Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe (CALOHEE)

Subject Area based Assessment Frameworks
Discussion Paper on the design of Assessment Frameworks based on Sectoral and Subject Area Qualifications Frameworks

Introduction
Over the last ten years and more, much time and effort has been invested in the development of what are often called ‘meta-level Qualifications Frameworks’. Good examples in this respect are the Qualifications Framework for the European Higher Education Area (the QF for EHEA), based on the ‘Dublin Descriptors’; and the European Qualifications Framework for Lifelong Learning (EQF for LLL). Both frameworks provide good indications of what is expected in terms of outcomes of a learning process at different levels. However, because of their purpose and role, the descriptors included in meta-frameworks are necessarily rather general.

Starting in 2001, benchmarks or reference points have been developed for specific subject areas or disciplinary fields as well as for academic domains or sectors in the context of Tuning and the Thematic Networks. The meta-frameworks and the subject area / domain qualifications frameworks are complementary. Although they are more detailed, subject area based qualifications frameworks or benchmarks are also still rather general by nature, since each one of them is expected to cover a broad academic field.

It is now widely accepted that both programme level descriptors and unit or module level descriptors, described as programme and unit ‘learning outcomes’, are useful to determine whether the intended level of learning has actually been achieved. Experience has shown that learning outcome statements should be clearly and precisely formulated in order to guarantee objectivity /fairness and transparency. Tuning has developed a model, related to the work of educational scientists Bloom, Biggs and others, which helps in elaborating reliable statements. Reliability is to be understood in this context as allowing for measuring and assessing the progress of learning and/or its achievement. The Tuning model distinguishes five elements that should be covered in a learning outcomes statement. Hence it is more precise than models which focus (mainly) on the use of the most appropriate ‘verb’ to indicate the level to be achieved during a specified piece of learning. Dependence on verbs has its limitations because it lacks precision in defining the scope and complexity and therefore the level of a learning outcome.

An additional instrument for determining the level of performance of an individual learner are so-called rubrics. Rubrics or score cards offer more detail and precision in terms of the criteria employed to assess and grade a piece of student work and the weighting of different elements. Rubrics can have quite different formats, and are used to assess an individual course unit or module.

Although qualifications frameworks, level descriptors and rubrics are all indispensable tools for judging the quality of learning, they are not sufficient for comparing the results obtained by different study programmes in the same field of study in a national or international context. This requires a new type of instrument: an assessment framework. Such a framework offers more detail than do qualifications frameworks about what a graduate in a particular subject area is expected to know, understand and be able to do when finishing his or her studies and/or a well-defined (structured) period of studies successfully.

This paper explains what is meant by a ‘Subject Area Assessment Framework’ in the context of the CALOHEE feasibility study, and should thus provide a basis for constructing a European Assessment Framework for each of the five academic domains and five subject areas covered by the project. It intends to offer insight into 1) the definition applied, 2) the application of Qualifications Frameworks and so-called dimensions, 3) the multi-dimensional parameters identified, that is the items to be assessed - in terms of theory, methodology, skills, application, employability and civic related competences -, and 4) the structure of the framework, that is the topics of assessment and their related approaches regarding teaching, learning and assessment (which can be applied).

**Definition**

The term Assessment Framework can have different meanings. On the one hand it may refer to an instrument used as a basis for an accreditation procedure, that is to check whether a study programme meets minimum quality standards. On the other, it can also be understood as a framework which offers a detailed scheme or schedule of phases in an assessment process, including the different approaches to be used with respect to the course units/modules that form a particular study programme. The teaching staff involved in such a programme is expected to respect this scheme when implementing the programme. It should offer a well thought through and balanced structure for assessment of the different programme components.

In the case of CALOHEE, ‘Assessment Framework’ has a third meaning. It is a table which contains the learning outcomes or descriptors defined as part of a Subject Area Qualifications Framework and more precise subsets of each one of them. Each subset, taken together, describes in some detail the key elements and topics covered by a learning outcome statement. In addition, the Assessment Framework intends to offer insight in the most appropriate strategies and approaches to assessing the constituent elements of each learning outcome. The term is used in CALOHEE in the same way as in the OECD AHELO feasibility study, where assessment frameworks were defined for the disciplinary fields of Economics and Civil Engineering, based on respectively the Tuning AHELO conceptual framework for those two Subject Areas.

**Qualifications Frameworks and dimensions**

As mentioned above, the Assessment Frameworks to be developed will be based on the grids or tables of descriptors included in the Tuning Sectoral and Subject Area Qualifications Frameworks. The EQF for LLL uses the categories of knowledge, skills and competences to structure its descriptors. Thus the three columns form a ‘knowledge framework’, a ‘skills framework’ and a ‘competency framework’, linked by level. The last column, the competency framework, refers to the
world of work and identifies the competences required to operate successfully in the work place. In the EQF, the competency column builds on the other two elements: knowledge and understanding and the skills necessary to develop and use this knowledge. Together these can be seen as ‘technical competences’ or ‘subject specific competences’. As is well known, besides these, Tuning distinguishes ‘generic or general competences’, which are grouped in three categories: instrumental, interpersonal and systematic competences. These should be covered in the ‘competency’ strand, but are also related to the ‘skills’ strand.

To illustrate this point, it is worth mentioning that over time many so-called Competency Frameworks have been developed for a specific job sector, company or institution. These define the requirements for a given job and are used in job vacancy announcements. These announcements normally contain content-related or subject specific competences as well as generic competences. As an example of a well-developed Competency Framework we may take the one the OECD produced in 2014 for the selection/assessment and promotion of its own staff. This Competency Framework is linked to the catchwords: learn, perform, succeed. It makes a distinction between ‘technical competences’ (subject specific competences) and ‘core competences’ (generic competences). It identifies 15 ‘core competences’ which are organised in three clusters: ‘delivery-related competences’ focusing on achieving results; ‘interpersonal competences’ focusing on building relationships; and ‘strategic competences’ focusing on planning for the future. The ‘delivery-related competences’ are: analytical thinking, focus on achievement, drafting skills, flexible thinking, resource management, teamwork, and team leadership. The Interpersonal competences identified are: client focus, diplomatic sensitivity, negotiating, organizational knowledge. The strategic competences identified are developing talent, organizational alignment, strategic networking and strategic thinking. For each of these competences a definition was formulated.

To offer some insight regarding the definitions used, two examples related to the levels 2 and 3, which seem to come close to the bachelor and master level are presented here:

**Table 1**

<table>
<thead>
<tr>
<th>OECD key indicators</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytical Thinking</strong></td>
<td>• Identifies critical connections and patterns in information/data.</td>
<td>• Independently engages in tasks requiring interpretation of complex and often vague sets of information.</td>
</tr>
<tr>
<td></td>
<td>• Soundly analyses verbal and numerical data.</td>
<td>• Identifies gaps in information and makes assumptions in order to continue analysis and/or take action.</td>
</tr>
<tr>
<td></td>
<td>• Recognises causes and consequences of actions and events that are not readily apparent.</td>
<td>• Seeks a wide range of sources of information.</td>
</tr>
<tr>
<td></td>
<td>• Anticipates and thinks ahead about next steps.</td>
<td></td>
</tr>
<tr>
<td><strong>Diplomatic Sensitivity</strong></td>
<td>• Listens actively, considers people’s concerns and adjusts own behaviour in a helpful manner.</td>
<td>• Maintains objectivity when one’s own positions or opinions are challenged by peers or stakeholders.</td>
</tr>
<tr>
<td></td>
<td>• Understands the reason behind, or motivation for someone’s actions.</td>
<td>• Encourages others to contribute by overcoming cultural barriers and background differences.</td>
</tr>
<tr>
<td></td>
<td>• Is attentive when doing projects, assignments or interacting with people from different countries and backgrounds.</td>
<td>• Remains objective when facing criticism.</td>
</tr>
<tr>
<td></td>
<td>• Expresses negative feelings constructively.</td>
<td></td>
</tr>
</tbody>
</table>

Taken from: OECD Competency Framework, 2014

Based on these competences the OECD Competency Framework offers indicators for different levels, which are associated with types of jobs. Level 1 is typically associated with jobs as Assistants, Secretaries and Operators and the like; Level 2 with jobs as Statisticians, Corporate Management and Administration Assistants/Officers, Logistics Officers and Documentalists; Level 3 with jobs as

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Economists/Policy Analysts, IT Analysts and HR Advisers; Level 4 with jobs as Senior Economists/Policy Analysts or Managers. Level 5, the highest level identified, is associated with jobs as Heads of Division, Counselors, Deputy Directors and Directors and so forth. The typical jobs identified for the OECD might have limited value for many of the subject area covered by CALOHEE, but the operationalization of levels is useful. This is because the indicators used are clearly related to levels of responsibility and autonomy, the main indicators covered in the ‘competence’ strand of the EQF. The OECD Framework is also relevant because it makes a clear link to the ‘tasks and roles’ executed as part of the jobs identified. The OECD document distinguishes three job families: ‘Executive Leadership’, ‘Policy Research, Analysis and Advice’, and ‘Corporate Management and Administration’. The OECD Framework is only one example; many others can be found on the Internet.3

For the purposes of the CALOHEE project, the EQF for LLL has been merged with the QF for EHEA to make use of ‘the best of two worlds’. While the EQF is focused on the application of knowledge and skills in society, the focus of the QF for the EHEA is more related to the learning process itself: it applies descriptors which cover different areas or ‘dimensions’ of learning: knowledge and understanding, application of knowledge and understanding in relation to problem solving, making judgments, communicating information, conclusions etc., and learning capability. In developing the CALOHEE approach, we have drawn the conclusion that ‘dimensions’ are indispensable to define the field of study for which it is required to distinguish the different constituting areas. The ‘dimension approach’ is complementary to the three categories included in the EQF for LLL. Dimensions help give structure to a particular sector or subject area and also make these more transparent. The use of ‘dimensions’ facilitates breaking down the rather general level descriptors into more precise ones. This process is necessary in order to develop an Assessment Framework, which must be sufficiently detailed to permit comparing and measuring. Such an approach also provides far better indicators for evaluating the quality of a degree programme than are available at present.

Although there should be an obvious connection with the five or six areas of learning (depending on the cycle covered) or dimensions formulated as general descriptors in the QF for the EHEA, each sector must define its own set of sectoral / subject area dimensions in order to be able to do justice to its field. In the sectoral frameworks developed so far, diversity has been found between sectors as well as some overlap. Each dimension in a Tuning CALOHEE Qualifications Framework includes three related descriptors, respectively for knowledge, skills and (wider) competences. This is illustrated in the following image:

Image 1

![Image](image1.png)

The ‘skills descriptor’ builds on the ‘knowledge descriptor’ and the ‘(wider) competence descriptor on the other two. In Tuning and CALOHEE the term ‘wider competences’ is preferred, because it takes into account the fact that knowledge and understanding must also be understood as

3See for example, the Microsoft Education competencies for teachers and school leaders: https://www.microsoft.com/en-us/education/training-and-events/education-competencies/default.aspx?tabselect=1
competences, in this case ‘subject specific’ ones or in OECD terms ‘technical competences’. Using the term ‘wider competences’ also expresses the fact that the aim of a period of study is both to foster personal development and to increase the learner’s competences for future employment.

Multi-dimensional parameters
In order to accommodate the different missions and profiles of Higher Education institutions and their programmes, the CALOHEE Assessment Frameworks will be based on four parameters or categories. This is completely compatible with the existing Tuning CALOHEE Sectoral / Subject Area Qualifications Frameworks whose core is formed by the grid or table of descriptors/learning outcomes. As the following image illustrates the four parameters of assessment are related to the three strands: ‘knowledge’, ‘skills’ and ‘(wider) competences’. The last strand is split into two: employability and civic, social and cultural engagement.

We make this distinction in strands for clarity, although it must be kept in mind that the four strands are closely interrelated, as are the three strands in the EQF for LLL and the five or six dimensions in the QF for the EHEA.

The first parameter encompasses the core knowledge of a particular academic field as well as the related theoretical concepts and methodologies which are judged essential for a good understanding of that field. The depth to which this knowledge and its understanding is developed in a programme depends on the type of degree programme and type of institution offering it. For example, in the case of a research intensive institution, deep knowledge of theoretical concepts and methodologies in relation to highly developed analytical competences / skills and critical thinking will be considered essential. While the outcomes of the Tuning surveys have shown that stakeholders consider the ability to apply knowledge and skills in practice – the second strand - very important in preparing for a societal role, in the case of the research intensive institution the focus will be much stronger on the first strand. The balance will be different in the case of a university of applied science or a more applied degree programme. However, the Assessment Framework will indicate the optimum achievement level in both categories (for both BA and MA), that is the highest level achievable and feasible for a higher education degree programme.

This means that students are not all expected to achieve the highest levels which are formulated as ‘intended’ learning outcomes in the Framework. The norm of achievement – threshold, average, above average, excellent – with regard to each of the parameters will depend on the type of programme taken by the student, as well as its aims. This approach, which can be compared to the tests used to select pupils/students for different types of secondary and higher education, does
justice to CALOHEE’s multi-dimensional approach. It also takes into account that in national and international contexts a distinction is made on the basis of the different missions of universities or other types of higher education institutions if these exist (grand écoles, skola normal, etc.). Although all these institutions will offer bachelor and/or master programmes (or their equivalents) it does not mean that these are understood to be of the same Higher Education ‘type’ or ‘character’. This is why it so important to distinguish profiles and missions of institutions, each of which have an intrinsic value and place and role in the Higher Education landscape, but therefore also have the obligation to describe and justify the choices they make.

Once the ‘optimum’ feasible learning outcomes are defined, it is essential to make subdivisions which reflect the different profiles of HE institutions and programmes in an appropriate manner. These should also be the basis for deciding the norms to use when comparative assessments are organized. In order to avoid complicating the model excessively, we propose to develop two main subdivisions (research based and applied), which can be further split into two subsets, so as to distinguish level. This would provide grids for four types of degree programmes, having partially different programme learning outcomes and taking into account more academic and more professional orientations. All types, however, are expected to cover the identified common body of knowledge, skills and (wider) competences and all students are expected to meet a threshold level to be identified and agreed upon by the academic communities responsible.

The parameter related to employability has already been discussed above by linking it to Competency Frameworks. As the OECD example shows us, different programme profiles might lead to different types of jobs given the tasks and roles related to these jobs which require different levels of competence. Employability can be defined in short as the skills and abilities that allows someone to be employed. The UK Higher Education Academy / ESECT have come up with the following definition of employability related competences: “A set of skills, knowledge and personal attributes that make an individual more likely to secure and be successful in their chosen occupation(s) to the benefit of themselves, the workforce, the community and the economy.”4 It is obvious that both subject specific and general/generic competences are understood to be quite important in this context. In this last respect the publication of the UK Higher Education Academy Student employability profiles is of relevance. It offers short profiles for each of the subject areas covered in the CALOHEE project.5

Given the role of Higher Education institutions to prepare students for their role in society and to form strong bases for personal development – in addition to preparing them for participating in the work force –, we hold that it is important – even essential – that attention in the learning process is paid to civic, social and cultural engagement. This formulation is often referred to in the European context as ‘active citizenship’. It may well be that this aspect is not explicitly pursued at present in the vast majority of higher education programmes, but this is a serious omission, given the fact that the stability of many societies is under severe pressure. Interrelated challenges such as the refugee crises, the lasting effects of the 2008 financial crisis, the rapidly changing geo-political context, the negative consequences of globalisation, xenophobia, populism and most recently the Brexit and US Presidential election, which reflect all these elements, shake the foundations of societies and their constituent components.

We expect that the competences reflected in this strand will be largely the same for all subject areas, although the perception of their importance can differ. For academic fields such as history,

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educational sciences and teacher training their ‘weight’ in the curriculum might be greater than in other disciplines. Recent publications show there is global attention for this category of learning. In 2010 the Australian Government published its *Civics & Citizenship Education Professional Learning Package*, and although it was meant for secondary education in particular, the topics covered seem to be relevant for Higher Education as well. It offers three modules to foster ‘civics and citizenship’, respectively ‘in the class room’, ‘beyond the class room’ and ‘participation in the community’. The focus in the modules is on 'civics and citizenship education knowledge, skills and dispositions'7:

<table>
<thead>
<tr>
<th>In the class room</th>
<th>Beyond the class room</th>
<th>Participation in the Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>• engaging with values that are important to Australian democracy and social cohesion and considering ways in which they can be enacted by individuals or groups to achieve common goals</td>
<td>• recognising and understanding key features of Australian democracy</td>
<td>• creating and sustaining an interest in the world – social, political and environmental</td>
</tr>
<tr>
<td>• developing knowledge and skills in collective decision making, informed action and working together for the common good to support or counter the behaviours and/or actions of individuals or groups</td>
<td>• developing a critical understanding of the values and principles that underpin Australia’s democratic institutions</td>
<td>• fostering a willingness to participate in communities – local, national and global</td>
</tr>
<tr>
<td>• defining and exercising personal and shared rights and responsibilities associated with being a citizen within a classroom context</td>
<td>• identifying the rights and responsibilities of citizens in Australia’s democracy</td>
<td>• raising awareness of social and political issues to make informed choices and decisions</td>
</tr>
<tr>
<td>• exercising a responsibility for establishing fair processes and procedures for participation and group decision making</td>
<td>• developing and exercising the skills of active citizen participation</td>
<td>• developing a propensity to take positive civic action to bring about change</td>
</tr>
<tr>
<td>• developing an awareness of how values underpin the processes and procedures for participation</td>
<td>• applying civics and citizenship knowledge to authentic decision making</td>
<td>• understanding the importance of working collaboratively for the common good to support or counter the behaviors and/or actions of individuals, business and governments</td>
</tr>
<tr>
<td>• fostering a willingness to participate through agreed processes and procedures</td>
<td>• exercising a responsibility for establishing fair processes and procedures for participation</td>
<td>• building a capacity for leadership in the decision-making process</td>
</tr>
<tr>
<td>• developing a propensity to take action to bring about positive change</td>
<td>• exercising a responsibility for establishing fair processes and procedures for participation</td>
<td>• having an awareness of self-held beliefs and values, and how these are informed, challenged and altered by interactions with others.</td>
</tr>
<tr>
<td>• building a capacity for leadership in the decision-making process</td>
<td>• building a capacity for leadership in the decision-making process</td>
<td></td>
</tr>
<tr>
<td>• having an awareness of self-held beliefs and values, and how these are informed, challenged and altered by interactions with others.</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taken from: Australian Government, <em>Civics &amp; Citizenship Education Professional Learning Package</em></td>
</tr>
</tbody>
</table>

Probably even more important in the CALOHEE context is the 2016 publication of the Council of Europe, *Competences for Democratic Culture: Living together as equals in culturally diverse democratic societies*.8 In the publication 20 competences are distinguished, which are clustered in four groups: values, attitudes, skills and knowledge.

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7 From Wikipedia: ‘A disposition is an artificial habit, a preparation, a state of readiness, or a tendency to act in a specified way that may be learned’.


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In this formulation it is obvious that competences relevant for employability overlap with those for civic engagement. It shows that combining both employability and civic, social and cultural engagement in the ‘wider competences’ parameter/category is a sensible solution. The list of 20 competences chosen by the Council of Europe is based on a longer list of 55 identified in 101 competences schemes. Each of the 20 competences is clarified in the document and supported by a number of pre-assumptions, ranging from 3 to 12 statements. They offer clarity about what is expected of a citizen in a democratic culture. Taken together, these statements should be measurable.

An ETS research group also has studied the issue. The report by Judith Torney Puta, a.o., Assessing civic competency and engagement. Research background, Frameworks, and Directions for Next-Generation Assessment. Research Report\(^9\) (2015) stresses that civic learning is increasingly recognized as being important by both the Higher Education sector and workforce communities. It offers a review of the outcomes of some 30 projects covering ‘existing frameworks, definitions and assessments of civic related-constructs’. It identifies 31 competences ranging from civic literacy, civic engagement, civic identity, political knowledge, civic knowledge and skills, ethical and social responsibility in a diverse world, civic-mindedness and civic responsibility to political and civic participation. It also addresses the term ‘civic learning’ in terms of learning outcomes in the Lumina Degree Qualifications Profile (DQP) both at associate level (level 6 of the EQF) and at bachelor level. The study offers a table of ‘existing assessments measuring civic competency and engagement’ and comes up with its own framework, distinguishing between the civic competency domain (covering civic knowledge, analytical skills, participatory and involvement skills) and the civic engagement domain (covering motivations, attitudes and efficacy, democratic norms and values and participation and activities). These competences are defined and completed with measurable topics / learning outcomes. The report concludes with examples of so-called ‘test item formats’ to assess civic competency and engagement.

These publications - together with others\textsuperscript{10} - offer a good basis to give substance to the parameter of assessment and allows for defining concrete learning outcomes, which can be learned, taught and measured. It seems sensible to develop this set at project level first of all, at a later moment to be discussed and integrated at sectoral / subject area level. This in no way indicates that an initial discussion at subject area level – as input for the CALOHEE project as a whole – is not very much welcomed.

**Topics of assessment (and teaching and learning)**

Keeping the proposed four parameters, strands, dimensions and the main subdivision and its subsets in mind, the first step is to break down each of the descriptors linked to the ‘dimensions’ related knowledge, skills and (wider) competences. Only after their breakdown has been realized does it seems feasible to give substance to the subdivision-subsets as identified.

The splitting-up can be accomplished by identifying the different components which make up these descriptors. It is proposed to distinguish 3 to 5 components to be formulated as sub-descriptors. The lists of ‘subject-specific competences’ and ‘general of generic competences’ which have been identified by each Tuning subject-area group as being the most relevant for the academic field (sector and subject area), should serve as a basis. The breakdown can be visualized as follows:

\textbf{Image 4}

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Knowledge descriptor</th>
<th>Skills descriptor</th>
<th>(Wider) Competence descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sub-descriptor 1-1</td>
<td>Sub-descriptor 1-2</td>
<td>Sub-descriptor 1-3</td>
</tr>
<tr>
<td>2.</td>
<td>Sub-descriptor 2-1</td>
<td>Sub-descriptor 2-2</td>
<td>Sub-descriptor 2-3</td>
</tr>
<tr>
<td>3.</td>
<td>Sub-descriptor 3-1</td>
<td>Sub-descriptor 3-2</td>
<td>Sub-descriptor 3-3</td>
</tr>
<tr>
<td>4.</td>
<td>Sub-descriptor 4-1</td>
<td>Sub-descriptor 4-2</td>
<td>Sub-descriptor 4-3</td>
</tr>
<tr>
<td>5.</td>
<td>Sub-descriptor 5-1</td>
<td>Sub-descriptor 5-2</td>
<td>Sub-descriptor 5-3</td>
</tr>
</tbody>
</table>

Each sub-descriptor describes - in the form of a learning outcomes statement – a core element or topic constituting the respective ‘knowledge descriptor’, the ‘skills descriptor’ and the ‘wider competence descriptor’. These sub-descriptors can be compared to the learning outcomes statements as defined for the ‘highest’ of a range of successive units or modules in a degree programme (a so-called ‘learning string’), defining the level to be achieved. The sub-descriptors have to be formulated in such a way that they can not only be measured, but also be taught and learned. Like descriptors, sub-descriptors should be appropriate for the cycle (BA and MA) for which they are defined. However, as in the case of the cycle level descriptors, it is advisable (if feasible and suitable) to develop these at the same time, to secure a fair balance. When formulating the sub-descriptors, we suggest keeping the Tuning model for defining learning outcomes in mind.\textsuperscript{11}

As part of the process of defining a sub-descriptor it is necessary to identify the appropriate learning, teaching and assessment approaches, methodologies and techniques. This can be done at the level of the descriptor as long as all sub-descriptors can be covered. Experience of linking specific approaches to learning, teaching and assessment to descriptors has already been successfully applied in the TuCAHEA project, although not in as much detail as is proposed here. Use can also be

\textsuperscript{10}See for an overview of relevant resource material: Campus Compact, Assessment of Students’ Civic Learning and Development: \url{http://compact.org/resource-posts/assessment-of-students-civic-learning-and-development/}. See also the suggestion for further reading in the publication of the Council of Europe.

made of the outcomes of the CALOHEE survey on assessment and of the examples of ‘good practice’
identified by the subject area groups as part of the process of updating the present Tuning
Reference Points. The interrelation between descriptors, sub-descriptors and approaches for
assessment, learning and teaching, is shown below:

**Outcome of the exercise**
The outcome of the exercise will be an Assessment Framework for the Subject Area covering both
first and second cycle (bachelor and master). Based on the dimensions identified, it will contain
‘knowledge descriptors’, ‘skills descriptors’ and ‘wider competences descriptors’, all of which will be
underpinned by more precise sub-descriptors. Each sub-descriptor formulated as a learning
outcome will cover a core element or topic. For each sub-descriptor or combination of sub-
descriptors learning, teaching and assessment approaches will be identified. These should allow for
the achievement of the learning outcome(s) and be presented as examples of good practice. We do
not consider it sufficient in this respect just to mention a method or approach, rather it is necessary
to indicate ‘why’ this approach or method is used and ‘how’ it is applied in addition to the ‘what’
described in the learning outcome.

An Assessment Framework containing these elements will not only serve as an important reference
for constructing new programmes and modernizing, revising, and enhancing existing ones, but will
also serve as a fair indicator for the completeness and (high) quality of a degree programme allowing
for different missions and profiles. But most of all, it will be a reliable instrument for measuring and
comparing the achievement of learning outcomes in a national and international setting.

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Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe (CALOHEE)

CALOHEE Working Paper, Possible model for describing Learning, Teaching and Assessment: levels, methods and approaches

Dimension Humanities / History: Human beings: Cultures and Societies

<table>
<thead>
<tr>
<th>Sub-dimension: Intercultural Encounters (example of ‘good practice’)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimension</strong></td>
</tr>
<tr>
<td>Human beings: Cultures and Societies (overarching)</td>
</tr>
<tr>
<td>Sub-dimension Inter-cultural Encounters Level 6 EQF</td>
</tr>
<tr>
<td>Sub-dimension Inter-cultural Encounters Level 7 EQF</td>
</tr>
</tbody>
</table>

To learn, teach and assess the descriptors above, a four-step approach is defined, which reflects a progression route or learning string. The first steps are developed as part of a first cycle programme (level 6 EQF / BA), step three can be part of either the first or second cycle (depending on the design of the programme in place in a particular institution) and step four is positioned in the second cycle. The ‘good practice’ described here is based on the model of constructive alignment.

Learning (approach)

First step: Becoming acquainted with primary and secondary literature about main intercultural encounters in succeeding periods in history, from ancient times until the present through reading by guidance.

Second step: Becoming acquainted with the main theoretical frameworks to study intercultural encounters over time through reading by guidance.

Third step: Developing in-depth understanding of the historical debates about the phenomenon of intercultural accountants by comparing different texts and perspectives by writing a critical individual paper on one of these phenomena. The paper is reviewed by peers (other students) and discussed in class.
Fourth step: selecting a number of historical and current examples of intercultural encounters; different teams of students analyse these examples on the basis of a number of articulated criteria taken from the literature, and covering the personal, cultural, economic and political and social dimensions; Identifying the key problem(s) and challenges, followed up by defining a set of alternative strategies (what alternative routes and solutions can be traced in the different time periods?). Presenting the outcomes of research, debate and strategies by using different formats such as poster, blog, debate, oral presentation, policy paper, exhibition, documentary.

Teaching (format)

First step: Learning of key literature is facilitated by outlining/analysing/discussing the main texts by the teacher who applies an interactive format to stimulate the students to develop serious interest in the phenomenon of intercultural encounters (part of the course unit). The literature studied by the students is discussed in class on the basis of a set of questions to develop a more profound understanding (part of the course module). The format of a seminar is applied, with a limitation to the number of participants. An alternative is a set of lectures plus a seminar/exercise course. The format also allows for flipped-class room and blended learning.

Second step: Learning of the main theoretical frameworks is facilitated by outlining/analysing/discussing the main texts by the teacher who applies an interactive format to stimulate the students to develop serious interest in the phenomenon of intercultural encounters (part of the course module). The frameworks studied by the students are discussed and finally compared to develop a more profound understanding (part of the course module). The format of a seminar is applied, with a limitation to the number of participants. An alternative is a set of lectures plus a seminar/exercise course. The format also allows for flipped-class room and blended learning.

Third step: Introduction by the teacher in which a selected number of phenomena are analysed by combining more specialized literature and the theoretical frameworks applied. Each student chooses a topic from a list proposed by the teacher, or the student chooses a topic him or herself, which is approved by the teacher. Critical papers are written with guidance of the teacher. The teacher organizes the presentation of papers and the peer review process by students. The teaching mode to apply is a seminar; the presentation and discussion of the papers can also be organized in a conference format.

Fourth step: short introduction by the teacher of the examples of intercultural encounters proposed. Students choose a topic and teams are formed. The teacher outlines and explains the criteria for analysing the identified topics, and supervises the work of the teams. The teacher shows why it is important to discuss not only the chosen strategy/solution but also possible alternatives, and why it is relevant that the various dimensions are taken into account. The teacher decides which of the different work and presentation forms and strategies he/she wants the teams to use (poster, blog, debate, oral presentation, policy paper, exhibition, documentary, interviews etc.) and explains the pros and cons of each.

Assessment (approach)

Step one: Application of a combination of formative and summative assessment. Knowledge and understanding of key literature is developed by testing and discussion on a weekly diagnostic basis, by applying the model of continuous assessment or a combination of continuous (diagnostic) assessment and a final examination at the end of the course unit.

Step two: Application of a combination of formative and summative assessment. Knowledge of and insight into the main theoretical frameworks is developed by testing and discussion on a weekly diagnostic basis, by applying the model of continuous assessment or a combination of continuous (diagnostic) assessment and a final examination at the end of the course unit.

Step three: Assessment is based on a range of activities. These are active class participation in the debates about the papers produced and presented; writing of a critical paper by each of the students based on a well
formulated problem statement, which is explained in a(n oral) presentation in class (describing process, choices made, problem statement and outcomes) before it is discussed; two peer reviews about papers of fellow students, which intend to structure the discussion. All elements described above, decide the final individual grade; the weighting of the different elements is decided by the teacher.

**Step four:** Assessment is based on active group participation, the outcomes of the group work and the student’s individual contribution, the oral explanation/presentation of the chosen topic, its implementation (approaches and methodology applied, challenges met, solutions found). The outcomes can be multiple, depending on the formats decided by the teacher, such as individual and group blogs (to stimulate/contribute to public debate), poster, documentary (oral or visual/oral), policy paper, exhibition, etc.). The individual grade is based on contribution to all elements outlined, the weighting of which is decided by the teacher to calculate the grade.
CALOHEE Policy note
Towards a more reliable model for evidence based learning and quality assurance and enhancement

Millions of students finish university education every year. They enter the labour market with sets of competences based on their personal experiences and their studies. Are they really prepared for the jobs they go after? What are the demands of employers? Are they equipped to fully engage with their civic responsibilities? Are students trained to cope with the many uncertainties that life and work will bring to them? Are our universities up to speed? Do existing quality assurance instruments offer sufficient evidence to answer those questions? Can institutional performances be compared to identify best practices?

Additional instrument needed
Relevance of HE and meeting quality standards are high on the agenda of HE institutions and national authorities. However, existing approaches to assess quality tend to look at processes and not at achieved learning. To overcome this obvious weakness, a different – complementary – approach is required.

The Erasmus+ supported feasibility study: ‘Measuring and Comparing Achievements of Learning Outcomes in European Higher Education in Europe’ (CALOHEE) has conceptualized a multi-dimensional approach for assessing and diagnosing the outcomes of higher education from a learning outcomes-based perspective.

CALOHEE applies a forward looking approach, focusing on what a graduate should know and be able to do in order to function successfully in life and contribute to society. The chosen approach brings evidence-based accountability into the teaching and learning role of HE institutions by focusing on competences acquired by students, which meet the needs of society and the graduates.

What has been done so far?

CALOHEE has defined a unique multi-dimensional framework covering four strands and (at present) five disciplines, that allows for the development of appropriate assessment instruments. The four strands are: 1) Knowledge (theory and methodology); 2) Applying knowledge and skills; 3) Preparing for employability and 4) Civic, social and cultural engagement. CALOHEE has also developed Assessment Frameworks which are based on a successful merger of the QF for the EHEA and the EQF for LLL. These act as reference points at both BA and MA level for the disciplines involved: civil engineering, history, nursing, physics and teacher education. They represent five broader educational sectors: engineering, humanities, health care, natural sciences and social sciences.

The Assessment Frameworks are built on sets of learning outcomes’ descriptors (one page per discipline) prepared by teams from the respective academic communities, in close consultation with stakeholders (e.g. alumni, employers) and open to public scrutiny. The descriptors and
related frameworks are precise enough to offer a basis for assessment and broad enough to encompass a wide range of programme profiles.

They describe the disciplines in terms of multiple dimensions: key elements which define a subject area. For example, in the case of civil engineering: ‘knowledge and understanding’, analysis and problem solving, ‘design’, ‘investigation’, ‘practice’, decision making, team-working, ‘communication’ and ‘lifelong learning’.

This multi-dimensional taxonomy provides an excellent basis for developing transnational assessments, making transparent the quality of individual HE degree programmes by using a comparative perspective.

What is the next step?

The next step will be to develop and pilot a series of assessments in a comparative perspective. Piloting will start with two out of the five disciplines covered by CALOHEE, looking at students who are at the end of their bachelor studies.

The assessments will be developed by team of disciplinary experts, supported by a Testing organisation. For reasons of reliability, efficiency and cost effectiveness, CALOHEE intends to use machine-scored testing only. This allows for the assessment of profound knowledge and understanding as well as high level skills and wider competences (like responsibility and autonomy), such as critical awareness, analysing and composition.

Testing formats will include responding to and analysing footage, applying computer simulation and progressive choice-making. Use will be made of appropriate experiences at national and international level, such as the OECD-AHELO feasibility study.

Test items will be developed in English and will be translated into one or two other languages to begin with. Individual assessments will take three hours, possibly split in parts taken by different groups of students of the same programme/ institution. The development of a reliable assessment item bank and the actual pilot testing will take around two years.

A detailed plan (describing the assessment platforms) will be presented in March 2018. The budget will depend on various factors, including the number and complexity of assessment items. More ambitious assessment formats will imply higher costs, but might in return offer better gains and benefits worth the initial investment in particular in a medium and long term perspective. The plan will include price alternatives.

What are the expected benefits?

The tests results will offer meaningful insights into the strengths and weaknesses of degree programmes and how they compare to each other. Test results will serve primarily self-diagnosis by universities, but they may also ultimately be used to inform benchmarking, accreditation and quality comparisons at national and international level.

Once fully developed, the CALOHEE diagnostic approach will be rolled out over Europe and could inform, complement or even replace the present external degree programme evaluations, by offering more reliable tools for assessing and comparing and learning in a European perspective.

In sum, CALOHEE offers academic engagement, subject focused context and evidence based tools for analysis and diagnosis, serving our universities and providing meaningful information to all stakeholders. A challenging endeavour with high potential.
CALOHEE Discussion paper: How to disseminate and communicate the CALOHEE feasibility study results?

Introduction
Developing the outcomes of a project is one thing, disseminating its results quite another. In the application for EU funding the project has promised to develop conceptual frameworks (Reference points documents) and assessment frameworks for five subject areas, which represent as many academic sectors. The main aim of the project is to contribute substantially to the indicators of what makes education / educational programmes excellent and relevant.

It is stated in the project outline that the project and its outcomes will be widely distributed among identified target groups: Policy makers at EU /EHEA level, at national level; national associations of universities; international and national disciplinary based associations and networks; ENIC/NARICS, national student unions and organisations, members of European university networks and associations represented in the project; individuals and organisations registered in the Tuning database.

A number of dissemination methods have been identified in the project outline. The main instrument to be used are websites: CALOHEE website, the website of the International Tuning Academy, as well as the websites of the partners of the project. Other means of dissemination are scholarly papers in which the project outcomes are presented to a scholarly audience. Also tailored (printed and online) leaflets meant for the wider public will be produced in which the main outcomes are highlighted, Finally, an important dissemination strategy that the project identified is offering of presentations to relevant audiences and organisations.

In this working paper the why, what, how, who(m), when and where questions related to dissemination and communication are discussed.

Dissemination strategy: Why and What?
Of key importance for a good dissemination strategy is to define what were the reasons for setting up the project. This relates to the ‘why’ question. This ‘why’ question was high-lighted in the press release which was published before the actual start of the project:

“Do students enrolled in higher education around Europe develop the competences they need? Are study programmes delivering their promises? Can we learn to compare student’s achievements in different countries in a meaningful way?

A new EU funded project, called CALOHEE, will help to find the answers to these questions by developing the infrastructure that will eventually make it possible to test bachelor and master students’ performance Europe-wide across a range of fields in a way that satisfies the needs of the various stakeholders in the European higher education community.”
The release also indicated ‘what’ the project would involve, the preparation of an infrastructure to allow for the measuring and comparing of the learning process as reflected in the name of the project. Specifically this meant updated Tuning Guidelines and Reference Points for the Design And Delivery of Degree Programmes in [name of subject area] publications, supplemented with so-called Assessment Frameworks, and including good aligned practices of learning, teaching and assessment to implement the student-centred approach. The ‘how’, the ‘who’, the ‘when’ and the ‘where’ questions to disseminate and communicate are further discussed in this paper.

Of importance for a good dissemination strategy is to define project results in relation to the identified needs of its stakeholders. This stakeholder group can be - and actually is, in the case of CALOHEE / in this case - multifaceted. At the level of higher education institutions (HEIs) management, academic and supporting staff and students can be distinguished. For the policy level the stakeholders have been identified above. The aim of the project has not only been to develop instruments which define indicators for what makes a good and relevant degree programme, but also to develop frameworks which allow for measuring and comparing of the quality of learning. Both contribute to the concept of evidence-based education/learning. Evidence-based education offers higher education institutions – management, staff and students – and society at large and authorities in particular insight into in the contribution of the HE sector and its individual HE institutions and the added value of learning as reflected in educational programmes (‘learning gain’) to the welfare of society. Welfare to be understood here as the level of preparation of graduates to enter the labour market and the level of their civic, social and cultural awareness followed by engagement in a multi-cultural society.

We assume that students want to experience the best possible education and learning experience that their abilities allow. Academic and supporting staff want to offer the best possible education. The different levels of management of a HEI, directors of studies, head of departments, (vice-)rectors and presidents want to assure that their departments, faculties or schools and the HE institution does the best possible job, meeting the expectation of their main stakeholders, including the general public. The general public and its representing bodies want to have a good return for the investment of time and money spent in and on higher education.

But then, how to decide and/or show what the best education and a good job is? One of the messages to pass is to stipulate that CALOHEE offers clear indicators, defined by academics in transnational teams, to decide what makes a good or outstanding programme. Such a programme will match the ‘standards’ as included in the Tuning qualifications framework (as part of the reference points document) but it will also give these indicators their own twist as a result of a well-designed profile. It will also show how it prepares for a potential labour market, indicating the roles and responsibilities graduates are able to take on and perform well. Furthermore, it indicates how students have been educated to show civic, social and cultural engagement.

These elements are reflected in the Assessment Frameworks which have been formulated for both the BA and the MA level for all five subject areas involved in the project: Civil Engineering, Teacher Education, History, Nursing and Physics. Another message to pass on is that these assessment frameworks are a good basis for developing instruments which allow for the measuring and comparing of the quality of the programme. Quality, in the understanding of CALOHEE, is not only decided by disciplinary standards or indicators, but also by the particular mission/profile of the programme. This mission/profile decides what its most relevant indicators are, and the level to be met. To be more explicit, the indicators for a research intensive programme will be different from those for a more applied programme.
To develop the measurement instrument, which will offer evidence-based learning (outcomes), departments / programmes are needed that are willing to develop the testing instrument and to apply it. The accompanying message is, that involvement in this next phase of CALOHEE means having a say in the content and structure of the test items, while confidentiality regarding the outcomes of the test are guaranteed.

Summarizing, CALOHEE wants to show what good quality at programme level represents by publishing:
- Transnational defined qualifications frameworks at subject area level aligned with and based on a merger of the two European overarching qualifications frameworks, the Bologna QF for the EHEA and the EU QF for LLL. These CALOHEE frameworks offer a blueprint of what should be expected of a good and relevant degree programme
- Additional information about the subject area as defined in the European context, as well as insight into the potential employability field of the learners/students, including an overview of related tasks and roles / responsibilities that will suit them
- A framework outlining indicators for civic, social and cultural engagement, which is expected to be reflected in the qualifications framework of each subject area
- Assessment frameworks which offer a broad menu and therefore detail of what can be learned, taught and assessed. Each degree programme should be able to refer to this ‘menu’ to show comparability to the indicated expectations and standards.
- Examples of ‘good practice’ which allow and which help to meet the intended learning outcomes as indicated in the qualifications framework and the assessment framework as defined by the CALOHEE project.

This set allows for developing a reliable measurement instrument, which enables comparing performance and outcomes of the learning process in a fair way, doing justice to the different missions and profiles of HE institutions and their programmes. The feasibility and approximate costs involved in such an instrument will be addressed by Educational Testing Service (ETS) in its White Paper.

**Dissemination strategy: How and To Whom?**

Having the materials in place, the follow-up question - which is at the heart of a dissemination and communication strategy - is ‘how’ we are going to disseminate and communicate? The ‘how’ question is clearly related to the ‘to whom’ question. It is intended to develop for each of the identified target groups specific materials and approaches.

Taking as the reference the list of the ‘to whom’ included in the introduction of this paper -which was also part of the original application -the target groups can be grouped by taking their type of (vested) interest as the point of departure. A broad distinction is made between three groups, although we acknowledge there is some overlap in terms of interest:
- Level of the outcome of a learning process (BA/MA) at system level (in comparative perspective): European Commission, OECD, national governments, ENIC/NARICs, Council of Europe
- Level and (relative and absolute) quality of degree programmes (in comparative perspective): national governments (political and policy level), quality assurance and accreditation agencies, European university networks and organisations, National Rector’s Conferences, HE institution management (president, (vice-)rectors, policy advisers)
- Effectiveness of the design and delivery of degree programmes for preparing students well for their future role in society, both as part of the working force and members of society: international and national disciplinary based associations and networks, faculty and
programme boards, (vice-)deans, directors of studies, academic and supporting staff and students
Each of these groups requires its own approach and materials. Of course, it would be possible to break these large groups of stakeholders up into smaller groups with more targeted interests.

Taking this distinction into account, what do we need in written format for such a strategy?
- Different comprehensive and clear texts explaining purpose, approach and outcomes of the project for each of the identified audiences / stakeholder groups that are expected to have a vested interest. These texts can be published in print and as online leaflets.
- Examples of outcomes which are easily to comprehend by the audience / stakeholder group involved. These outcomes can, for example, be the ‘1 to 2- page’ documents of descriptors at BA or MA / first or second cycle level, which constitute the subject area based qualifications framework.
- Examples of so-called dimension descriptors, which distinguish knowledge, skills and wider competences (autonomy and responsibility)
- A ‘light touch’ leaflet phrased in more popular language to attract attention to the outcomes and aims and objectives of the project, including next steps

What do we need in terms of presentations?
- A number of well-designed presentations which cover different aspects of the project and its outcomes in an attractive and effective way

What do we need for our websites?
- Easily readable introductions to the main aims and outcomes of the project, as well as more detailed back-up documentation. This documentation consists of the 2018 editions of the Tuning Guidelines and Reference Point publications and the Subject Area Assessment Frameworks, as well as working papers which have helped us to come up with the intended results. We might also include examples of good practice for learning, teaching and assessment.
- Each project partner takes responsibility for preparing and publishing information on its website for which use can be made of pre-prepared texts which can be easily be accustomed.

Dissemination strategy: When and Where?
The CALOHEE project, supported by the International Tuning Academy intends to publish:
- Well formatted (online) 2018 editions of the five Tuning Guidelines and Reference Points
- A well formatted online publication which contains the Assessment Frameworks of all of the five subject areas involved in the project. This publication will contain an introduction explaining the approach used. It will also contain general and subject area related examples of good practice to implement the student-centred approach.
- Leaflets – online and printed – tailored to the specific target group.
These publications are expected to be published in the summer of 2018. They will be published on the CALOHEE and International Tuning Academy websites.

The project team, its members and its partners are invited to offer presentations about the project aims and outcomes to raise awareness about its relevance for enhancing the quality of higher education (programmes). For this purpose, especially prepared power point presentations can be used. Presentations can be offered in the framework of conferences and workshops organized or attended by the project team, its members and networks and organisations.
The project team will take care of the publication of scholarly papers, for example to be pushed in the peer reviewed *Tuning Journal for Higher Education*. A first paper related to the CALOHEE project will be published next month: