Skills4Employability

Enhancing the presence of Soft Skills in Higher Education Curricula

Soft Skills Assessment Guidelines

Developed by Skills4Employability Consortium

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EXECUTIVE SUMMARY

Higher education is increasingly now established in ways that entail strategies to cope with change, competitiveness, uncertainty, and high expectations of both students and communities.

Recent years have seen significant curricular developments in an attempt to foster learning relevance, authenticity, and to boost student employability. Impactful changes are yet to be seen.

There is obviously a gap between the needs and demands of future employers and the skills of the students graduating from the universities. Most often, students will possess sufficient theoretical knowledge but lack other necessary capacities, such as soft skills or teamwork experience required in work contexts.

Societal and economic development depends on educational institutions to play a pivotal role in preparing the future workforce. Seen through this lens, soft skills become a game-changer in student employability and an expected response to the changing higher education socio-economic landscapes.

Soft Skills Assessment Guidelines sets the stage for teachers and universities leadership to re-think curriculum design and pedagogical approaches by integrating soft skills as learning outcomes and the respective assessment methodologies.

Theoretical and practical considerations, as well as examples from six higher education institutions and organizations, are provided to illustrate various approaches to soft skills assessment.

Classification of soft skills

Scholar opinions on soft skills and their classification vary widely. The proposed set of soft skills selected by the project takes as starting the soft skills pointed out as the ones that should be considered to be incorporated in the HEIs programs are those the students should develop in order to improve their employability.
The proposed classification framework highlights three categories: intellectual skills, self-management skills, and oral and written communication skills. The conceptual analysis of the three categories underpins the considerations on soft skills assessment in higher education and the selection of practices and examples.

Considerations on soft skills assessment in higher education

Assessment is not the final stage of the learning process, but rather a process designed to enhance learning and teaching. Theoretical underpinnings are drawn upon Miller's pyramid model of assessment. Real-life learning contexts and therefore students' behaviours in such contexts are revisited. The four levels of competence development, namely knowledge, application of knowledge, skills, and performance grounded the selection of assessment methodologies.

Soft skills assessment methodologies

Setting out an operational classification and specific assessment recommendations allows for the identification of two clusters of soft skills assessment methodologies: direct assessments and indirect assessments. These clusters group together methodologies and practices emerging from well-established and innovative pedagogical approaches alike. Socio-constructivist models, student approaches to learning, and other positivist pedagogies underpin the examples clustered.

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INTRODUCTION

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INTRODUCTION

Higher education (HE) is considered to be a decisive asset for finding employment and having successful careers.

Following this logic, in its renewed EU agenda for higher education (COM/2017/247 final), the Commission highlighted the importance of increasing the number of HE graduates to 40% and placing HE at the centre of innovation, job creation, competitiveness and sustainability (Europe 2020 Strategy). There are, however, increasing concerns that HE is not providing graduates with the knowledge and skills needed to thrive in a rapidly evolving educational and employment environment, and there remain continued skills mismatches in some Member States.

Knowing the requirements of the labour market is essential to match the supply and demand of skills so as to improve the competitiveness of graduates. Indeed, providing students with the right skills for employment has been identified as one of four priorities of the flagship initiative 'An agenda for new skills and jobs' (COM/2010/682 final). In recent years, the growing importance of soft skills in fostering student academic achievement and long-term success has been recognised by actors involved in education and in the labour market all across Europe. Soft skills are cross-cutting across jobs and sectors and relate to personal competences and social competences. Its development is intended to enable and enhance personal development, participation in learning as well as improve career prospects.

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INTRODUCTION

Higher education institutions (HEI) in Europe should react fast and shape their educational programs in order to ensure that its graduate students enter the work equipped with the sort of skills required by employers. HEIs can indeed play an important role in identifying needs at the local level and facilitating the transition from education to employment. Their direct involvement in the local socio-economic fabric would allow enhancing the employment environment and positively contribute to the overall labour market performance.

For universities to have a real impact on labour market outcomes, it is essential that their educational offer matches the skills gaps at local and regional level. Equally, it is increasingly important to make the existing curricula more competitive and tuned to the forthcoming changes. One of the keys to making HEIs more responsive to skill demands is to help them effectively assess the extent to which their programs offer an appropriate curriculum for acquiring and developing the skills that are relevant to the labour market

The predominantly theoretical approach taken in the first activity is complemented with a best practice compilation that aims at providing partners with examples of successful cases that could serve as a source of inspiration for the development of the assessment procedure. This could also enable Universities to converge and move towards a common framework of soft-skill assessment.

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OBJECTIVE

This project seeks to support universities in their efforts to improve the quality of education by adapting curriculum to the soft skill demands of the labour market and, as a result, ensure a greater impact on the quality of future graduates' employability. The project aims at strengthening HEIs capacity to assess whether and to what extent their programs match the soft skills that are particularly valued in the labour market. Skills4Employability is structured in two different outputs:

The IO1 (Intellectual Output 1) carried out a preliminary research about the definition, relevance and gaps regarding soft skills in the context of higher education and employment. The research helped to define what the most relevant soft skills are. The objective was to establish a common set of competences that would later serve as a basis for the development of the assessment procedures in IO2. The result was the "Guidelines for Integrating soft skills in HEIs' curricula", designed to inspire HEIs to open their curricula to the training of soft skills by analysing, from a pan-European perspective, the current situation of the labour market demand regarding soft skills and proposing a better harmonised view of which are the most relevant soft skills to be embedded in the HEIs curricula.

The main objective of IO2 (Intellectual Output 2) is to explore the best way of measuring the soft-skill integrated in the universities curricula, according with the competences mentioned before, and identify those criteria and indicators that better capture the soft-skill dimension within HEIs. The soft skill assessment should allow universities to learn how they include these skills in their curricula and boost the adaptation of their programmes in accordance with the project's results.

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CLASSIFICATION OF SOFT SKILLS

The proposed set of soft skills selected by the project takes as starting point that this document is targeted firstly to academics, and therefore the soft skills pointed out as the ones that should be considered to be incorporated in the HEIs programs are those the students should develop in order to improve their employability.

INTELLECTUAL SKILLS	Interdisciplinary skills Problem Solving Creativity Learning from experience
SELF-MANAGEMENT SKILLS	Planning skills Time Management skills Change Management skills Taking the initiative
ORAL AND WRITTING COMMUNICATION SKILLS	Multicultural skills Networking skills Negotiation skills Team working skills

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INTELLECTUAL SKILLS

Interdisciplinary skills

Interdisciplinary skills to combine knowledge, analyse and think critically are intellectual skills that involves several levels of the Bloom's taxonomy: remember facts, analyse them (which implies understanding) and think critically or evaluate them. Interdisciplinary skills are a way of thinking, which allows one to draw insights from diverse disciplines and eventually apply them to the area of focus at hand. It promotes innovation, open-mindedness and creativity. They have been identified as a key to twenty-first century education because without the combination of relevant interdisciplinary knowledge and analysis, graduates will not be able to be competent, or act critically, in a globally transformed workplace. Therefore, the employees that have acquired these interdisciplinary skills have a substantial advantage in competitive and highly innovative ecosystems with the ability to engage in and work with cross-functional teams.

Problem-solving skills

Problem solving skills use cognitive processes to confront and resolve real, cross-disciplinary situations where the solution path is not immediately obvious. It consists of solving problems by analysing situations and applying critical thinking in order to resolve problems and decide on courses of action and implement solutions developed in order to overcome problems and constraints. The aim of this competence is that the student can apply structured problem-solving procedures, promoting thus their ability to learn, understand and apply knowledge in an autonomous way.

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Creativity

Creativity is closely linked with some attitudes that are particularly relevant in work environments or when we are looking for a job, such as problem solving and open-mindedness. Hence, being creative will allow you to come up with innovative solutions and to approach problems putting aside any bias or prejudice applying this skill in a daily life and, of course, in our job. Indeed, as Albert Einstein said "Creativity is seeing what everyone else has seen, and thinking what no one else has thought." This exactly means that a creative person is able to think out of the box, looking at original patterns when others just see the traditional ones.

Learning from experience

Learning from experience, categorised as an intellectual soft-skill, is focused on using experiences as learning opportunities, promoting adaptation and assimilation to deal with daily life and work. Experience lets you learn with and from others as well as reflect on what you have learnt from that situation.

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Planning skills

Planning skills are self-management skills that show the abilities of defining priorities, deadlines and action plan always according to an established workload. Students or workers with these skills are able to deliver intended outcomes within agreed quality standards and deadlines. Setting goals, long, medium and short-term, for the future is another key aspect of “planning skills” as well as being able to adapt to unforeseen changes and adjust plans accordingly.

Time management skills

Time Management skills means using time effectively to achieve concrete goals. Applying and developing time-management techniques is essential in the workplace and an aspect required in more and more jobs. This skill implies helping others to manage their time effectively.

Change management skills

Change management skills consist of adapting to the environment using analytical thinking to identify issues and acting according to the changes perceived to achieve outcomes. Coping with change by visualizing a broader picture of the situation to which being exposed is fundamental to identify next steps and purposeful actions in fast-moving situations. Moreover, these skills make seeking input from others and other sources of information to enhance decisions.

Taking initiative / Ownership

Taking initiative / Ownership a self-management skill focused on assessing issues independently. A person with this skill will have the initiative and will propose solutions coming up with different approaches. Employers seek workers that take initiative because it will mean that they will strive to do their job better. It also means to anticipate as well as to demonstrate their own values to manage a variety of issues before they become a problem.

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Multicultural skills

Multicultural Skills are defined as the knowledge, skills and personal attributes needed to live and work in a diverse world. Living and working in a multicultural environment is a potentially enriching experience, which promotes awareness and understanding of different viewpoints and expertise. This can stimulate problem solving capabilities and creativity, as well as an ability to better connect with colleagues and customers from different national and cultural contexts.

Networking skills

Networking Skills are about building relationships and connections in a purposeful, organised way. It is used to form business relationships and to identify, create, or even go through with business opportunities such as expanding to international markets. In today's world, business and otherwise, networking has become extremely important. This means that you might even find out about job opportunities through your networking contacts.

Negotiation skills

Negotiation Skills are qualities that allow two or more parties to reach a compromise where both or all modify their requests to achieve a mutually accepted solution. These are often soft skills and include abilities such as communication, persuasion, planning, strategizing and cooperating. Negotiation is essential for better bonding between individuals within the professional field.

Team working skills

Team working Skills are the qualities and abilities that allow a person to work well with others during conversations, projects, meetings or other activities that implies collaboration. They are essential for any person's success at work or any other activity that implies interactions with other people.

2

CONSIDERATIONS RELATED TO SOFT SKILLS ASSESSMENT

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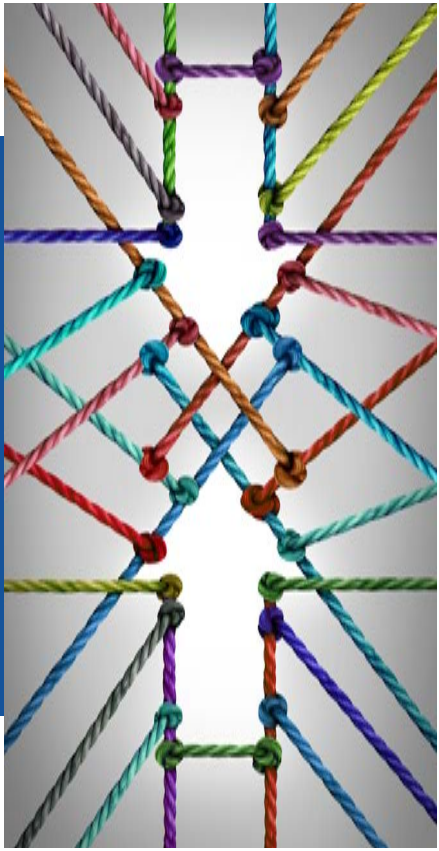
CONSIDERATIONS RELATED TO SOFT SKILLS ASSESSMENT



The best practices collected provide an extended action of assessment, which makes evidence the complex task of defining the concept of assessment and the different strategies and procedures to measure a learning experience.

The research developed shows different dimensions and utilities of a task assessment related to the its conceptualization as a process or as a product (Cimatti, 2016):

- As a way of testing the level of achievement after a training period.
- As a way of identifying the mistmatch between the graduate training and the requirements from the labour market.

- As a way of initial assessment to select students with some specific skills (for example, medical students should be required some specific communicative skills).
- As a way of detecting new opportunities of training at the university and at an economic sector.
- As a way of updating and improving the teaching-learning process.

According to Prades and Rodríguez (2009), assessment is not an end product of the learning process, but rather a process whose orientation has implications for the design of the teaching-learning process as well as on the process itself: both students and teachers modify their behaviour as a result of what is being assessed.

As stated by Cimatti (2016), there are different kinds of Intended learning outcomes (ILO). Some of them might only be assessed through performances, since they need to be shown (for instance, oral skills communication): others, such as Knowledge ILOs could be assessed through more traditional paper and pencil test. Millers' pyramid helps to identify the kind of assessment needed depending on the kind of ILOs (Figure 1).

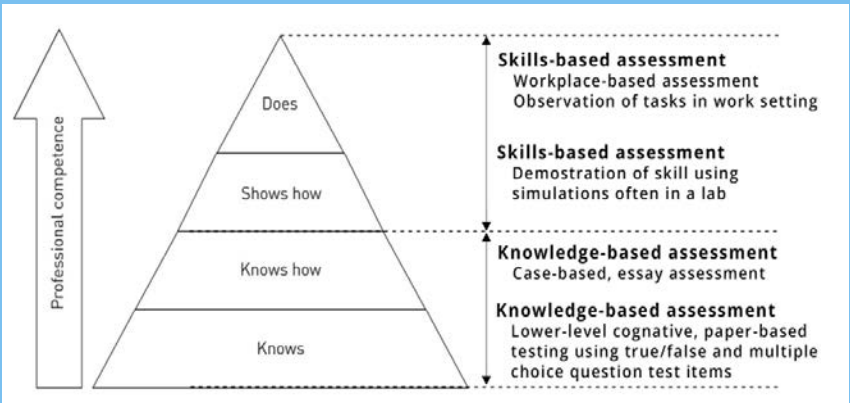


Figure 1: Miller's pyramid

To sum up, the assessment of employability skills requires the inclusion of a wider range of assessment procedures to measure:

- The learning outcomes relating to knowledge are assessed with different tests depending on their complexity.
- The technical disciplinary learning outcomes are best assessed with product or performance assessments: laboratory product, internships in a company.
- Learning outcomes linked to oral communication, teamwork or leadership can only be assessed in activities where these skills are put into action (oral presentations, teamwork or dynamics in which students, e.g. 4th year students lead groups from previous levels).
- Learning outcomes linked to complex cognitive competences, such as problem solving, can be assessed by problem examinations (problem sets), although this could also be done with a thesis, a project or a laboratory work).

Specifically, as Figure 2 shows, there is a multitude of assessment strategies (AQU Catalunya, 2009). Some of them have been in practice for a long time, others are more recent. Their suitability will depend on the coherence between what is to be evaluated and how it is evaluated.

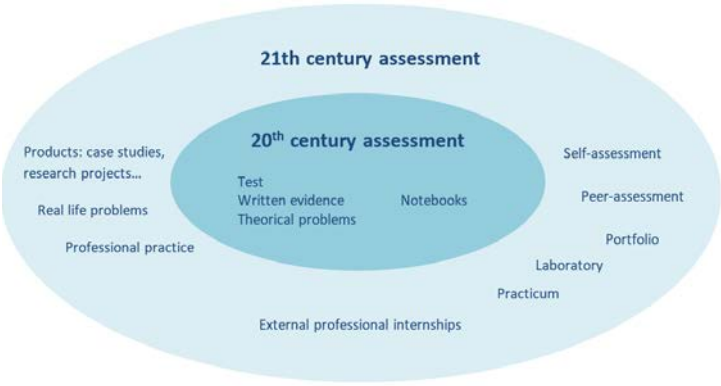


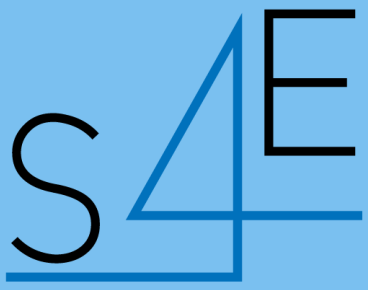
Figure 2: Traditional assessment and performance assessment

At this point, regarding assessment strategies at higher education level, it's important to mention the main remarks highlighted by Duart (2019), who recommends thinking in terms of a new soft skills paradigm:

- Soft skills can be considered integrated with hard skills and can be taught together with them.
- The context plays an important role for soft skills and can't be separate from it.
- Soft skills involve several actors: teachers, classmates, employers… A true dialogue between them is needed.
- A precise measurement for soft skills is impossible
- To effective soft skills teaching we need to update didactics and teaching and learning methodologies.
- New technologies can be very powerful to teach soft skills
- Collaboration between universities and companies play an important role in the development of soft skills
- Soft skills are not only necessary for professional activity, can make people happier.

3

SOFT SKILLS ASSESSMENT IN HIGHER EDUCATION CURRICULA



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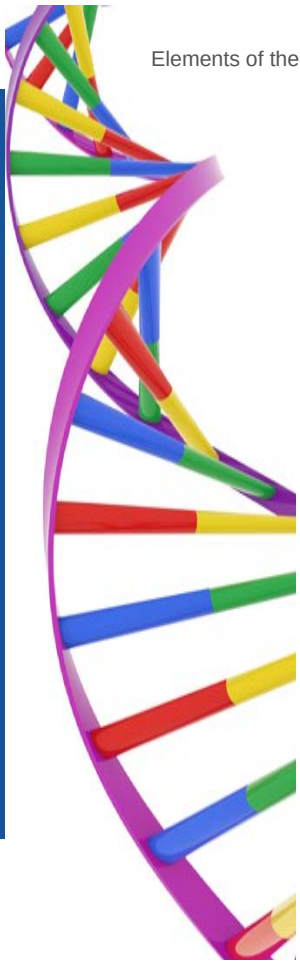
SOFT SKILLS ASSESSMENT IN HIGHER EDUCATION CURRICULA



Elements of the assessment process:

1. Identification and definition of soft skills to be evaluated
2. Teaching activities
3. Activities or tools to assess the skill
4. Criteria for judging whether a person is competent or not
5. Teaching resources
6. Contextualising assessment resources
7. Participating actors
8. Timing (initial, medium, final) assessment
9. Indicators of measurement

The case studies reviewed display different phases of implementation of the soft skills assessment system. It means that different institutions and advanced economies are placed differently in terms of strategies of assessment developed.

Two axes allow describing where the different experiences provided are located in the system. The first axis consists of the level of institutionalisation. It goes from the individual assessment to the formal and institutional assessment processes coming from higher education institutions (Figure 3). The second is the setting and the actors who are in charge of testing the skills achieved by students.

The constructivist approach to defining a competence claims that the competence is governed by the context in which it is applied: professional work setting or educational work setting. They are contexts that require specialist knowledge, advanced learning, responsibility, and autonomy, and require intensive preparation through learning (Figure 4).

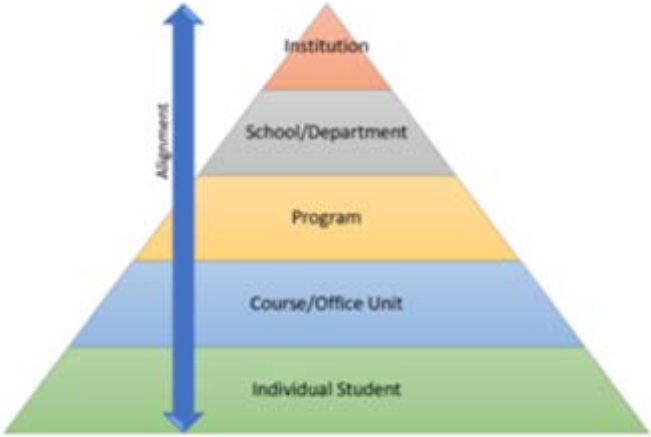


Figure 3: Axis 1 - Level of institutionalization of assessment processes

Source: https://higheredconnects.com/guide-to-assessment/

The intersection of the two axes creates four quadrants that allow to place each experience of assessment provided. The more distributed the assessment tools along the four quadrants, the more integrated and consolidated the evaluation of skills is in the system. That helps to define more mature systems or less mature systems.

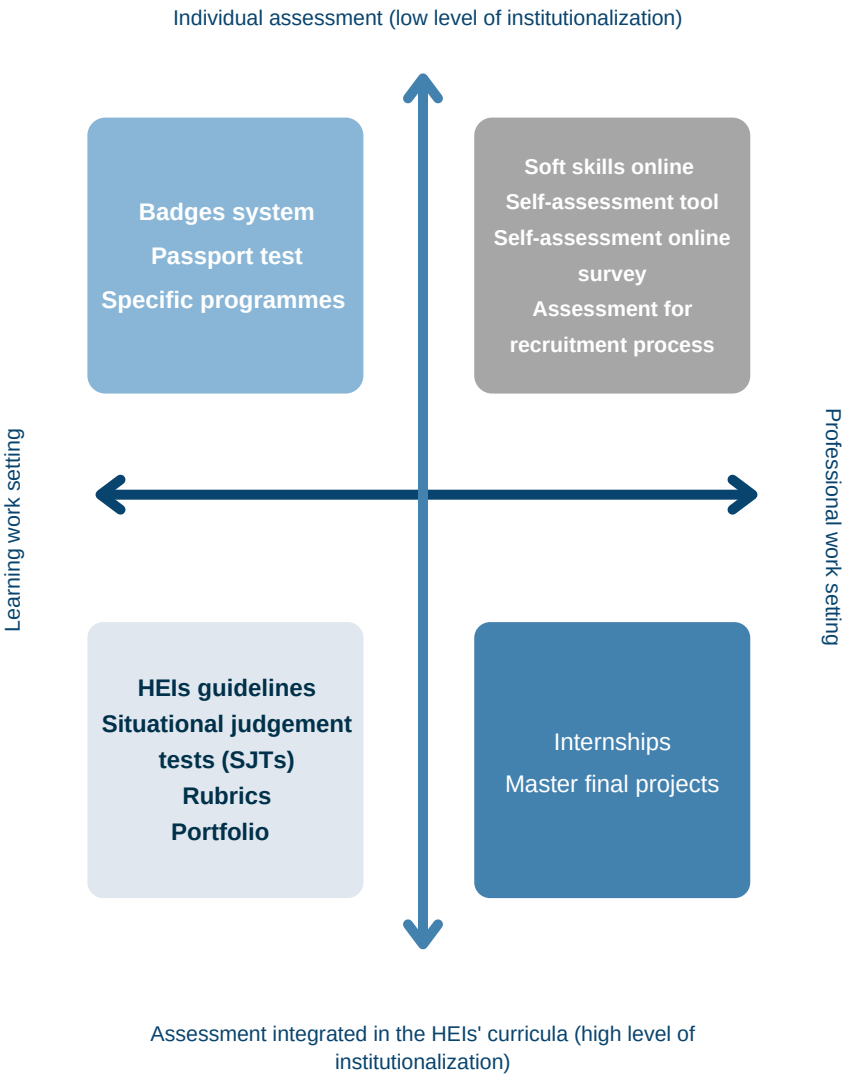
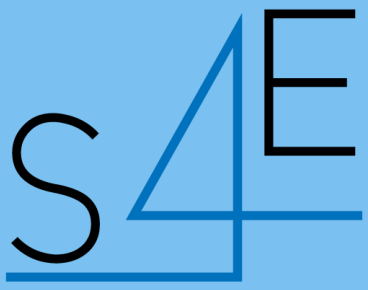


Figure 4: Classification of assessment tools/strategies collected

4

SOFT SKILLS ASSESSMENT METHODOLOGIES



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SOFT SKILLS ASSESSMENT METHODOLOGIES

The project Skills4Employability advocates for an increase in flexibility, choice, and diversification of the soft skills assessment in order to foster a societally focused approach and integrate key learning experiences.

Apart from the need to develop strong domain-specific knowledge and skills, a new literacy is gaining prominence: human literacy (Kamp, 2019). Human literacy is about soft skills, such as creativity, communication, connecting with people, and self-management.

Assessing human literacy and therefore soft skills requires a shift to impact-focused education. Increasingly, higher education curriculum needs to create connections to the society, to gain relevance and authenticity, and to formally integrate soft skills as learning outcomes.
Real-world connections and human-centered approaches require compelling curriculum design and flexibility, combined with student reflection, self-regulation, and agency.

Assessing learning outcomes in impact-focused higher education becomes a challenging process for institutions and teaching staff alike. In the process, the breadth of student involvement, teacher skillfulness, interdisciplinary approaches, and flexibility are key drivers of effectiveness. Many of the features anticipated to characterize highly impactful and attractive study programs include on- and off-campus active learning experiences with tailored assessment methodologies.

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To lay the groundwork for the further inception of soft skills assessment in higher education, concrete examples are provided and discussed. In this report, assessment methodologies are defined as designed learning experiences where students demonstrate their skillfulness and teachers, peers, and students themselves can make a judgment about the gradient of soft skills development. Thus, the assessment methodologies are synergies between teaching and learning contexts that shape students' behaviours and challenge them, and actions (judgments and decision-making).

Most of the assessment methodologies selected for this report are research-based practices rooted in socio-constructivist and cognitive models.

Well-established approaches such as observations or questionnaires as well as more innovative examples (e.g. narrative pedagogies) were sampled based on their relevance, scientific foundation, and empirical use. Intentionally, the collection of soft skills assessment methodologies sets out practices that equally empower students and teachers to co-participate in experiential learning contexts.

Therefore, this selection includes methodologies and practices of paramount importance, considered to be key pillars of soft skills assessment.

The clusters of soft skills assessment methodologies

Following the composite criteria previously exposed, two discrete clusters of assessment methodologies have been identified: direct assessments and **indirect assessments** (see Figure 5).

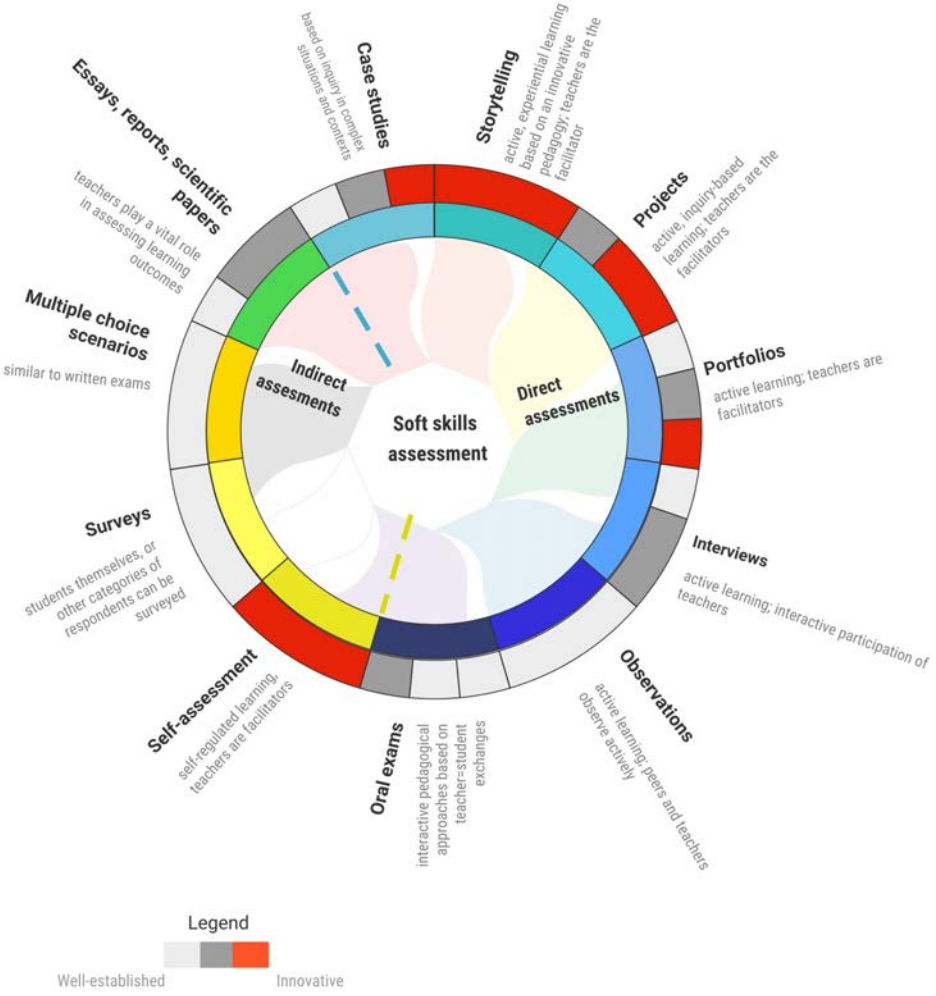

Figure 5: Clusters of soft skills assessment methodologies

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CLUSTERS OF SOFT SKILLS ASSESSMENT METHODOLOGIES

The cluster of direct assessments comprises methodologies based on deep social interaction and active student co-creation of the learning experience. When applying direct assessment methodologies, teachers play mainly the role of facilitators by creating contexts where students can prove their skillfulness.

Indirect assessment methodologies are mostly well-established pedagogical approaches in which teachers assume more prominent roles. Direct assessments are combinations of experiential learning, rooted in socio-constructivist learning theories. The cluster of indirect assessment methodologies connects teacher-centered models with self-assessment grounded on the SAL (students approaches to learning) framework.

The two clusters are not necessarily stand-alone approaches. In the following, this section presents ways in which the methodologies can be combined to further reinforce each other. Higher education curriculum and teaching practices can benefit from combining different methodologies to meet various needs, tailoring the soft skills assessment to various fields of studies, pedagogical skillfulness, and innovation policies.

Self-Assessment / Self-Measurement Tools

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OVERVIEW

Key points

01

Self-assessment is a key instrument to scaffold self-regulated learning in higher education.

02

Metacognitive knowledge and skillfulness are genuinely boosted through self-assessment and peer assessment.

03

Abilities, processes, and products could be subject to both formative and summative self-assessment.

04

Teachers can facilitate self-assessment through a variety of techniques and tools.

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A crucial aspect of becoming a successful and autonomous learner, especially as we move forward in the educational system, is the ability to monitor our own actions, thoughts, and feelings to reach established goals (Panadero & Romero, 2014).

Among the different skills needed to become a self-regulated learner, various theorists have considered the strategies of self-evaluation and monitoring to be vital to success (Puustinen & Pulkkinen, 2001). Monitoring and self-evaluation show the student's capacity to judge their own performance and results, usually through close observation over the course of their performance and self-evaluation once the result is reached (Hacker et al., 2009).

Why are monitoring and self-evaluation pivotal in the learning society?

These skills are needed for students to be able to judge their own work. Without such reflection, it may be difficult for them to distinguish between what they have done correctly and what they need to improve on (Kostons et al., 2012; Martínez-Fernández & Vermunt, 2015; Nückles et al., 2009; Vermunt, 1998).

The use of these two strategies by students is known as self-assessment, which involves internalizing standards so that they can regulate their own learning and are then able to evaluate their actions and have higher accuracy to detect their failures and how to correct them (Paris & Paris, 2001).

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BRIEF DESCRIPTION

Monitoring + self-evaluation = self-assessment

The term self-assessment has been used to describe a diverse range of activities, such as assigning a happy or sad face to a story just told, estimating the number of correct answers on a math test, graphing scores for dart throwing, indicating understanding (or the lack thereof) of a science concept, using a rubric to identify strengths and weaknesses in one's persuasive essay, writing reflective journal entries, and so on (Andrade, 2019). Taken together, these activities include self-assessment of one's abilities, processes, and products for both summative and formative purposes (see Figure 6).

	Competence	Processes		Products	
		Standards		Standards	
		Yes	No	Yes	No
Formative	Task-specific self-efficacy ratings	Judgments of progress toward specific targets	• Traffic lights • Comprehension checks • Self-monitoring; metacognition • Reflective journal writing	• Rubric- or checklist-referenced self-assessment • Self-testing	Open-ended critique of one's own work or understanding
Summative	Post-task judgments of ability based on performance		Post-task judgments of effectiveness of procedures	• Self-grading	• Self-grading

Figure 6: A taxonomy of self-assessment methods (Andrade, 2019)

Why do we ask students to self-assess?

Self-assessment generates feedback that fosters learning and genuinely boosts performance. Self-assessment generates added value where is room for adjustments and improvements.

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HOW TO SELF-ASSESS?

Brainstorming

Matrix ranking

Card sorting

Elevator pitches

Small group discussion

Case analysis

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TEACHER'S ROLE

The following list of recommendations integrates empirically proved-to-work practices in higher education (Panadero et al., 2016; Panadero & Romero, 2014; Papanthymou & Darra, 2018).

Criteria

Define the criteria by which students assess their work.

Apply

Teach students how to apply the criteria.

Feedback

Give students feedback on their self-assessments.

Support

Give students help in using self-assessment data to improve performance.

Time

Provide sufficient time for revision after self-assessment.

No grades!

Do not turn self-assessment into self-evaluation by counting it toward a grade.

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EXAMPLES OF DEPLOYMENT

Case in point: JOB-YES: Choose a job not a dole

JOB-YES: Choose a job not a dole project (funded by ERASMUS+ programme under the financial agreement 2014-1-LT01-KA204-000617) developed a very attractive and interactive tool to evaluate the level of soft skills.

The participants rank his/her various soft skills related to 4 competencies - Social and civic (21 skills), Learning to learn (8 skills), Sense of initiative and entrepreneurship (15 skills), Digital competence (4 skills) - using the scale from 1-'no skills' to 10- 'perfect skills'.

After completion of self-evaluation test on personal soft skills, the person gets a summarized description on the level of his/her soft skills and personal Knowledge Portfolio with suggestions for a rational Action Plan regarding further training.

Impacted soft skills out of Skills4Employment set

Intellectual skills

Problem-solving skills
Creativity

Self-management skills

Change management
Take initiative / Ownership

Portfolio

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OVERVIEW

Key points

01

"A purposeful collection of student work that exhibits the student's efforts, progress, and achievements in one or more areas. The collection must include student participation in selecting contents, the criteria for selection, the criteria for judging merit and evidence of student self-reflection." (Paulson, Paulson, Meyer 1991).

02

The portfolio covers a wide array of learning and assessment tools and practices. So, it can be possible to find out portfolio practices very different both within each country and across borders. A broad categorization of portfolio uses in higher education and after in a life-long-learning perspective, is provided by the Belgian researchers Meeus, Van Petegem, and Van Looy (2006).

03

Four different modes of implementation have been identified:

- Admission to higher education (assessment of competencies required)
- During higher education courses (the most used)
- On entrance into the profession (as part of a job application)
- As part of professional live (documenting continuing professional development).

04

These dimensions result in four portfolio types labelled the *dossier portfolio*, the *training portfolio*, the *reflective portfolio*, and the *personal development portfolio* (Smith and Tillema, 2003, p. 627).

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BRIEF DESCRIPTION

Four portfolio types can be used to assess soft skills (Smith and Tillema, 2003, p. 627):

- The dossier portfolio is a record of achievement or a mandated collection of work for selection or promotional pruposes required for entry to a profession or programme

- The personal development portfolio is a personal evaluation and reflective account of professional growth during a long-term process

- The training portfolio is a required or mandated exhibit of efforts collected during learning or in a curriculum programme. It highlights the corre professional knowledge, skills or competencies a person has acquuired and is collected during the time frame of a course as a representative sample of the student's work.

- The reflective portfolio is a purposeful and personally collected array of work providing evidence of growth and accomplishments to be brought forward for promotion and admission

BRIEF DESCRIPTION

Portfolio is an assessment methodology that can be very useful to evaluate different soft skills. According to the soft Skills categorization proposed in this project, the portfolio can be deployed to assess the following soft skills (Figure 7):

Figure 7: Soft skills assessed through portfolios

BRIEF DESCRIPTION

The proposed guidelines for assessing through a portfolio tool is based on the Gagne's Nine Events of Instruction model (1977).

Events of instruction	Guidelines	Key questions
Student attention	Student engages to design and elaborate his own and unique portfolio. They have an opportunity to build their personalized tool for studying	• What is your interest on the course? • What do you want it is focused on the portfolio?
Objectives	Focused on observable, measurable student competencies Collected evidence must be consistent with the goals and the competencies to be covered in the course	• What is it wanted the students to learn?"
Recall of prior learning	Connect with knowledge provided by other courses. They can use materials or activities from other courses to elaborate the portfolio	• What prior knowledge can you apply or is related to the course?
Supporting materials	Indications about what the portfolio must collect at the end of the course. Specify what, and how much, must be included in the portfolio - both core and options (it is important to include options as these enable self-expression and independence). Reflective texts and several assignments. Portfolio entries can take many forms - written, audio and video-recorded items, artifacts (e.g., a T-shirt, an annotated drawing, a model), dialogue journals, etc. It is recommended to request a limited number of portfolio entries. Student can choose between a working portfolio or a presentation portfolio.	• What materials have you found useful for learning? • How do you organize the material so that it makes sense?

BRIEF DESCRIPTION

The proposed guidelines for assessing through a portfolio tool is based on the Gagne's Nine Events of Instruction model (1977).

Events of instruction	Guidelines	Key questions
Tool and learning resources	Grading criteria/rubric aligned with objectives provided. Reflections and thoughts on the process	• What did you learn from that activity? Which is the best piece? How can you improve this?
Practice	Devote class-time to student-teacher conferences, to practicing reflection and self-assessment and to portfolio preparation, since these may be new skills for most students.	
Feedback	Feedback is necessary but it can provide it by different people (teachers, teacher assistants, peers) in regular dates during the course, so that students know whether they are on the right track. Students are encouraged to work in teams, but not required; minimal guidance provided These processes of feedback have a formative goal for the evaluation.	• What prior knowledge can you apply or is related to the course? • What materials have you found useful for learning? • How do you organize the material so that it makes sense?
Assessment	Rubrics for measuring student progress More than one evaluator assesses each portfolio in case it is possible Feedback on performance is provided during the course	
Knowledge transfer	RImplement the new knowledge in wider and real contexts	• Was it useful for solving problems in other contexts?

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EXAMPLES OF DEPLOYMENT

Innovative Curriculum for Adult Learners on soft skills (E#11)

The ICARO project (funded by ERASMUS+ Programme under the financial agreement 2014-1-LT01-KA204-000617) developed a very attractive and interactive tool to evaluate the level of soft skills.

It aims at designing a customised training path adapted to the needs of each participant in order to get their (re)integration in labour market. The methodology is based on a list of Soft Skills, separated in several sub areas such as: interpersonal skills (e.g. communication), intrapersonal skills (time management etc.) and others. The different areas are described with several sub-skills each and certain behaviour that goes with this sub- skill. The process is divided in a self-assessment and other assessments.

The process is documented: can be on paper or online in an E-portfolio. This documentation has the purpose of making visible the formal and informal competences, the gain in competences, the individual results of the Case Management process, but also the aims and pathways chosen for the near future. The documentation thus illustrates which competences already exist, which ones might be developed and how the goals could be reached.

In order to enhance the quality of this documentation, the single documents could be bound into a folder, nicely done. The decision to show all or some of these documents to possible employers is entirely with the client.

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Best Practices in Soft Skills Assessment (2014). Hanover Research (E#21)

Hanover Research examines best practices in measuring soft skills, such as teamwork, creativity, and character, with a focus on soft skill assessments embedded into the core academic curriculum. Best Practices in Soft Skills Assessment briefly describes the impact of soft skills instruction and assessment, discusses the relationship between soft skills assessment and the core academic curriculum, examines common challenges to assessing soft skills, and describes three alternative reporting schemes for tracking student progress in the development of soft skills. Profiles describes assessment practices implemented by three exemplars in soft skills instruction and assessment: Catalina Foothills School District in Tucson, Arizona, Plymouth High School in Plymouth, Wisconsin, and New Technology High School in Napa Valley, California.

Student portfolios refer to “a collection of work that a learner has collected, selected, organized, reflected upon, and presented to show understanding and growth over time.”24 Proponents argue that portfolio assessments encourage students to take pride in their work and provide meaningful conversation tools for students, teachers, and parents. While some educators have noted that portfolio work can be difficult to quantify, researchers and educators have identified several strategies for the effective use of portfolios in instruction and assessment.

A study conducted in Pittsburgh public schools examined two key criticisms of portfolio assessment systems: variability in the judgments of raters and variability in the collection of student work.

The techniques used in their study led to significantly higher reliability of portfolio assessments. For effective use of portfolio assessment, researchers concluded:

- The purposes of the assessment must be clear, and the practices must be consistent with that goal.
- There must be a shared interpretive framework within the community conducting and using the assessment.
- There must be coherence in the system so that accountability goals are consistent with classroom goals.

Multiple Choice Scenarios

Situational Judgement Test

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OVERVIEW

Key points

01

Multiple choice questions present a question and ask students to choose from a list of possible options/answers. Most multiple-choice questions feature one correct answer, and two to four “distractor” choices that are incorrect. Questions can take the form of incomplete sentences, statements, or complex scenarios. They are most appropriate for factual, conceptual, or procedural information.

02

Some simple rules of thumb that can make for more effective questions:

- Distractors should be incorrect, but plausible/probable. The student should not be able to eliminate a distractor simply because it is clearly wrong.
- Avoid “always” and “never” in distractors. Choose terms like “usually”, “likely” and “rarely” to keep students from easily eliminating distractors.
- Options like “all of the above” and “none of the above” should be used sparingly.

03

Multiple-choice assessment methodology has a formative role, in addition to providing evaluative information about a student. Assessment can and should serve as a mechanism to aid learning (Black & Wiliam, 1998). In higher education, there is a particularly strong interest in the assessment of higher-order skills, as universities and third-level institutions face growing demands to bridge the perceived gap between what students learn, and what is valued by employers.

Why are monitoring and self-evaluation pivotal in the learning society?

Regarding Bloom's levels of learning, the multiple-choice scenario can show one way of looking at three levels of cognitive behavior out of six: knowledge, comprehension, application, and analysis.

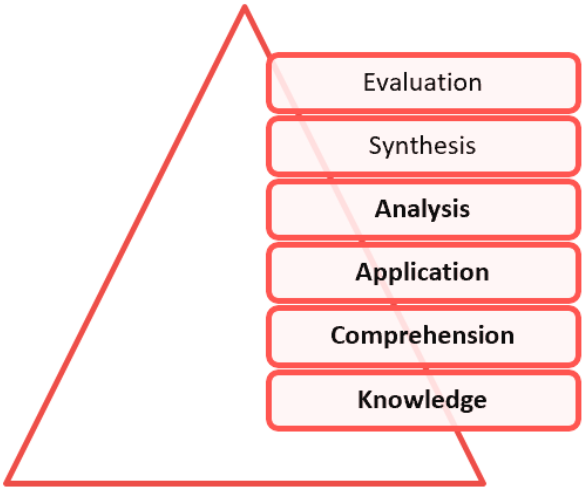

Figure 8: Based on the Bloom's taxonomy

Let's look at the way thinking skills progress, using the cold and flu for context (Table 1). At the Knowledge level, we are asking the learner to merely identify or select symptoms of a cold. At the Comprehension level, we might want the learner to match symptoms with their respective ailment. At the Application level, the learner must do something (or determine what they would do in real life) with the knowledge they possess. Notice that even though we're talking about diagnosis and interpretation, there is still a predetermined correct answer. That is, this still represents convergent thinking.

Table 1: Sample behaviors for each of Bloom's levels

Taxonomy Level	Sample Behavior
Evaluation	• Assess the effectiveness of that protocol
Synthesis	• Develop a new protocol for treating the cold
Analysis	• Compare and contrast progression of cold and flu, or • Determine if a patient has a cold or the flu
Application	• Describe the standard process for determining if a patient has a cold or the flu
Comprehension	• Match symptoms with their associated ailments
Knowledge	• Identify three symptoms of a cold

Now consider Bloom's two highest levels: Synthesis and Evaluation. These are divergent thinking. At the Synthesis level we would be asking a person to develop a new protocol for treating the cold, and at the Evaluation level we would ask them to assess the effectiveness of that protocol. Neither of those outcomes can be predetermined. Thus they are not suitable for multiple-choice questions.

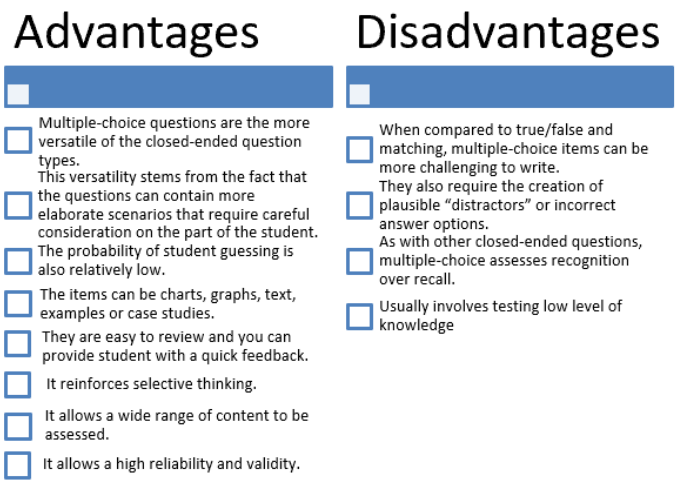

Figure 9: Advantages and disadvantages for multiple-choice scenarios

Soft skills assessed through the multiple-choice scenario

It's an assessment methodology that can be very useful to evaluate different soft skills. According to the soft skills categorization proposed in this project, multiple-choice scenario can be able to assess the following soft skills:

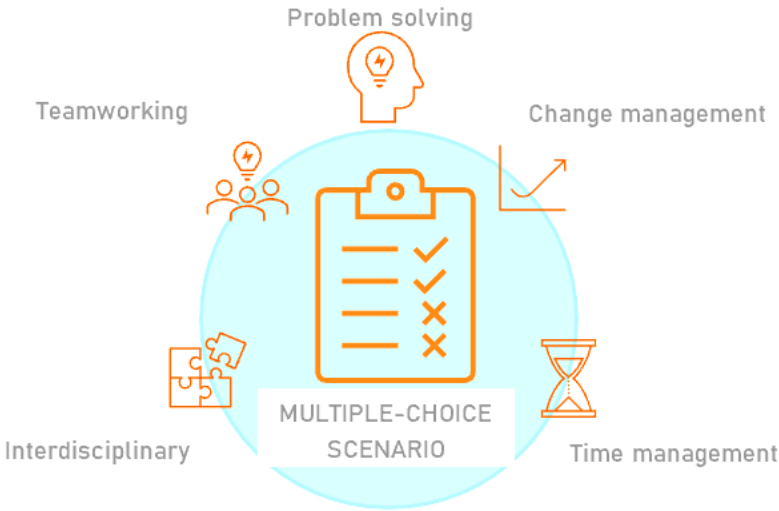

Figure 10: Soft skills assessed through multiple-choice scenarios

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EXAMPLES OF DEPLOYMENT

Valorize high skilled migrants (E#15)

The evaluation of soft skills of medium-high skilled migrants project (ref. no: 2014-1-IT02-KA204-003515) proposed the MODEL OF SOFT SKILLS ASSESSMENT - MOSSA that is a path for the identification and the evaluation of adequately documented soft skills, in particular the 12 soft skills defined (adaptability and flexibility, motivation, managing responsibility, time management, communication skills, team working, conflict management, service skills, decision making, problem-solving, creativity and innovation, critical and structured thinking).
Step two in this model regards SOFT SKILLS IDENTIFICATION AND ASSESSMENT activities, which involve Self-evaluation, Situational Judgement Test and Evidence Gathering through storytelling and portfolio.

Guia per a l'avaluació de competències en Educació Social. AQU Catalunya (E#4)

The assessment activity is based on the presentation of an ethical dilemma. A text is presented to the students, a text that exposes a situation that creates a conflict of values, and they are asked to adopt a position. When they make a decision (in a critical and reasoned way), the students have to decide how to implement it (didactic strategy, educational proposal, organising option).
It is convenient that the problem is related to some of its professional ambits and that the position that is required is relevant for the professional figure of the educator.

Essays
Reports
Scientific papers

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OVERVIEW

Key points

01

Methodology applicable to any academic discipline although hard sciences and engineering could be highlighted.

02

They can be used as part of methods that cover a range of different assessments described in this guide.

03

ì Useful for assessing soft kills included in the three types of categorisations made by this Project.

04

Traditional method, revised to meet the new soft skills demands of the labour market.

05

Teachers / Professors play an important role in the assessment of soft skills with these methods and can be instructed to do so through different techniques

06

Indicators will be taken into account to maintain the quality standards of the deliverables written by the students.

What does this method consist of?

Essays/Written tests /Reports/Scientific papers are assessing methods of different types of soft-skills such as Problem Solving (Intellectual Skills), Management Skills (Self-Management Skills) as well as Oral and Writing Communication Skills as Multicultural, Networking and Team Working.

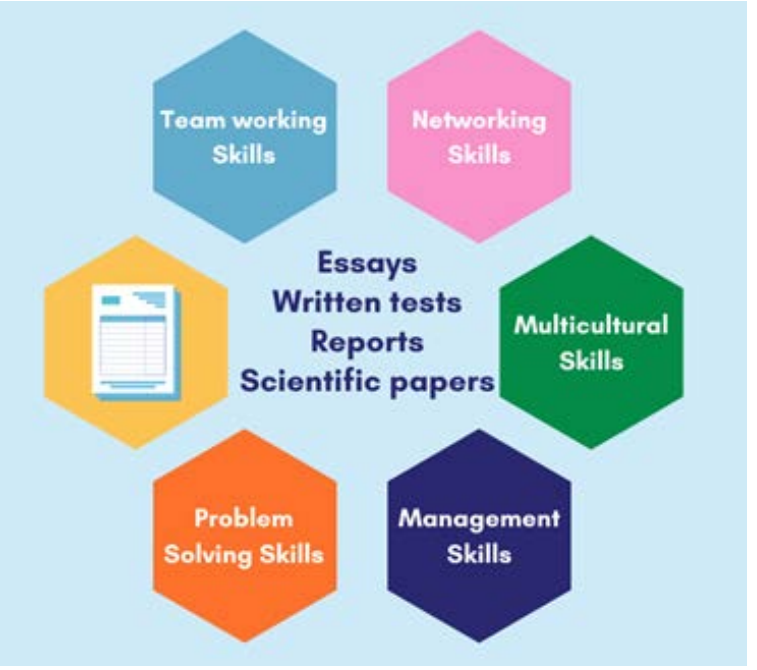

Figure 11: Soft Skills assessed through Essays/Written tests /Reports/Scientific papers

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BRIEF DESCRIPTION

What does this method consist of?

This assessment method is already well known as it has traditionally been used for the assessment of hard skills. It is able to assess not only knowledge but also written communication skills therefore it is a fundamental basis that should continue to be used to assess soft skills. It can be used individually or as part of a larger process that alternates different soft-skills assessment methods. Moreover, it provides flexibility in terms of the subject that is assessed, as it is possible to choose one of the following forms of assessment: Essays, Written tests, Reports, or Scientific papers.

Why are these methodologies important in the learning society?

Communication remains an essential element in both academic and work environments. The written word is still decisive to understand each other, to put forward ideas, to exchange experiences or to solve problems. This is why it continues to be important to the learning society. Likewise, it adds value to the soft-skills assessment by providing flexibility in the evaluation process:
Essays / Written tests / Reports / Scientific papers can be developed on an individual basis or as a group in a team. Learning institutions can even choose which sector is best to evaluate your written deliverables: professors or a jury of experts in a concrete academic discipline. Furthermore, written documents can be demanded spontaneously or with preparation in advance and the possibility of introducing these written documents in other assessment methods such as speeches or presentations in order to achieve soft skills linked to communication, but in this case, oral.
In addition, it is a flexible assessment method that allows the learning society to integrate different parameters and indicators such as cultural awareness and expression, mother/foreign tongue communication, or Social and Civic competences, to achieve the desired assessment.

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BRIEF DESCRIPTION

Why do we assess students with Essays / Written tests / Reports / Scientific papers?

Essays / Written tests / Reports / Scientific papers assessment methods are perhaps one of the most traditional ones and have been used for years to evaluate hard skills in a satisfactory manner. These methods, properly adapted, could ensure the same effectiveness for the assessment of soft skills and in addition, students are already familiar with the methods mentioned above which are positive.

Moreover, HEIs will be able to assess, assertively and efficiently, through this methodology students' narrative written ability and their competence to achieve clarity of presentation and quality of arguments. Finally, it is also suitable for enhancing students' critical reflection and their expertise to choose references, essential aspects for mastering different soft skills.

How to assess through these methodologies?

Scientific article

Written test

Professor's observation of the students' work

Short written report

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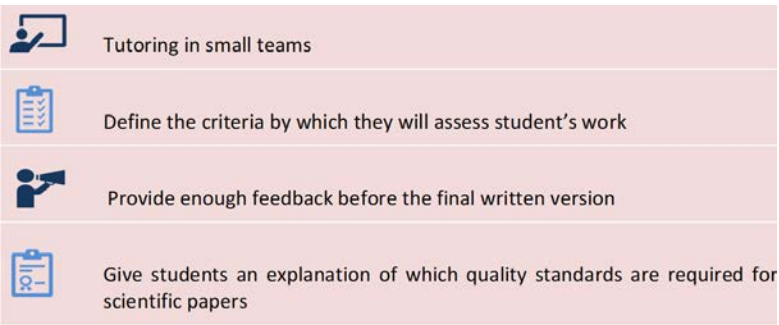
BRIEF DESCRIPTION

The role of the teacher in promoting essays, written tests, reports, scientific papers assessments

The role of the teacher is essential in this assessment method therefore, it would be ideal if they are trained, and they can have at their disposal, clear instructions and indicators to be taken into account for the assessment.

Some of the techniques used by professors to assess written documents satisfactorily may include:



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EXAMPLES OF DEPLOYMENT

Innovative Curriculum on Soft Skills for Adult Learners. ICARO PROYECT, Erasmus+ Programme (E#8)

ICARO Project has developed a Soft-Skills Assessment Toolkit applicable to any academic discipline. This Toolkit can be used as a measure to stimulate debate and exchange in a EU-wide / national scope or as a tool for assessing soft skills in one sitting. ICARO wanted to address the need of the lack of tools enabling professional personnel to deliver Soft Skills Assessment or at least supervise the process of assessment.

The assessment method is designed in two stages: During the first one, an online and offline version of “self and other “assessment takes place. Then, the second stage uses the assessment in a narrative way. Written reports that are prepared in advance are introduced in the process. This system give the people assessed the opportunity to develop a narrative setting, either as a person-to-person setting or a group. Some assessment indicators utilized within the Project are cultural awareness and expression, mother/foreign tongue communication or Social and Civic competences.
ICARO Project, practically implemented in five countries of the European Union (Greece, Spain, Ireland, Lithuania and Germany) also uses as learning activities written articles where a summary of module including how to use the module content with additional references, is included.

Impacted soft skills out of Skills4Employment set

Multicultural and Networking skills

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EXAMPLES OF DEPLOYMENT

Guide for the assessment of scientific competence in Science, Mathematics, and Technology (E#3)

This guide has been practically implemented by the University of Barcelona in the area of hard science. Internships involve face-to-face work for five days, which take up the whole day, generally coinciding with a week, and afterward, the students carry out independent work in groups and a face-to-face tutoring session. There are six phases:

- Problem statement (on the first day of practice in a face-to-face session lasting two hours).
- Obtaining the field or laboratory data (the rest of the first day, the second day, and the third day, face-to-face activities with the teacher).
- Analysis and discussion of the results (on the fourth and fifth days in the computer room, morning and afternoon face-to-face sessions).
- Writing of the first version of the report (small teamwork in an autonomous way).
- Tutoring in small teams (face-to-face activity)
- Writing the second version of the article.

Assessment activities

- Scientific article
- Written test
- Observation of the teacher on the work carried out by the students

Impacted soft skills out of Skills4Employment set

Problem-solving skills

Questionnaires

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OVERVIEW

Key points

01

Questionnaires can offer a quantitative assessment of students' soft skills.

Moreover, teachers can administer validated questionnaires or can design new customized instruments

02

A variety of questions and affirmations can be used to assess attitudes and opinions.

Although there is a large range of types of questionnaires, there is a simple rule of thumb: the larger the size of the sample, the more structured, closed, and numerical the questionnaire may have to be, and the smaller the size of the sample, the less structured, more open and word-based the questionnaire may be (Cohen, Manion, and Morrison, 2007, p. 320).

03

Finally, Self-administered questionnaires may help students assessing

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BRIEF DESCRIPTION

What does this assessment method consist of?

A questionnaire is an assessment methodology that could be defined as a specific set of written questions that aims to extract specific information from the chosen respondents. The questions and answers are designed in order to gather information about attitudes, preferences, and factual information of respondents.

“Good questionnaires are focused, relevant, generate only useful data, and are careful with respondents’ time and energy” (Cohen et al, 2017, p. 498), but - to be effective - they need to be accurately designed and to avoid the so-called respondent fatigue. In this sense, it is important to check if it is possible to obtain the information in a way that is more rewarding and interesting for participants, avoiding asking for data that could be sourced elsewhere.

The majority of questionnaires, especially for treating big samples, rely on closed questions. Nonetheless, some authors (Lizzio and Wilson, 2008) recommend using both open and closed questions when eliciting students’ perceptions of the quality of feedback. Another tip, recommended by Maurer (2018) is to organize open-ended interview questions which can be followed up with further clarifying questions.

According to Cohen et al. (2017), working with questionnaires obviously has pros and cons (see Figure 12).

Figure 12: Advantages and drawbacks of questionnaires

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HOW TO APPLY QUESTIONNAIRES?

1. Define your focus/aim

2. Set up your indicators, by operationalizing concepts into variables

3. Point out your sample to be as representative as possible of your reference population

4. Test the reliability of your questionnaire through a pilot

5. Choose your channel: simple software such as online forms are recommended

6. Define your approach to analyzing and representing the data collected

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EXAMPLES OF DEPLOYMENT

Assessing Interdisciplinary Learning Outcomes. Academic Exchange Quarterly, Fall (E#1)

Assessing outcomes for interdisciplinary courses and program involves establishing outcomes that interdisciplinarians typically claim for their courses and programs, identifying four cognitive abilities that the literature on cognition and instruction suggest are hallmarks of interdisciplinary learning, and showing how these abilities may be expressed in the language of assessment and assessed on both the course and program levels. The four cognitive abilities are:

- demonstrate the ability to engage in perspective-taking
- develop structural knowledge pertaining to the course problem or theme
- integrate knowledge and modes of thinking drawn from two or more disciplines
- produce an interdisciplinary understanding of a complex problem or intellectual question

The Entrance Survey and the Exist Survey are identical except for the title and may profitably use a Likert scale. They ask students if they are able to demonstrate each of the four cognitive abilities. Other abilities can be included.
For example, students beginning an introductory course typically admit being unable to demonstrate these four abilities. However, at the end of the course, these same students taking the same survey (but Exit Survey) typically affirm that they are able to demonstrate these abilities. The value of this data is that they are derived from student perceptions of their abilities measured against the learning outcomes for the course.

Impacted soft skills out of Skills4Employment set

Intelectual skills

Interdisciplinary skills to combine knowledge, analyse and think critically

Problem solving skills

Learning from experience

Self-management skills

Taking initiative/Ownership

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EXAMPLES OF DEPLOYMENT

Assessing Students' Knowledge and Soft Skills Competency in the Industrial Training Programme: The Employers' Perspective (E#12)

One of the main objectives of industrial training programs is to provide students a platform for gaining either knowledge or theories in a real work setting. Therefore, this study investigated how students are able to integrate knowledge exposed to them in the classroom in solving real problems using ICT, technologies and other possible solution solutions. A questionnaire was designed and validated to measure the employers' perspective (see Chiu et al. (2016) for a detailed description of the questionnaire design process).

The questionnaire focuses on four dimensions of soft skills which are (i) communication skills, (ii) practical skills, (iii) leadership (iv) attitude (i.e. time management), and one dimension pertaining to basic knowledge.

Basic knowledge aims at measuring students' awareness about getting information about the attached organization, the given tasks or projects, the application of subject learning and some current issues surrounding them. The communication skills evaluate students' capability to communicate in writing and speaking when they deliver their tasks.

Leadership aims at measuring the quality in decision making among students. Components listed in this dimension investigate the students' ability in planning and taking appropriate action for a given task, leading and working in a team and responsibility towards a given task. Finally, the attitude dimension investigates students' manner and discipline during the training.

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This dimension attempts to identify students' willingness to improve themselves, commitment to their jobs, confidence in taking a challenge, discipline in time management and willingness in helping peers to achieve the same objectives.

All the identified components are measured using the Likert scale ranges from 1 to 5. The lowest value indicates less satisfactory performance and the level of satisfactory increases as the value approaching 5*

Impacted soft skills out of Skills4Employment set

Intelectual skills

Interdisciplinary skills to combine knowledge, analyse and think critically

Problem solving skills

Self-management skills

Leadership

Time management skills

Oral and Writing Communication Skills

Communication

Collaboration

*The research results of a study where the questionnaire was applied can be found in Lim, Chiu & Mahat, Nor & Rashid, Basri & Abdul Razak, Norhanim & Omar, Hamimi. (2016). Assessing Students' Knowledge and Soft Skills Competency in the Industrial Training Programme: The Employers' Perspective. Review of European Studies. 8 (1). 123-133.

Interviews
Storytelling
Presentations

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OVERVIEW

Key points

01

Storytelling, interviews, presentations, and other narrative pedagogies provide creative and flexible approaches where students co-create authentic learning experiences.

02

Various learning objectives and outcomes can be addressed through storytelling, interviews, and presentations, such as knowledge acquisition, discussion and feedback, critical analysis, reflection on learning, and testing the level of knowledge and skills.

03

Embedding storytelling, interviews, and presentations could be beneficial for students to give meaning to their experiences, strengthen communication skills, empower self-agency.

BRIEF DESCRIPTION

What does this assessment method consist of?

The use of interactive teaching and learning techniques, especially through rich digital media, such as interviews, storytelling, and presentations, enable students to actively participate in their education and connect with information in a way that traditional methods of learning simply cannot. On the other hand, these tools offer to teachers very interesting assessment methods based on originally produced content, capable of showing cross-curricular learning objectives and assessing skills such as literacy, communication, and teamwork.

Storytelling, interviews, and presentations create a space of encounter and sharing where not only the content is important but also the human interaction. We argue that storytelling and other narrative pedagogies that stimulate human interactions and creative communication uniquely respond to learners' needs and abundantly create contexts to assess soft skills.

When used as pedagogical tools, narrative pedagogies:

- Help learners to give meaning to lived experiences as Peter Jarvis suggested (2006);
- Facilitate communication;
- Empower self-agency;
- Foster authentic learning and deep learning strategies.

Marsha Rossiter and M. Carolyn Clarke (2007) strongly point out that narrative pedagogies help the learner to conceptualize the learning process and contribute to self-and social-regulated learning. By creating and telling stories, learners gain a deeper understanding of complex concepts and constructs in a way that is 'believable', 'rememberable', and 'entertaining' (Neuhauser, 1993). According to Reissman (1993), a story is 'a recapitulation of every nuance of a moment that had special meaning' (p.2). Therefore, making a pitch in a design learning setting, leading a team, conducting a research interview, presenting a project, or defending a thesis involves storytelling. The use of stories, in narrative pedagogy, is therefore not only a teaching strategy but also a way to promote thinking about the meanings of the educational contents being learned and their significance to professional practice and skills development (Cheng, 2003).

Atkinson (2006) argues that we are storying people. In Atkinson's words, we are in need to tell stories and we become fully aware of our acts when we verbalize them and reflect on them. Consequently, students monitor and self-evaluate their learning experiences through narrative pedagogies which become formative, (self)assessment methods. As a result, these assessment methods are mutually beneficial both for learners and teachers, enabling narrative learning and contributing to technical and soft skills development alike.

When teachers design learning experiences through narrative pedagogies, students are empowered to recognize the value and relevance of their knowledge and skills. Students become active participants in the learning process, voicing their knowledge and experience, and therefore can be more engaged in self-assessment and regulation. Moreover, teachers could benefit from a variety of instructional strategies to deploy narrative pedagogies such as interviews, storytelling, and presentations to assess both technical and soft skills. Figure 13 presents possible pedagogical scenarios to contribute to soft skills development and assessment.

Pedagogical approach	Learning objectives / types of learning	Possible learning scenarios and sequencing	Teacher presence
Project-based learning with narrative pedagogies	• Knowledge acquisition • Critical analysis • Collaboration and production • Reflection and assessment	• The students are instructed on the project requirements and assessment criteria are discussed. To complete de project, students work in small groups. To explore the subject and gain more knowledge about it, they can conduct interviews. Complementarily, they can validate the project results through interviews. Digital storytelling can be used to popularize the project to a broader audience. Students can present their projects in front of the teacher and their peers through PechaKucha presentations.	• The teacher designs the project assignment, offers feedback, and assists students. • Learning materials for flipped learning can be designed.
Design-based learning with pitching presentations	• Knowledge acquisition • Critical analysis • Collaboration and production • Reflection and assessment	• Students work in groups of 5 to 7 students to solve challenges or unmet needs. It is a process that encompasses concept development, applied creativity, prototyping, and experimentation. Storytelling can be applied to stimulate creativity and idea generation. Interviews can be used to test the proposed solutions. • The final solution is pitched in front of an audience: colleagues, community and business partners, potential customers. The pitching session can be recorded and used for further analysis and reflection on communication skills.	• The teacher monitors the progress of the group process. • He/she stimulates the idea generation and provides students with appropriate tools and knowledge for solving the challenges. • Organizes the pitching sessions and stimulates reflection and self-assessment.
Inquiry-based learning through interviews	• Knowledge acquisition • Discussion and feedback • Critical analysis • Collaboration and production • Reflection and assessment	• Students can participate in lab visits and conduct interviews with researchers to gain knowledge and a deeper understanding of the research process. • Additionally, students apply various research methods and tools, process data, and present their results. • Peer interviews can be used to guide reflection on the learning process. • Additionally, the teacher can conduct situational interviews to assess students' responses to various situations.	• The teacher guides the students to acquire methodological and practical skills required for scientific research.
Flipped classroom with digital storytelling	• Knowledge acquisition • Discussion and feedback • Critical analysis • Collaboration and production • Reflection and assessment	• The students are instructed to design a short video or a podcast episode to present a concept, a theory, or a book (e.g. book trailers). • They will watch informative materials in self-paced learning and will work in small teams to design their scientific trailer/podcast. • The videos and podcasts can be made available on the learning management system or publicly on blogs or websites.	• The teacher prepares the materials for flipped learning. • He/she supervizes the learning process and provides feedback. • Designs reflection tools and guide students to critically analyze their trailers.

Figure 13: Learning scenarios to integrate narrative pedagogies

WHAT SOFT SKILLS CAN BE ASSESSED THROUGH NARRATIVE PEDAGOGIES?

THINKING

- Critical thinking
- Creative thinking
- Comfort with ambiguity
- Growth mindset
- Ethics

INTERACTING

- Communication
- Collaboration
- Empathy
- Negotiation

MANAGING OURSELVES

- Self-awareness
- Accountability
- Grit/Persistence
- Adaptability
- Planning and organization
- Initiative
- Integrity

LEADING

- Process management
- Performance management

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EXAMPLES OF DEPLOYMENT

Prosodic Analysis of Speaker Charisma - PASCAL & Dynamic Prosodic Adaptation (DPA) (E#10)

The Prosodic Analysis of Speaker Charisma (PASCAL) & Dynamic Prosodic Adaptation (DPA) assessment method, based on an Oral Exam, speeches and a written report as well as focused on the Electrical Engineering field, has been put in practice by the University of Southern Denmark (SDU). To assess the PASCAL score, students were asked at the beginning of the project course to give a short speech in the form of an engineering-product sales pitch directed at a larger audience (their course mates). For the DPA score, students took part individually in a 20- minute task designed to assess their ability to perceive and adapt to prosodic changes based on an evaluation of the quality and functionality of the constructed weather station, a written report about the entire design and construction process and an oral exam.

This first variable served to assess how well the team members organized themselves, and how well this correlates with the DPA score. Secondly, the report was graded by an independent expert jury of engineers (lecturing at SDU) in terms of scientific paper standards like clarity of presentation and illustration, choice of references, quality of arguments and critical reflection.

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EXAMPLES OF DEPLOYMENT

The efficiency of this assessment method has been proved by applicating their study in the real world, highlighting that DPA and PASCAL reflect the communicative competences and the irrefutable tendency for some professions to rely more strongly on communicative skills than others.

Impacted soft skills out of Skills4Employment set

Intelectual skills

Learning from experience

Problem solving skills

Self-management skills

Change management skills

Planning skills

Oral and Writing Communication Skills

Communication

Team working skills

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EXAMPLES OF DEPLOYMENT

Teaching and Assessing Soft Skills (E#18)

The MASS project (partly financed from the EU Lifelong Learning Programme, Leonardo Da Vinci, Transfer of Innovation, under the contract UK/09/LLP-LdV/TOI/163_271) aimed at testing the measurement and assessment of soft skills method developed by the teaching professionals at Angus College, Scotland, in different cultural environments and institutions. The suggested measurement methodology comprising two rubrics, one for students' self-assessment and one for their evaluation from the tutors. A grade, in a 4-point scale, is given against each soft skill each week, by students themselves. The tutors also evaluate each student separately, following the same procedure. Additionally, students may give open form explanations, concerning their improvement, or lack of it. The tools used were mainly self-reference tests, either ready-made or self-made, or teacher judgement. More holistic methods, like portfolio assessment, or diary were not used.

Intelectual skills

Learning from experience

Self-management skills

Taking initiative/Ownership

Assignments
Projects
Case studies

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OVERVIEW

Key points

01

Projects and case studies are types of assignments in which learning is achieved through individual study and teamwork.

02

Developing a project or solving a case study is a process involving communication between students and teachers, content negotiation, mutual teaching and tutoring, essential soft skills to be assessed.

02

03

As a result of solving various types of assignments, students improve their capabilities of criticism acceptance and decision making.

04

Project development deepens student knowledge and understanding of the topic while developing soft skills, such as creativity, critical thinking and critical analysis of their work and self and team accountability.

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BRIEF DESCRIPTION

Assignments

An assignment is a piece of (academic) work or task. It provides an opportunity for students to learn, practice, and demonstrate they have achieved the learning goals. It provides evidence for the teacher that the students have achieved the goals.

The output can be judged using sensory perception (observing, reading, tasting, etc.). The assignment can focus on a product as output (e.g. research report, design, prototype, etc.) and/or a process (e.g. research process, group process) and/or the performance of individual skills or competences (e.g. professional skills, communications skills).
There are a lot of benefits to gain from using an assignment as an assessment method. Assignments can for instance be used to test higher cognitive abilities and the application of specific skills or knowledge. It can mirror future professional practice. It can be used to assess the integration of knowledge, skills, and attitudes (competences).

When designing and using an assignment as a summative test (students get a score or grade or pass/fail judgment), there are things to consider: will it be an individual assignment or group assignment; just one assignment or more; how to make it motivating and challenging? Assignment for assessment of soft skills might take the form of a project (group or individual), case study, or other.

Projects

A group (team) project is a study method when project development is based on group (team) work. Group members have clear tasks, are divided into activities and roles, consult with each other, and consult with the teacher if necessary. Typically, both overall group work and individual contribution to the project are being assessed. The project in general is a special approach to a wide range of students' abilities. The starting point of the project approach is any problem that is raised as the most important, only then the theoretical knowledge is used to solve it. The specifics of the projects are very different: from research-based projects to external monitoring of a specific workplace.

Through projects, students have the opportunity to delve deeper into the study module (subject), apply existing knowledge and use it to create something new. When working on a project, the knowledge acquired during studies, which is often already forgotten, has to be remembered. The project is a great way to "shine" for students, who usually do not fully reveal themselves using other methods during their studies.

BRIEF DESCRIPTION

Projects

This approach builds (and allows assessing) a number of skills, knowledge, and competencies (Daunoriene et al., 2020):

- information retrieval and application, planning, resource allocation, creativity, innovation, ICT skills, problem identification, lifting, definition, data analysis, review, decision design, decision making, knowledge application, information sharing, group work, time planning, task planning, and distribution, conflict resolution, negotiation skills, argumentation, written, verbal and non-verbal communication, social networking, interpersonal relationships, managerial skills (planning, organization, teamwork), time planning, special skills (depending on the type of project), etc.

Group (team) project can be combined with other methods: discussion, experiential learning, film (project) development (preparation of filmed material), case studies, etc.
An individual project is a method of independent work studies, during which the student solves the problem individually, searches for information, systematizes and applies it, analyses the situation makes decisions, etc. t. It can be short-term or long-term, covering several disciplines. This method builds and allows assessing most of the same soft skills like group work, except teamwork, and can be combined with other methods.

Case studies

A case study is a real problem presented in the form of a story (narrative), which (depending on the level of complexity of the case) students must identify, analyse on the basis of quantitative and qualitative data, provide alternative solutions and finally reasonably choose the most appropriate solution (Daunoriene et al., 2020). Cases are possible in several types: finite fact-based cases, unfinished open-ended cases, fictitious, teacher-created cases, original documentary cases (article, TV report, etc.).

BRIEF DESCRIPTION

Case studies

The case description (or video material) should not be long and extremely detailed so that students do not get tired of reading (watching) it. The case must correspond to the purpose of the teaching/learning, it must present the facts, but it does not convey an opinion, i. y. students have to form their own opinion and express it about the information provided, problematic issues, and their solution. The case description can be read (or viewed through video) individually, analysed in a group of 4-6 people. Final decisions are made in a large group discussion led by a lecturer.

This approach develops (and allows assessing) skills, knowledge and competencies:

- problem identification, raising and defining, data analysis and review, decision design, decision making, application of existing specific knowledge and skills, critical thinking, learning from each other, professional skills development, practical skills, organizational, time planning skills, group work, written and verbal communication, self-directed learning, etc.

Case analysis (case studies) can be combined with other methods: discussion, group (team) project, individual project, group work, blog writing, etc. Method of implementation: orally, in writing, independently, using digital technologies, etc.
Case studies have been widely used by both academics and professional bodies to transfer soft skills (Keevy, 2016).

An advantage of the case study method is the various ways it can be used in an educational environment.) On the other hand, case study interviews are widely used in labour market for assessing important soft skills like problem solving, communication, creativity, team working, etc. (Succi & Wieandt, 2019).

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EXAMPLES OF DEPLOYMENT

Assessing interpersonal skills in translator training: the cases of INSTB (E#7)

Skill Labs is an assessment methodology that combines survey instruments for measuring self-assessment, research design, and specific hypotheses testing. A simulated translation bureau has been staffed and run by students of the European Master in Translation as a real translation bureau and is a fully integrated, practice-oriented part of the curriculum that earns credit points. Teams of students worked on an authentic task for a real or fictitious client under mock- realistic circumstances to achieve soft skills related to cultural and intercultural competence, professional competence, management skills, commercial/entrepreneurial skills, teamwork, client relations, PR, marketing skills and creativity skills.

Impacted soft skills out of Skills4Employment set

Intelectual skills

Creativity

Self-management skills

Networking skills
Team working skills

Oral and Writing Communication Skills

Multicultural skills

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EXAMPLES OF DEPLOYMENT

Integrated Project with Focus on Energy Transition and Circular Economy for Developing Engineering Students' Soft Skills (E#20)

The present work reports the experience of an integrated project developed at the University of Liege for master students in chemical engineering. The goals are to promote the acquisition of soft skills and to consolidate technical knowledge by integrating and linking chemical engineering disciplines usually taught separately. A case study was selected to address some of the challenges related to energy transition: students had to design the energy system of a remote island and make it as energy independent and CO2-neutral as possible by 2030. The course of action during the academic year, the assessment of soft skills, and the tools offered to ease the mentoring and encourage the acquisition of soft skills are described. Not all implemented techniques performed equally well, and this project finally appeared to be a challenge for the teaching team as well.

Impacted soft skills out of Skills4Employment set

Intelectual skills

Interdisciplinary skills to combine knowledge, analyse and think critically

Self-management skills

Planning skills

Observations

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OVERVIEW

Key points

01

Observation is commonly used as a method to support understanding and development. It is one of common way of getting information which can help us make sense of educational situations, gauge the effectiveness of educational and human resources management practices, and plan attempts for improvements (Malderez, 2003).

Daily, practitioners use their ability to observe – to notice even very subtle clues to what might be happening inside learners' heads – as a tool in managing the learning/teaching process. Some also use it more consciously to manage their own development of this responsive expertise.

02

It does not just mean 'seeing'. It is most often used to include observation 'hearing', as well as using other senses to collect information. In real life the acts of perceiving, interpreting, assessing, and reacting, for example, can often seem simultaneous. On other hand, "seeing as" in observation make sense of the experience of observation, engage in identifying similarities and differences between past experiences, images and actions, and the new observed situation (Kvernbekk, 2000).

Furthermore, in phrases such as 'doing an observation', the meaning of the term 'observation' extends beyond the central activity to the events that surround it, such as pre- and post-observation discussions of one type or another.

03

Observation for assessment is used for observers to make a judgement. Trainers may need to use observation for this purpose as part of a decision-making process about whether trainees can pass courses. People with managerial responsibilities may use it within star appraisal systems, and to guide strategic star development planning. They may use observation for evaluation to assess the impact and guide further planning. Typically, observations for assessment will be multi-focused, and use quite complex checklists or schedules. Here the main 'learner' is the observer, and the paymasters to whom they report. Pre-observation meetings, if they occur, tend to focus on procedures and the schedule being used, and in post-observation the results of the assessment are given either in face-to-face 'feedback' sessions or written reports (Malderez, 2003).

04

Observation fits into an area of psychology called social cognitive theory (Bandura, 1993). An important idea from social cognitive theory is that people can learn from taking part in social interactions and observing others.

The importance of observation for the assessment of the soft skills of employees is perfectly reflected in the words of the Executive Chairman of Starbucks Howard Schultz "Hiring people is an art, not a science. And resumes cannot tell you whether someone will fit into a company's culture." This justifies the attitude that a part of soft skills might be assessed by observing and communicating with the employees directly during the interview or conversation.

BRIEF DESCRIPTION

What soft skills are assessed through observation?

The use of observation in assessing soft skills gives the employer the opportunity to get constructive feedback from employees, challenging for honest interviews as well as highlighting development points.

- Problem-solving skills. Regardless of the nature of business, problem-solving skills are essential for every employee. Employees who cannot troubleshoot are unable to provide customer care, address issues faced by business associates, or assist colleagues and seniors in the event of any internal problems. Including a couple of questions about how the possible employee would solve a problem will help to assess this vital soft skill.

- Awareness. An employee need not be an encyclopedia. Yet, it is vital they know about major issues affecting the world, country, and local economy. Knowledge about these issues and opinions suggests that the employee is alert and responsive. It also indicates adaptability to adverse situations, since such employees will usually possess abilities to respond effectively.

- Social and collaborative skills. Memberships of clubs and organizations are a clear indicator of a candidate's social and collaborative skills. Such employees generally tend to become great team players. Additionally, it also indicates the candidate spends time on constructive activities such as sports, hobbies, or even politics.

- Composure under stress. The ability to work under stress is critical for many positions, especially when hiring for more senior roles. One good way to evaluate this skill is by asking an employee to tell about a stressful period at work and how he/she responded. And simply evaluate their behaviour just by observing their reactions and body language. Fumbling to respond or getting frustrated indicates the person may have a hard time working under stress or pressure.

- Team working/ working with diverse groups. Companies, just like the country in general, have become increasingly diverse in recent years. Walk into any major employer and you'll find people of all different backgrounds, educations, and beliefs collaborating and thriving together. So if an employee has a hard time working with anybody who thinks or acts differently than them, it can be hard for them to succeed. Ask how they have collaborated with people who have had very different perspectives than them. If their answer suggests that they steamrolled others' ideas or refused to listen to them, they probably won't perform well in a diverse team.

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EXAMPLES OF DEPLOYMENT

Guia per a l'avaluació de la competència científica a Ciències, Matemàtiques i Tecnologia (E#3)

Internships involve face-to-face work for five days, which take up the whole day, generally coinciding with a week, and afterwards the students carry out independent work in groups and a face-to-face tutoring session. There are six phases:

1. Problem statement (on the first day of practice in a face-to-face session lasting two hours).
2. Obtaining the field or laboratory data (the rest of the first day, the second day and the third day, face-to-face activities with the teacher).
3. Analysis and discussion of the results (on the fourth and fifth days in the computer room, morning and afternoon face-to-face sessions).
4. Writing of the first version of the report (small teamwork in an autonomous way).
5. Tutoring in small teams (face-to-face activity)
6. Writing the second version of the article.

Assessment activities:

- Scientific article
- Written test
- Observation of the teacher on the work carried out by the students

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EXAMPLES OF DEPLOYMENT

Guia per a l'avaluació de la competència científica a Ciències, Matemàtiques i Tecnologia (E#3)

Impacted soft skills out of Skills4Employment set

Intelectual skills

Problem solving skills
Creativity
Learning from experience

Self-management skills

Change management skills

Oral and Writing Communication Skills

Team working skills
Negotiation skills

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EXAMPLES OF DEPLOYMENT

Walk the talk: soft skills' assessment of graduates (E#17)

An exploratory study has been designed to describe the tools in use to assess soft skills, during the recruitment process and those to develop soft skills of graduates, during their first years on the job. The one-to-one interview was the most common tool utilized during the selection process to evaluate candidates and their soft skills (92 percent). Case studies and observation of group interactions were also implemented by more than 40 percent of respondents to test soft skills.

Impacted soft skills out of Skills4Employment set

Intelectual skills

Problem solving skills
Creativity
Learning from experience

Self-management skills

Change management skills

Oral and Writing Communication Skills

Team working skills
Negotiation skills

5

RECOMMENDATIONS

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RECOMMENDATIONS FOR MANAGERS AND UNIVERSITY LEADERSHIP

Higher education is increasingly now established in ways that entail strategies to cope with change, competitiveness, uncertainty, and high expectations of both students and communities.

Recent years have seen significant curricular developments in an attempt to foster learning relevance, authenticity, and to boost student employability. Impactful changes are yet to be seen.

There is obviously a gap between the needs and demands of future employers and the skills of the students graduating from the universities. Most often, students will possess sufficient theoretical knowledge but lack other necessary capacities, such as soft skills or teamwork experience required in work contexts.

Societal and economic development depends on educational institutions to play a pivotal role in preparing the future workforce. Seen through this lens, soft skills become a game-changer in student employability and an expected response to the changing higher education socio-economic landscapes.

RECOMMENDATIONS

The present document supports the need to approach a new perspective in the design of study programmes in higher education. A new multidimensional set of possible interventions that constitute a new scaffolding in institutional and curricular development is proposed as follows.

Skillsets and mindsets for twenty-first-century professionals

- Promote mindsets and soft skills as learning outcomes;
- Address innovation as a binder at the level of bachelor's and master's programs;
- Design learning for people (society 5.0) through an extension of the curriculum to the bachelor's and master's level in the field of soft skills;
- Stimulate students for authentic collaboration, interdisciplinarity and creativity;
- Design programs based on business-university cooperation to boost employability and degree relevance.

Lifelong learning: continuous improvement and re-learning

- Stimulate and develop the continuous professionalization of the staff, in conjunction with the opportunities for the development of the academic career.
- Train staff to conduct formative assessment and soft skills assessment.

Strategic institutional development

- Develop an institutional vision and strategy for education in higher education institutions to put transformative competences and soft skills at the core of learning outcomes;
- Intensify collaboration with industrial partners and create more opportunities for students to practice by integrating project-based learning, challenge-based learning applied within companies or in the community (service-based learning);
- Promote impact-focused education through interdisciplinary student-centered projects with societal relevance.

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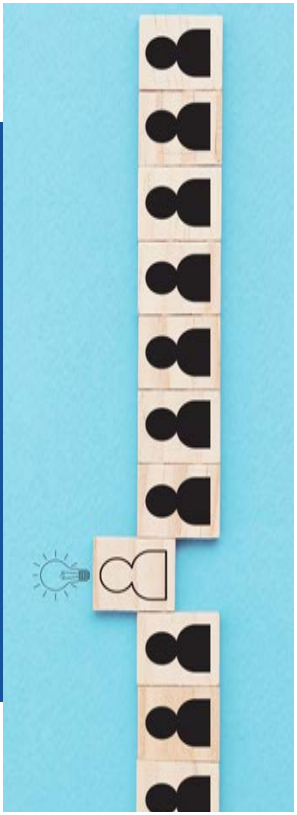
RECOMMENDATIONS TEACHERS AND OTHER PRACTITIONERS



Innovation in pedagogy is a key pillar of changing the curriculum in higher education. However, despite the lively discussions on innovation in pedagogy, higher education institutions have not yet integrated coherent practices to support this approach. In addition, the 2018 World Bank report discusses a learning crisis, and the United Nations' goals for sustainable development are far from being achieved by the end of the next decade.

In this context, universities play a key role in preparing students for a labour market that is increasingly oriented towards the transition to society 5.0. The knowledge society is experiencing the evolution towards a learning society where co-participation in learning, collaborative knowledge management and information dissemination are essential drivers of success. In this global landscape of competitiveness and change, higher education needs relevance, attractiveness, and accessibility. Teachers are key players able to provide students with relevant learning experiences.

The perspective on the knowledge and skills needed to be developed can undergo improvements to prepare the younger generations for the learning society and for the skills of the twenty-first century, which are essentially transversal and transformative.

RECOMMENDATIONS

This dynamic has resuscitated the interest in innovation in the design of university training programs and in the pedagogy of higher education. There is also an increasingly broad recognition that it is not only necessary to get closer to the core of teaching and learning, but that there should be a widespread willingness to innovate. Deep and cross-cutting learning must be achieved to enable young graduates to adapt optimally to the changing problems and circumstances that define contemporary societies. International analyses suggest an imperative to steer teaching and learning towards the future.

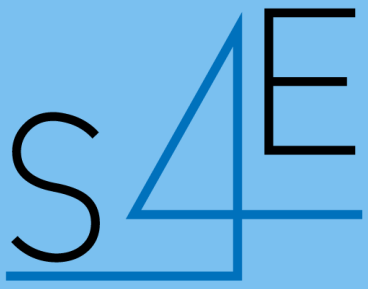
In the following, a set of recommendations is provided to possibly stimulate pedagogical innovation in higher education.

Pedagogical innovation in higher education

- Develop a flexible curriculum that gives students freedom of choice, giving them the opportunity to become partners in learning co-design;
- Promote peer-to-peer learning;
- Cultivate a culture of experimentation and innovation in education through projects that develop research, innovation and social responsibility skills;
- Encourage teaching and research staff to improve higher education and generate innovation in the short term, in a manner based on data and research results;
- Create a culture of sharing and disseminating results in order to generate impact and access to organizational learning models at the level of higher education institutions;

6

REFERENCES



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REFERENCES

- Andrade, H. L. (2019). A Critical Review of Research on Student Self-Assessment. Frontiers in Education, 4, 87. https://doi.org/10.3389/feduc.2019.00087
- AQU Catalunya. (2009). Guia per a l'avaluació de competències en l'àrea d'Humanitats. AQU Catalunya.
- AQU Catalunya. (2019). Catalan higher education qualifications framework. AQU Catalunya.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28(2), 117-148.
- Cimatti, B. (2016). Definition, development, assessment of soft skills and their role for the quality of organizations and enterprises. International Journal for quality research, 10(1).
- Cohen, L., Manion, L., & Morrison, K. (2017). Research methods in education. 8th edition. London ; New York: Routledge.
- Dale, V., (2014). UCLe-learning evaluation toolkit. https://discovery.ucl.ac.uk/id/eprint/1462309/
- Daunorienė, A., Simonaitienė, B., Ukvalbergienė, K., Daubarienė, A., Česonienė, R., Ratkevičienė, M. (2020). Studentų pasiekimų vertinimo metodai ir grįžtamasis ryšys. Metodinė priemonė. KTU leidykla „Technologija“, p.164, ISBN 978-609-02-1701-6, DOI: 10.5755/e01.9786090217009
- Duart, J.M. (2020) Soft skills training and assessment. Conference at the Skills4Employability Days. Enhancing the presence of soft skills in higher education curricula. 7-9 October 2020.
- Hacker, D. J., Dunlosky, J., & Graesser, A. C. (Ed.). (2009). Handbook of metacognition in education. Routledge.
- Jarvis, P. (2006). Towards a comprehensive theory of human learning: Lifelong learning and the learning society. Routledge.
- Kamp, A. (2019). Science & Technology Education for 21st Century Europe. Discussion Paper. CESAER. 10.5281/zenodo.3582544
- Kostons, D., van Gog, T., & Paas, F. (2012). Training self-assessment and task-selection skills: A cognitive approach to improving self-regulated learning. Learning and Instruction, 22(2), 121–132. https://doi.org/10.1016/j.learninstruc.2011.08.004

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REFERENCES

- Martínez-Fernández, J. R., & Vermunt, J. D. (2015). A cross-cultural analysis of the patterns of learning and academic performance of Spanish and Latin-American undergraduates. Studies in Higher Education, 40(2), 278–295. https://doi.org/10.1080/03075079.2013.823934
- Maurer, T. (2018). Meaningful questionnaires. In: Chick, N. L. (Ed.). (2018). SoTL in action: Illuminating critical moments of practice (First edition). Sterling, Virginia: Stylus.
- Keevy, M. (2016). Using case studies to transfer soft skills (also known as pervasive skills): Empirical evidence. Meditari Accountancy Research. DOI 10.1108/MEDAR-04-2015-0021
- Kvernbekk, T. (2000). Seeing in practice: a conceptual analysis. Scandinavian Journal of Educational Research, 44(4), 358-370.
- Léonard, G., Pfennig, A., Toye, D., Gommes, C., Lambert, S., Job, N., ... & Dumont, M. N. (2016). Integrated Project with Focus on Energy Transition and Circular Economy for Developing Engineering Students' Soft Skills.
- Lizzio, A., & Wilson, K. (2008). Feedback on assessment: Students' perceptions of quality and effectiveness. Assessment & Evaluation in Higher Education, 33(3), 263–275. https://doi.org/10.1080/02602930701292548
- Malderez, A. (2003). Observation. ELT Journal, 57(2), 179–181.
- Neuhauser, P. (1993). Corporate legends and lore: The power of storytelling as a management tool. McGraw-Hill.
- Nückles, M., Hübner, S., & Renkl, A. (2009). Enhancing self-regulated learning by writing learning protocols. Learning and Instruction, 19(3), 259–271. https://doi.org/10.1016/j.learninstruc.2008.05.002
- Panadero, E., Jonsson, A., & Strijbos, J.-W. (2016). Scaffolding Self-Regulated Learning Through Self-Assessment and Peer Assessment: Guidelines for Classroom Implementation. În D. Laveault & L. Allal (Ed.), Assessment for Learning: Meeting the Challenge of Implementation (Vol. 4, pp. 311–326). Springer International Publishing. https://doi.org/10.1007/978-3-319-39211-0_18
- Panadero, E., & Romero, M. (2014). To rubric or not to rubric? The effects of self-assessment on self-regulation, performance and self-efficacy. Assessment in Education: Principles, Policy & Practice, 21(2), 133–148. https://doi.org/10.1080/0969594X.2013.877872
- Paniagua, A., & Istance, D. (2018). Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies. OECD. https://doi.org/10.1787/9789264085374-en

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REFERENCES

- Papanthymou, A., & Darra, M. (2018). Student Self-Assessment in Higher Education: The International Experience and the Greek Example. World Journal of Education, 8(6), 130. https://doi.org/10.5430/wje.v8n6p130
- Prades, A.; Rodríguez Espinar, S. (2009). Laboratory assessment in chemistry: an analysis of the adequacy of the assessment process. Assessment & evaluation in higher education, 1-13.
- Puustinen, M., & Pulkkinen, L. (2001). Models of Self-regulated Learning: A review. Scandinavian Journal of Educational Research, 45(3), 269–286. https://doi.org/10.1080/00313830120074206
- Riessman, C. K. (1993). Narrative analysis. Sage Publications.
- Rossiter, M., & Clark, M. C. (2007). Narrative and the practice of adult education. Krieger Pub. Co.
- Skills4Employability project. (2020) Guidelines for improving European HEIs student's employability: embedding the most demanded soft skills in the curricula. Erasmus+ KA2 Strategic Partnership-Higher.
- Succi, C. Wieandt, M. (2019). Walk the talk: soft skills' assessment of graduates. European Journal of Management and Business Economics, 28(2), 114-125. DOI 10.1108/EJMBE-01-2019-0011
- Tilkin, G., Paulus, Michèle. (2013). Sheherazade 1001 stories for adult learning: Nederlandstalige versie. Landcommanderij Alden Biesen.
- University of Twente. https://www.utwente.nl/en/examination/toolbox-examination/Assignments/
- Vermunt, J. D. (1998). The regulation of constructive learning processes. British Journal of Educational Psychology, 68(2), 149–171. https://doi.org/10.1111/j.2044-8279.1998.tb01281.x

7

ANNEXES

Annex 1

Soft Skills versus Assessment Methodologies Matching Matrix

	Self-assessment/ self-measurement tools	Peer assessment							
		Portfolio	Multiple choice scenarios	Essays/ Written test / Reports/ Scientific papers	Practical tests	Questionnaires/ Surveys / Rubrics	Interviews/ Storytelling/ Presentations	Assignments/ Projects/ Case studies	Observation
INTELLECTUAL SKILLS									
Interdisciplinary skills to combine knowledge, analyse and think critically	E#15	E#15	E#15			E#1 E#2	E#15		
Problem solving skills	E#15	E#15	E#4, #15	E#3			E#15		E#3
Creativity	E#7	E#21				E#12	E#7, E#15	E#7	
Learning from experience	E#22								
SELF-MANAGEMENT SKILLS									
Planning skills								E#20	
Time management skills	E#11, E#14 E#15, E#7	E#11, E#15	E#15	E#11		E#11, E#12, E#13	E#15		E#11
Change management skills	E#15, E#16	E#15	E#15			E#12	E#15, E#7	E#17	E#17
Taking initiative/Ownership	E#16, E#18, E#19					E#18	E#18		E#18
ORAL AND WRITING COMMUNICATION SKILLS									
Multicultural skills	E#6, E#7, E#8			E#8				E#7	
Networking skills	E#7, E#8			E#8				E#7	
Negotiation skills	E#23								
Team working skills	E#7, E#9	E#15	E#15	E#10		E#9, E#5	E#10, E#15	E#7	

Annex 2

Soft-Skills Assessment Methodologies Good Practices

Good Practice E#1

Soft Skill: Interdisciplinary skills to combine knowledge, analyse and think critically

Assessment Methodology: Surveys

Reference/Link:
Repko, A.F. (2008) Assessing Interdisciplinary Learning Outcomes. *Academic Exchange Quarterly*, Fall

Short description *(max. 300 characters)*:
Assessing outcomes for interdisciplinary courses and program involves establishing outcomes that interdisciplinarians typically claim for their courses and programs, identifying four cognitive abilities that the literature on cognition and instruction suggest are hallmarks of interdisciplinary learning, and showing how these abilities may be expressed in the language of assessment and assessed on both the course and program levels. The four cognitive abilities are:

- demonstrate the ability to engage in perspective-taking
- develop structural knowledge pertaining to the course problem or theme
- integrate knowledge and modes of thinking drawn from two or more disciplines
- produce an interdisciplinary understanding of a complex problem or intellectual question

The Entrance Survey and the Exist Survey are identical except for the title and may profitably use a Likert scale. They ask students if they are able to demonstrate each of the four cognitive abilities. Other abilities can be included. For example, students beginning an introductory course typically admit being unable to demonstrate these four abilities. However, at the end of the course, these same students taking the same survey (but Exit Survey) typically affirm that they are able to demonstrate these abilities. The value of this data is that they are derived from student perceptions of their abilities measured against the learning outcomes for the course.

Level of implementation:
- ☒ **Theoretical defined/described**
- ☐ **Theoretical defined/described**

Evidence of its efficiency:
- ☐ **Yes**
- ☒ **No**

If Yes, please describe *(100 characters)*:

Special Focus:
- ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.)
- ☒ Social Sciences
- ☒ Engineering Law and Humanities
- ☒ Medical Sciences
- ☒ Economics
- ☐ Other (please describe):

Implementing institution(s): NA

Internal Reference: [AQU #1]

Good Practice E#2	
Soft Skill: Interdisciplinary skills to combine knowledge, analyse and think critically	
Assessment Methodology: Rubrics	
Reference/Link: Repko, A.F. (2008) Assessing Interdisciplinary Learning Outcomes. Academic Exchange Quarterly, Fall	
Short description *(max. 300 characters)*: Assessing outcomes for interdisciplinary courses and program involves establishing outcomes that interdisciplinary typically claim for their courses and programs, identifying four cognitive abilities that the literature on cognition and instruction suggest are hallmarks of interdisciplinary learning, and showing how these abilities may be expressed in the language of assessment and assessed on both the course and program levels. The four cognitive abilities are: • demonstrate the ability to engage in perspective-taking • develop structural knowledge pertaining to the course problem or theme • integrate knowledge and modes of thinking drawn from two or more disciplines • produce an interdisciplinary understanding of a complex problem or intellectual question The **rubrics** are explicit sets of criteria and expectations. Advantages: they specify the course learning outcomes that apply to a given assignment or project, they provide a detailed list of performance expectations for students to follow when doing the assignment, they help faculty to apply these criteria and expectations more consistently, they provide feedback to students that is far more granular and uniform compared to letter and grading, and, most importantly, they provide the data that are essential to perform meaningful assessment of course outcomes.	
Level of implementation: ☒ **Theoretical defined/described** ☐ **Practically implemented** **Evidence of its efficiency:** ☐ **Yes** ☒ **No** **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering, Law and Humanities ☒ Medical Sciences ☒ Economics ☐ Other (please describe):
Implementing institution(s):	
Internal Reference	[AQU #2]

Good Practice E#3	
Soft Skill:	Problem solving skills
Assessment Methodology: Scientific paper / Written test / Observation	
Reference/Link: Izquierdo, M., Rodríguez, S., Prades, A. (2009). Guia per a l'avaluació de la competència científica a Ciències, Matemàtiques i Tecnologia. AQU Catalunya https://www.aqu.cat/doc/guia-per-a-l-avaluacio-de-la-competencia-cientifica-a-ciencies-matematiques-i-tecnologia-ca	
Short description *(max. 300 characters)*: Internships involve face-to-face work for five days, which take up the whole day, generally coinciding with a week, and afterwards the students carry out independent work in groups and a face-to-face tutoring session. There are six phases: 1. Problem statement (on the first day of practice in a face-to-face session lasting two hours). 2. Obtaining the field or laboratory data (the rest of the first day, the second day and the third day, face-to-face activities with the teacher). 3. Analysis and discussion of the results (on the fourth and fifth days in the computer room, morning and afternoon face-to-face sessions). 4. Writing of the first version of the report (small teamwork in an autonomous way). 5. Tutoring in small teams (face-to-face activity) 6. Writing the second version of the article. Assessment activities: • Scientific article • Written test • Observation of the teacher on the work carried out by the students	
Level of implementation: ☐ **Theoretical defined/described** ☒ **Practically implemented** **Evidence of its efficiency:** ☐ **Yes** ☒ **No** **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Implementing institution(s):	University of Barcelona (ES)
Internal Reference	[AQU #3]

Good Practice E#4	
Soft Skill:	Problem solving skills
Assessment Methodology: Scenarios multiple choices	
Reference/Link: Rodríguez, S., Prades, A., Gairín, J. (2009). Guia per a l'avaluació de competències en Educació Social. AQU Catalunya https://www.aqu.cat/doc/guia-per-a-l-avaluacio-de-competencies-en-educacio-social	
Short description *(max. 300 characters)*: This evaluation activity is based on the presentation of an ethical dilemma. A text is presented to the students, text that exposes a situation that creates a conflict of values and they are asked to adopt a position. When they make a decision (in a critical and reasoned way), the students have to decide how to implement it (didactic strategy, educational proposal, organising option). It is convenient that the problem is related to some of its professional ambits and that the position that is required is relevant for the professional figure of the educator.	
Level of implementation: ☐ Theoretical defined/described ☒ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Implementing institution(s):	University of Girona (ES)
Internal Reference	[AQU #4]

Good Practice E#5	
Soft Skill:	Teamwork
Assessment Methodology:	Rubric of teamwork
Reference/Link: Paris, G.; Mas, O.; Torrelles, C. (2016) The evaluation of the "teamwork" competence of university students. *Revista d'Innovació Docent Universitària*, 8. https://repositori.udl.cat/bitstream/handle/10459.1/60249/023717.pdf?sequence=1&isAllowed=y	
Short description *(max. 300 characters)*: Rubric of Teamwork (Torrelles, 2011) with 27 dimensions: 1. Action according to the objectives 2. Integration in the team 3. Adoption 4. Exercise 5. Proposals for adaptation 6. Adaptation to the activity 7. Working conditions 8. Involvement in the team 9. External information search 10. Transmission of information 11. Identification of tasks 12. Distribution of tasks 13. Anticipation of resource requirements 14. Information analysis for decision making 15. Participation 16. Consensus 17. Fulfilment of assigned tasks 18. Participation in the resolution of contingencies 19. Coordination with the team 20. Self-monitoring of tasks 21. Conflict detection 22. Alternative proposals 23. Resolution of the conflict 24. Use of strategies 25. Reaching agreements 26. Proposals for improvement 27. Implementation of improvement processes	
Level of implementation: ☒ Theoretical defined/described ☐ Theoretical defined/described	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences
Evidence of its efficiency: ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Implementing institution(s):	
Internal Reference	[Skills4Employment Partner] AQU

Good Practice E#6	
Soft Skill:	Multicultural skills
Assessment Methodology:	Self-assessment
Reference/Link: Ghysels, Roseaux & Jacoby (September 2020). Work-Integrated Learning for Master Students in Product Development. *International Conference on Engineering and Product Design Education.* University of Antwerp Link: https://www.designsociety.org/publication/43220/WORK-INTEGRATED+LEARNING+FOR+MASTER+STUDENTS+IN+PRODUCT+DEVELOPMENT	
Short description (*max. 300 characters*): A first focus group session was organized with the students and the external supervisors to detect whether a focus on soft skills is interesting and feasible for both students and supervisors. Regarding developing the soft skills, the focus group agreed that specific settings can be created to force the students to address the skills and learn while doing so. Interdisciplinary collaborations can be easily installed, for instance, to provide the necessary conditions to learn from the situation. The supervisors also remarked that the soft skill evaluation and feedback cannot be separated from the domain specific skills to be assessed during the project. They asked for an integration of the project evaluation tool with the tool to define and assess specific actions for soft skill development. Furthermore, self-reflection questions or assignments that surpass the superficial and encourage the student to reflect in a meaningful were distributed.	
Level of implementation: ☐ **Theoretical defined/described** ☒ **Practically implemented** **Evidence of its efficiency:** ☐ **Yes** ☒ **No** **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☒ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Implementing institution(s):	University of Antwerp (BE)
Internal Reference	[CONNEX #2]

Good Practice E#7	
Soft Skill:	Multicultural skills
Assessment Methodology:	Self-assessment
Reference/Link: INSTB (Koen Kerremans, Maria Fernandez-Parra, Kalle Konttinen, Rudy Loock, Sonia Vandepitte, Iulianna Van der Lek-Ciudin and Gys-Walt Van Egdom) (2018). Assessing interpersonal skills in translator training: the cases of INSTB. Paper @ didTRAD 2018, Barcelona, SP. https://pdfs.semanticscholar.org/0650/da3cd55bebc3bde2f01700a3b2fc186f18fc.pdf	
Short description (*max. 300 characters*): Skill Labs is an assessment methodology that combine **survey instruments** for measuring self-assessment**, research design** and **specific hypotheses testing.** A simulated translation bureau has been staffed and run by students of the European Master in Translation as a real translation bureau and is a fully integrated, practice-oriented part of the curriculum that earns credit points. Teams of students worked on an authentic task for a real or fictitious client under mock-realistic circumstances to achieve soft skills related to cultural and intercultural competence, professional competence, management skills, commercial / entrepreneurial skills, teamwork, client relations, PR, marketing skills and creativity skills	
Level of implementation: ☐ **Theoretical defined/described** ☒ **Practically implemented**	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): Translation / Translator Training
Evidence of its efficiency: ☒ **Yes** ☐ **No** **If Yes, please describe** *(100 characters)*: Skills lab results were clustered for each institution to do a comparison between "pre and post" to see the change in all soft-skills areas. Using this type of assessment let them know how their students improve their soft-skills. Results available here: https://pdfs.semanticscholar.org/0650/da3cd55bebc3bde2f01700a3b2fc186f18fc.pdf	
Implementing institution(s): Vrije Universiteir Brussel (BE), Ghent University (BE), Universite de Lille (FR), University of Turku (FI), Swansea University (UK), Zuyd University of Applied Sciences (NL)	
Internal Reference	[CONNEX #3]

Good Practice E#7	
Soft Skill:	Multicultural skills
Assessment Methodology:	Self-assessment

Reference/Link:
INSTB (Koen Kerremans, Maria Fernandez-Parra, Kalle Konttinen, Rudy Loock, Sonia Vandepitte, Iulianna Van der Lek-Ciudin and Gys-Walt Van Egdom) (2018). Assessing interpersonal skills in translator training: the cases of INSTB. Paper @ didTRAD 2018, Barcelona, SP.
https://pdfs.semanticscholar.org/0650/da3cd55bebc3bde2f01700a3b2fc186f18fc.pdf

Short description (*max. 300 characters*):
Skill Labs is an assessment methodology that combine **survey instruments** for measuring self-assessment**, research design** and **specific hypotheses testing.** A simulated translation bureau has been staffed and run by students of the European Master in Translation as a real translation bureau and is a fully integrated, practice-oriented part of the curriculum that earns credit points. Teams of students worked on an authentic task for a real or fictitious client under mock-realistic circumstances to achieve soft skills related to cultural and intercultural competence, professional competence, management skills, commercial / entrepreneurial skills, teamwork, client relations, PR, marketing skills and creativity skills

Level of implementation:
- ☐ **Theoretical defined/described**
- ☒ **Practically implemented**

Evidence of its efficiency:
- ☒ **Yes**
- ☐ **No**

If Yes, please describe *(100 characters)*:
Skills lab results were clustered for each institution to do a comparison between "pre and post" to see the change in all soft-skills areas. Using this type of assessment let them know how their students improve their soft-skills. Results available here: https://pdfs.semanticscholar.org/0650/da3cd55bebc3bde2f01700a3b2fc186f18fc.pdf

Special Focus:
- ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.)
- ☐ Social Sciences
- ☐ Engineering Law and Humanities
- ☐ Medical Sciences
- ☐ Economics
- ☒ Other (please describe): Translation / Translator Training

Implementing institution(s): Vrije Universiteir Brussel (BE), Ghent University (BE), Universite de Lille (FR), University of Turku (FI), Swansea University (UK), Zuyd University of Applied Sciences (NL)

Internal Reference [CONNEX #3]

Good Practice E#8	
Soft Skill: Multicultural skills	
Assessment Methodology: Self-assessment	
Reference/Link: Innovative Curriculum on Soft Skills for Adult Learners. *ICARO PROYECT, Erasmus+ Programme.* http://icaro-softskills.eu/, http://icaro-softskills.eu/wp-content/uploads/2019/07/IO2_Soft-Skills-Assessment-Tool-KitV4-1-1.pdf	
Short description (*max. 300 characters*): The project aimed to provide a unique tool for SSA, for use in the project and beyond. The tools developed in this project are developed in the hope that they can inspire the EU community and the national discussion about the need of assessing Soft Skills especially for persons with a low level of formal education. It will offer an online and offline version with "self" and "other" assessment that is driven by evidence and includes the opportunity to use it in a narrative setting, either as a person to person setting or a group. It can be used as a tool for assessing Soft Skills in one sitting, or as a measure to stimulate debate and exchange. Then it will be used in a narrative way. The tool can be used including short written reports that are prepared in advance, and then introduced in the meetings.	
Level of implementation: ☐ **Theoretical defined/described** ☒ **Practically implemented**	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): May be used in different study fields
Evidence of its efficiency: ☐ **Yes** ☒ **No** **If Yes, please describe** *(100 characters)*:	
Implementing institution(s): ICARO Project Consortium	
Internal Reference [CONNEX #4]	

Good Practice E#9	
Soft Skill:	Multicultural skills
Assessment Methodology:	Self-assessment
Reference/Link: Caggiano, Schleutker, Petrone & Gómez-Bernal. (2020).Towards Identifying the Soft Skills Needed in Curricula: Finnish and Italian Students' Self-Evaluations Indicate Differences between Groups. *MDPI,* volume 12. https://www.mdpi.com/2071-1050/12/10/4031/html	
Short description (*max. 300 characters*): **Business-Focused Inventory of Personality (BIP) questionnaire** - This methodology follows a complex triangle education-soft skills-work process in which the BIP questionnaire is composed by two sections divided into sociodemographic questions and soft skills self-evaluation. For soft skills as communication, leadership or team working, in other words, personal abilities, self-assessment seems a necessary element of evaluation. The self-assessment method presented in this study shows that students are able to perceive their personal skills in a reliable manner, whenever the assessment is connected to an action where such skills are needed.	
Level of implementation: ☒ **Theoretical defined/described** ☒ **Practically implemented**	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Evidence of its efficiency: ☐ **Yes** ☒ **No** **If Yes, please describe** *(100 characters)*:	
Implementing institution(s): Universita degli Studi Roma Tre (IT), Turku University of Applied Sciences (FI), Universita degli Studi di Roma La Sapienza (IT)	
Internal Reference	[CONNEX #5]

Good Practice E#10

Soft Skill: Oral Communication Skills / Teamworking Skills

Assessment Methodology: Prosodic Analysis of Speaker Charisma (PASCAL) & Dynamic Prosodic Adaptation (DPA)

Reference/Link:
Niebuhr & Michalsky. (2019). PASCAL and DPA: A pilot study on using prosodic competence scores to predict communicative skills for team working and public speaking. INTERSPEECH 2019
https://www.isca-speech.org/archive/Interspeech_2019/pdfs/3034.pdf

Short description *(max. 300 characters)*:
To assess the PASCAL score [16], students were asked at the beginning of the project course to give a short speech in the form of an engineering-product sales pitch directed at a larger audience (their course mates). For the DPA score, students took part individually in a 20- minute task designed to assess their ability to perceive and adapt to prosodic changes. The task was developed as an imitation experiment in order to link perception to production. Finally, the assessment of the students' performance in the Electrical Engineering project consisted of three parts:
(1) an evaluation of the quality and functionality of the constructed weather station,
(2) a written report about the entire design and construction process,
Firstly, the reports of all teams included a section in which the students graded their own team's performance and time management. That is, they rated how well they perceived the team members to work together, for example, in terms of remarks on internal communication, and effective distribution of workload and milestone responsibilities. This first variable served to assess how well the team members organized themselves, and how well this correlates with the DPA score. Secondly, the report was graded by an independent expert jury of engineers (lecturing at SDU) in terms scientific paper standards like clarity of presentation and illustration, choice of references, quality of arguments and critical reflection.
(3) an oral exam in which the students showcased and explained their finished weather station project. The oral exam, was subdivided into a team exam and individual exams. In the team exam, each project team as a whole presented their weather station to an expert jury of engineers.

Level of implementation:
- ☒ Theoretical defined/described
- ☐ Practically implemented

Evidence of its efficiency:
- ☒ Yes
- ☐ No

If Yes, please describe *(100 characters)*:
They onclude with reporting an anecdotal observation made for both DPA and PASCAL scores during their application in the real world. Although it highly depends on the individual, there is an irrefutable tendency for some professions to rely more strongly on communicative skills than others and accordingly to favour individuals with higher proficiency in these skills. If DPA and PASCAL reflect those communicative competences, they expect differences in these scores between professions.

Special Focus:
- ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.)
- ☐ Social Sciences
- ☒ Engineering, Law and Humanities: Electrical Engineering
- ☐ Medical Sciences
- ☐ Economics
- ☐ Other (please describe):

Implementing institution(s): University of Southern Denmark (SDU)

Internal Reference [Skills4Employment Partner]

Good Practice E#11	
Soft Skill:	**Time Management Skills**
Assessment Methodology #1: Self-assessment/Checklists	
Reference/Link: Heike Kölln-Prisner. (2017). Innovative Curriculum for Adult Learners on soft skills. http://icaro-softskills.eu/wp-content/uploads/2018/09/IO2_Soft-Skills-Assessment-Tool-KitV4.pdf	
Short description *(max. 300 characters)*: The methodology is based on a list of Soft Skills, separated in several sub areas such as: interpersonal skills (e.g. communication), intrapersonal skills (time management etc.) and others. The different areas are described with several sub skills each and certain behaviour that goes with this sub- skill. The process is divided in a self-assessment and other assessment. The process is documented.	
Level of implementation: ☒ Theoretical defined/described ☒ Practically implemented	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering Law and Humanities ☒ Medical Sciences ☒ Economics ☐ Other (please describe):
Evidence of its efficiency: ☒ Yes ☐ No **If Yes, please describe** *(100 characters)*: The feedback regarding the person's self-assessment	
Implementing institution(s):	
Internal Reference	[KTU #1]

Good Practice E#12	
Soft Skill:	Time Management Skills
Assessment Methodology:	Questionnaire
Reference/Link: Lim, Chiu & Mahat, Nor & Rashid, Basri & Abdul Razak, Norhanim & Omar, Hamimi. (2016). Assessing Students' Knowledge and Soft Skills Competency in the Industrial Training Programme: The Employers' Perspective. Review of European Studies. 8 (1). 123-133. https://core.ac.uk/download/pdf/42984976.pdf	
Short description *(max. 300 characters)*: The questionnaire focuses on four dimensions of soft skills which are (i) communication skills, (ii) practical skills, (iii) leadership (iv) attitude (i.e. time management), and one dimension pertaining to basic knowledge.	
Level of implementation: ☒ Theoretical defined/described ☐ Practically implemented **Evidence of its efficiency:** ☒ Yes ☐ No **If Yes, please describe** *(100 characters)*: Reflection of a set of soft-skills	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering Law and Humanities ☒ Medical Sciences ☒ Economics ☐ Other (please describe):
Implementing institution(s):	University Utara Malaysia (UUM)
Internal Reference	[KTU #2]

Good Practice E#13	
Soft Skill: Time Management Skills	
Assessment Methodology: Survey	
Reference/Link: Aworanti, O.A., Taiwo, M.B. & Iluobe, O. I. (2015). Validation of Modified Soft Skills Assessment Instrument (MOSSAI) for Use in Nigeria. Universal Journal of Educational Research 3(11): 847-861. https://files.eric.ed.gov/fulltext/EJ1081486.pdf	
Short description *(max. 300 characters)*: Based on the 15-point Measuring and Assessment of Soft Skills (MASS) the Modified Soft Skills Assessment Instrument (MOSSAI) was developed for use in Nigeria.	
Level of implementation: ☒ Theoretical defined/described ☐ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering Law and Humanities ☒ Medical Sciences ☒ Economics ☐ Other (please describe):
Implementing institution(s): Universities in Nigeria	
Internal Reference [KTU #3]	

Good Practice E#14	
Soft Skill:	Time Management Skills
Assessment Methodology:	Self-Assessment
Reference/Link: Ricchiardi, P., Emanuel, F. (2018) Soft skill assessment in Higher Education. Educational, cultural and psychological studies, 18, pp. 21-54. https://www.ledonline.it/index.php/ECPS-Journal/article/view/1399/1101	
Short description *(max. 300 characters)*: A model of 12 soft skills was set up: area of task (problem solving and decision making, time and space management, adoption of strategies adequate in tackling the task); area of the self (self-enhancement, emotional self-regulation, enterprise); motivational area (goal orientation, causal attribution, resilience); area of the interpersonal relationships (teamwork, communication, conflict management). The Project considers the development of a soft skills self-assessment tool (PassporTest), aimed at providing a description of the level of the different soft skills in the model.	
Level of implementation: ☒ Theoretical defined/described ☒ **Practically implemented** **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering Law and Humanities ☒ Medical Sciences ☒ Economics ☐ Other (please describe):
Implementing institution(s):	University of Turin (IT)
Internal Reference	[KTU #4]

Good Practice E#15	
Soft Skill:	Time Management Skills & Change management skills
Assessment Methodology:	Self-Assessment / Interviews (Storytelling) / Portfolio / Scenario multiple choices (Situational Judgment Test)
Reference/Link: Valorize high skilled migrants - Project Ref. N: 2014-1-IT02-KA204-003515. MOSSA THE MODEL OF SOFT SKILLS ASSESSMENT. The evaluation of soft skills of medium-high skilled migrants (2016). http://valorize.odl.org/outputs/IO2%20-%20MOSSA%20VHSM.pdf	
Short description *(max. 300 characters)*: The MODEL OF SOFT SKILLS ASSESSMENT - MOSSA is a path for the identification and the evaluation of adequately documented soft skills, in particular the 12 soft skills defined (adaptability and flexibility, motivation, managing responsibility, **time management**, communication skills, team working, conflict management, service skills, decision making, problem solving, creativity and innovation, critical and structured thinking). Step two in this model regards SOFT SKILLS IDENTIFICATION AND ASSESSMENT activities, which involve *Self evaluation*, *Situational Judgement Test and Evidence Gathering* through storytelling and portfolio.	
Level of implementation: ☒ Theoretical defined/described ☐ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): Developed for high skilled migrants, but could be used anywhere
Implementing institution(s):	NA
Internal Reference	[KTU #5]

Good Practice E#16	
Soft Skill:	Change management skills & Taking initiative/Ownership
Assessment Methodology:	Self-Assessment
Reference/Link: http://job-yes.eu/	
Short description *(max. 300 characters)*: The person ranks his/her various soft skills related to 4 competencies - Social and civic (21 skills, including **change management**), Learning to learn (8 skills), Sense of initiative and entrepreneurship (15 skills), Digital competence (4 skills) - using the scale from 1- 'no skills' to 10- 'perfect skills'. After completion of self-evaluation test on personal soft skills, the person gets a summarized description on the level of his/her soft skills and personal Knowledge Portfolio with suggestions for a rational Action Plan regarding Training.	
Level of implementation: ☐ Theoretical defined/described ☒ Practically implemented **Evidence of its efficiency:** ☒ Yes ☐ No **If Yes, please describe** *(100 characters)*: Upgrading soft skills coherent with employment-related key competences with the longer-term benefit: fostering people's integration into the nowadays labour market.	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): Vocational education (but may be used in different study fields)
Implementing institution(s):	NA
Internal Reference	[KTU #6]

Good Practice E#17	
Soft Skill:	Change management skills
Assessment Methodology:	Interviews/ Case study / Observation
Reference/Link: Succi, C. and Wieandt, M. (2019). "Walk the talk: soft skills' assessment of graduates", European Journal of Management and Business Economics, Vol. 28 No. 2, pp. 114-125. https://doi.org/10.1108/EJMBE-01-2019-0011	
Short description *(max. 300 characters)*: An exploratory study has been designed to describe the tools in use to assess soft skills, during the recruitment process and those to develop soft skills of graduates, during their first years on the job. One-to-one interview was the most common tool utilized during the selection process to evaluate candidates and their soft skills (92 percent). Case study and observation of group interactions were also implemented by more than 40 percent of respondents to test soft skills.	
Level of implementation: ☒ Theoretical defined/described ☐ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): May be used in different study fields.
Implementing institution(s):	NA
Internal Reference	[KTU #7]

Good Practice E#18	
Soft Skill:	Taking initiative/Ownership
Assessment Methodology:	Self-assessment

Reference/Link:
K. Kechagias (Ed.) (2011) Teaching and Assessing Soft Skills. 1st Second Chance School of Thessaloniki, Greece.
http://research.education.nmsu.edu/files/2014/01/396_MASS-wp4-final-report-part-1.pdf
www.mass-project.org

Short description *(max. 300 characters)*:
The MASS project (partly financed from the EU Life Long Learning Programme, Leonardo Da Vinci, Transfer of Innovation, under the contract UK/09/LLP-LdV/TOI/163_271) aims at testing the measurement and assessment of soft skills method developed by the teaching professionals at Angus College, Scotland, in different cultural environments and institutions. The suggested measurement methodology comprising two rubrics, one for students' self-assessment and one for their evaluation from the tutors. A grade, in a 4-point scale, is given against each soft skill each week, by students themselves. The tutors also evaluate each student separately, following the same procedure. Additionally, students may give open form explanations, concerning their improvement, or lack of it. The tools used were mainly self-reference tests, either ready-made or self-made, or teacher judgement. More holistic methods, like portfolio assessment, or diary were not used.

Level of implementation:
- ☒ Theoretical defined/described
- ☒ Practically implemented

Evidence of its efficiency:
- ☒ Yes
- ☐ No

If Yes, please describe *(100 characters)*:
Positive feedback from students and teachers in project partners countries.

Special Focus:
- ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.)
- ☐ Social Sciences
- ☐ Engineering Law and Humanities
- ☐ Medical Sciences
- ☐ Economics
- ☒ Other (please describe): vocational education (but may be used in different study fields)

Implementing institution(s): Angus College, Arbroath, Scotland; Second Chance School of Neapolis, Thessaloniki, Greece; Adult Learning and Employment (Larande och Arbete), Bollnas, Sweden; The Teacher Training Centre, Bucharest, Romania; ROC Aventus, Apeldoorn, the Netherlands; Bureau Zuidema, Utrecht, the Netherlands

Internal Reference [KTU #8]

Good Practice E#19	
Soft Skill:	Taking initiative/Ownership
Assessment Methodology:	Self-assessment
Reference/Link: Beard, D., Schweiger, D. & Surendran, K. (2008). Integrating Soft Skills Assessment through University, College, and Programmatic Efforts at an AACSB Accredited Institution, Journal of Information Systems Education. 19(2): 229-240. https://aisel.aisnet.org/jise/vol19/iss2/11	
Short description *(max. 300 characters)*: The authors address the concerns voiced by the employers of college graduates regarding the apparent insufficient competency in soft skills and suggest an assurance of learning model for incorporating these skills into curricula. Particularly, students completing an internship are required to complete a self-assessment survey regarding soft-skills (including **"initiative"**) Students are asked to evaluate themselves on several traits with "5" indicating "Outstanding" and "1" being "Poor." Students are also asked to circle those traits in which they think they have improved significantly during the internship.	
Level of implementation: ☐ Theoretical defined/described ☒ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☒ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☒ Social Sciences ☒ Engineering Law and Humanities ☒ Medical Sciences ☒ Economics ☒ Other (please describe): May be used in different study fields
Implementing institution(s): Southeast Missouri State University in Cape Girardeau (USA)	
Internal Reference	[KTU #9] [CONNEX #1]

Good Practice E#20	
Soft Skill:	Planning
Assessment Methodology:	Projects
Reference/Link: G. Léonard , A. Pfennig , D. Toye , C. Gommes, S. Lambert , N. Job, A. Léonard , T. Manfredini and M.-N. Dumont. (2016). Integrated Project with Focus on Energy Transition and Circular Economy for Developing Engineering Students' Soft Skills. Department of Chemical Engineering, University of Liege, Belgium and Psychologie Sociale des Groupes et Organisations, University of Liege, Belgium	
Short description *(max. 300 characters)*: The present work reports the experience of an integrated project developed at the University of Liege for master students in chemical engineering. The goals are to promote the acquisition of soft skills and to consolidate technical knowledge by integrating and linking chemical engineering disciplines usually taught separately. A case study was selected to address some of the challenges related to energy transition: students had to design the energy system of a remote island and make it as energy independent and CO2-neutral as possible by 2030. The course of action during the academic year, the assessment of soft skills, and the tools offered to ease the mentoring and encourage the acquisition of soft skills are described. Not all implemented techniques performed equally well, and this project finally appeared to be a challenge for the teaching team as well.	
Level of implementation: ☐ Theoretical defined/described ☒ Practically implemented **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☒ Engineering, Law and Humanities ☐ Medical Sciences ☐ Economics ☐ Other (please describe):
Implementing institution(s):	University of Liege (BE)
Internal Reference	[UNIROMA #1]

Good Practice E#21	
Soft Skill:	Creativity
Assessment Methodology:	Portfolio
Reference *(APA Style)*/**Link:** Best Practices in Soft Skills Assessment. (2014). Hanover Research	
Short description *(max. 300 characters)*: Hanover Research examines best practices in measuring soft skills, such as teamwork, creativity, and character, with a focus on soft skill assessments embedded into the core academic curriculum. Best Practices in Soft Skills Assessment briefly describes the impact of soft skills instruction and assessment, discusses the relationship between soft skills assessment and the core academic curriculum, examines common challenges to assessing soft skills, and describes three alternative reporting schemes for tracking student progress in the development of soft skills. Profiles describes assessment practices implemented by three exemplars in soft skills instruction and assessment: Catalina Foothills School District in Tucson, Arizona, Plymouth High School in Plymouth, Wisconsin, and New Technology High School in Napa Valley, California. Other info at https://www.nvcc.edu/oiess/_docs/academic-assessment/clo/best-practices-in-soft-skills-assessment.pdf	
Level of implementation: ☐ Theoretical defined/described ☒ Practically implemented **Evidence of its efficiency:** ☒ Yes ☐ No **If Yes, please describe** *(100 characters)*: The report provides 3 different tested methodologies to assess soft skills	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): Fits all disciplines
Implementing institution(s): Catalina Foothills School District in Tucson, Arizona, Plymouth High School in Plymouth, Wisconsin, and New Technology High School in Napa Valley, California.	
Internal Reference	[UNIROMA1 #2]

Good Practice E#22	
Soft Skill:	Learning from Experience
Assessment Methodology:	Self-assessment
Reference/Link:	

Short description *(max. 300 characters)*:
This paper presents and analyses the results of a survey assessing the educational outcomes of the OUFTI-1 project. OUFTI-1 will be the first Belgian student CubeSat. Its main payload is the use of the D-STAR radio communication protocol in space. The entire technical work is done by undergraduate students and managed by academics and young engineers from the University of Liege. The main objective of OUFTI-1 is education. It aims at providing hands-on experience to students in the design, construction, and control of a complete satellite system. This leads students to acquire scientific and technical knowledge but also to develop soft skills. These skills are the main concern of this paper. The soft skills aimed by OUFTI-1 can be grouped together in 5 fields: (A) to establish synergies between theory and practice, (B) to adopt an applied scientific approach, (C) to master written and oral scientific communication, (D) to manage a collaborative work, and (D) to manage a substantial work that should lead into a concrete result. The 40 former students of the project were submitted a survey regarding the use, the development, and the use in professional life of these skills. Students are also questioned about the influence of OUFTI-1 on their career. 24 answers were received (participation rate of 60%) and are analyzed in this paper. It is showed that the soft skills aimed by OUFTI-1 are widely used and developed within the project and used in professional life.

Level of implementation:
- ☐ Theoretical defined/described
- ☒ Practically implemented

Evidence of its efficiency:
- ☒ Yes
- ☐ No

If Yes, please describe *(100 characters)*:
The answers from the survey showed the importance of soft skills in students' careers

Special Focus:
- ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.)
- ☐ Social Sciences
- ☒ Engineering, Law and Humanities
- ☐ Medical Sciences
- ☐ Economics
- ☐ Other (please describe):

Implementing institution(s):	University of Liege (BE)
Internal Reference	[UNIROMA1 #3]

Good Practice E#23	
Soft Skill: Negotiation Skills	
Assessment Methodology: Self-assessment	
Reference/Link: http://questmeraki.com/wp-content/uploads/2017/06/Negotiation-Skills-Questionnaire.pdf	
Short description *(max. 300 characters)*: Negotiation is a process of sorting out differences or conflicts between two or more parties, such that they solve the issue in a way that is mutually beneficial to those involved. Perhaps, it involves a lot of 'give' and a little of 'take'. We face numerous situations every day that might end up in conflicts if we are not careful. To state it differently, if we do not 'negotiate', we would end up stacking unresolved conflicts. Negotiation is required to solve everyday conflicts, whether it is as simple as the example of the leave salary or something else that is more complicated. From children playing cricket and fighting over who goes batting first to a more serious business issue, we negotiate in order to be happy at both ends. What's more, if you need to be successful in negotiating, you need to be skilled at it. Success does not come very easily. Needed negotiation skills: • Knowledge or information about the issue • Good Interpersonal relationship • Ability to solve problems and make effective decisions • Willing to persuade and influence people • Ability to communicate	
Level of implementation: ☐ Theoretical defined/described ☒ Theoretical defined/described **Evidence of its efficiency:** ☐ Yes ☒ No **If Yes, please describe** *(100 characters)*:	**Special Focus:** ☐ Hard Sciences (math, physics, chemistry, biology, astronomy, etc.) ☐ Social Sciences ☐ Engineering Law and Humanities ☐ Medical Sciences ☐ Economics ☒ Other (please describe): May be used in different study fields
Implementing institution(s): NA	
Internal Reference	[UPB #1]

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