials (like tests and test-analysis), can together cover the core tasks of planning/designing, delivering and assessing pupil-learning. These core tasks can as such also be found in the PLO-framework and in the 'breakdown' formulation.

From the point of view on assessment in TE in international comparative perspective, It is also interesting to see the parallels between the CALOHEE 2 project and the discussion in the US about assessment in TE over the past decades. In the US there has been a movement from teaching portfolios, to ('homegrown') local performance assessments, to more standardized performance assessments that hold common expectations (within a framework that defines what teaching is) for teachers across an institution, state and even nation (Sato, 2014).

Although critics of these standardised performance assessments argue that these are time and money consuming (outsourced to commercial enterprises), or not fitting with some conceptions of teaching (eg the practice of multicultural critical education can not be standardised in the eyes of those critics), several systems of standardised performance assessments are appreciated (by large and different groups of stakeholders → face validity) as being educative processes, grounded in the everyday work of the teacher on the one hand and in the empirical knowledge base on effective teaching on the other hand.

The conception of teaching underlying the Qualifications Reference Framework of General Descriptors in the Subject Area of Teacher Education (this project) can be characterised as focussing on 'teachers' impact on learning and well-being of pupils', evidence informed, driven by collective professionalism. This implies that the 'evidence' we are searching for is not limited to knowledge (and skills), but also (and primarily) in the (deliberate) application of that knowledge/skills in (authentic) practice. The implication of this notion for the assessment of teaching quality (as the outcome of teacher preparation) is that the proof of the pudding ultimately is in the eating and that an assessment system cannot be limited to paper and pencil testing (or more modern variants), although technological innovations give possibilities for incorporating virtual practices in the space between 'theory and practice'. Somehow student teachers' enactment in the classroom (call it performance) must be captured.

A well-known assessment system that could be promising when constructing assessment tasks in the SAG on teacher education is the edTPA, developed by the Stanford Center for Assessment, Learning and Equity. According to their website (https://www.edtpa.com/PageView.aspx?f=GEN_AboutEdTPA.html, retrieved 9-14-2021)

'*The edTPA is a performance-based, subject-specific assessment and support system used by teacher preparation programs throughout the United States to emphasise, measure and support the skills and knowledge that all teachers need from Day 1 in the classroom. For each handbook field, the placement is a Pre-Kindergarten to 12th grade classroom. edTPA is a subject-specific assessment that includes versions for 28 teaching fields. The assessment features a common architecture focused on three tasks: Planning, Instruction, and Assessment.*

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Aspiring teachers must prepare a portfolio of materials during their student teaching clinical experience. edTPA requires aspiring teachers to demonstrate readiness to teach through lesson plans designed to support their students' strengths and needs; engage real students in ambitious learning; analyse whether their students are learning, and adjust their instruction to become more effective. Teacher candidates submit unedited video recordings of themselves at work in a real classroom as part of a portfolio that is scored by highly trained educators. edTPA builds on decades of teacher performance assessment development and research regarding teaching skills and practices that improve student learning.'

The core tasks involve:

- Planning lessons around a central subject matter specific learning goals
- Instructing students in ways that engage and deepen student learning
- Assessing how well students learned the subject-matter learning goal

The whole process of defining teaching, developing qualification frameworks, setting standards and developing assessment procedures, tasks, scoring rubrics is very much like what is at stake in the CALOHE2-project, as are the underlying conceptions of teaching and instructional core tasks for teachers.

A comparable, but more comprehensive set of core tasks was proposed by Danielson (2013) who assesses planning, classroom environment, instruction (including assessment) and professional responsibilities, the latter fitting well with part of the 'wider competences' in CALOHEE.

On the validity of the edTPA, Sato (2014) argues that the face validity and the content validity are adequate, and that research on the construct validity seems promising.

At this point, the conclusion seems to be justified that an international comparison on the outcomes of teacher education programs can be done in a sound and responsible way, under the condition that there is agreement amongst stakeholders about the purpose and a common understanding of the (operationalisation of) the PLO's as formulated in the qualifications framework.

We should however not underestimate the challenges we face when we develop assessment tasks that are more comprehensive (including the wider competences) and that are 'fair' (see section 3), that allow for comparison and that are sensitive for different contexts (eg primary education, secondary education), in different educational systems, in different cultures.

As we have seen in the section. The impact from (particularly) technological development on the possibilities of assessment and international comparison can be big. Certain applications of technology are gradually finding their way into the practice of (assessment in) teacher education (VR in classroom management, promoting teacher resilience through online escape-rooms). However, when it comes to assessment, it seems that the world of TE has not yet adopted very much of the possibilities of the application of principles of second, let alone third generation assessment practices.

As Wagenaar (2021, p11) notes in his research article on defining, measuring and comparing learning as outcome of higher education notes: 'What is looked for are assessment approaches which allow for identifying/measuring (real) understanding, analytical and critical thinking/awareness, making solid judgement and preparing for a societal role, both for the world of work and for civic, social and cultural engagement' <……> 'This is ambitious and it means (partly) entering new territory, asking for sophisticated formats which take into account different cultures and educational traditions. It will require 'adaptive' testing for example, implying differentiation in questioning - from less complicated to more complicated - on the basis of the obtained responses. It will also imply scenario building where academics can learn from strategic computer gaming based on algorithms. It will in addition ask for defining complex problems which require not only knowledge and understanding, but also generic competences, to solve them. One can also imagine that assessment questions are used that have to be answered by a short essay which is analysed by computer. Another form is showing footage of a real event, about which questions have to be answered. All these formats are already in use, although in some cases still (very) limited or in an experimental phase of development.'

Appendix 3 References

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