

Assessment and validation practices in the Vocational Education and Training system: an App for students and practitioners

Pratiche di valutazione e validazione nel sistema di Istruzione e Formazione Professionale: un'app per studenti e professionisti

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Abstract

Assessment and validation are crucial to support learning experiences. In this paper the focus is on the VET system (Vocational Education and Training), which represents an important node in the training of young people in Europe. Within the theoretical framework, in the specific evidence of the passage from a school-based learning to a work-based learning, we will start a reflection on some assessment and validation practices implemented in Europe, within the *AppSkill+* work, an Erasmus+ project aimed at developing and testing an app-based tool dedicated to the evaluation and validation, highlighting circularity, triangulation, continuous assessment and digitalization of the processes.

Keywords: vocational education and training; competences; assessment; validation; work-based learning; digital tools.

Sintesi

Il tema della valutazione e della validazione sono centrali per supportare le esperienze di apprendimento. Nel presente contributo il focus è sul sistema VET (Vocational Education and Training), che rappresenta per l'Europa un nodo importante nella formazione dei ragazzi e delle ragazze. A partire dal quadro teorico, nella specifica evidenziazione del passaggio da un apprendimento basato sul contesto della scuola a un apprendimento work-based, si proverà a riflettere su alcune pratiche di valutazione e validazione attivate in Europa, nell'ambito di *AppSkill+*, un progetto Erasmus+ finalizzato allo sviluppo e alla sperimentazione di una app dedicata alla valutazione e alla validazione, facendo leva su circolarità, triangolazione, valutazione continua e digitalizzazione dei processi.

Parole chiave: istruzione e formazione professionale; competenze; valutazione; validazione; work-based learning; strumenti digitali.

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1. Assessment and validation of work-based learning in the VET system

1.1. Work-based learning (WBL) in upper secondary education

Developing the eight key competences of lifelong learning and promoting work-based learning (WBL) are two of the five goals set by the European Commission in the *Riga Conclusions*² to improve Vocational Education and Training (VET). The document marked a significant step for the VET system, in which WBL rises to a fundamental pillar of European Strategies related to issues of training and work (European Union, 2016; Marcone, 2016).

Work-based learning is incorporated in upper secondary programmes in different ways, depending on how the education system itself is organized. It is typically an essential component in school-based vocational education programmes (Musset, 2019).

Emerging from the literary review conducted by the European Training Foundation (2013)³, work-based learning, at all levels of VET (initial, post-secondary, third level) and in continuing vocational education and training (CVT), is very often described as “a set of learning practices that differs from those of school-based or classroom learning. WBL is learning that takes place in a real working environment through participation in the work process, irrespective of whether the learners are young people, students, unemployed people or employees, or whether they are paid or unpaid. Some definitions go further and also encompass some forms of classroom-based learning (simulations, virtual firms) or see WBL as a component of a broader learning programme that also includes theoretical lessons and classroom learning” (p. 4-5).

European Commission (2013) considers work-based learning as “an example of a win-win situation» (notably the apprenticeships) with benefits «for all parties involved, beginning with the learner and the company which hosts the learner and/or cooperates with the VET school/institution, through VET providers themselves and up to the broader level of society” (p. 7) (Figure 1).

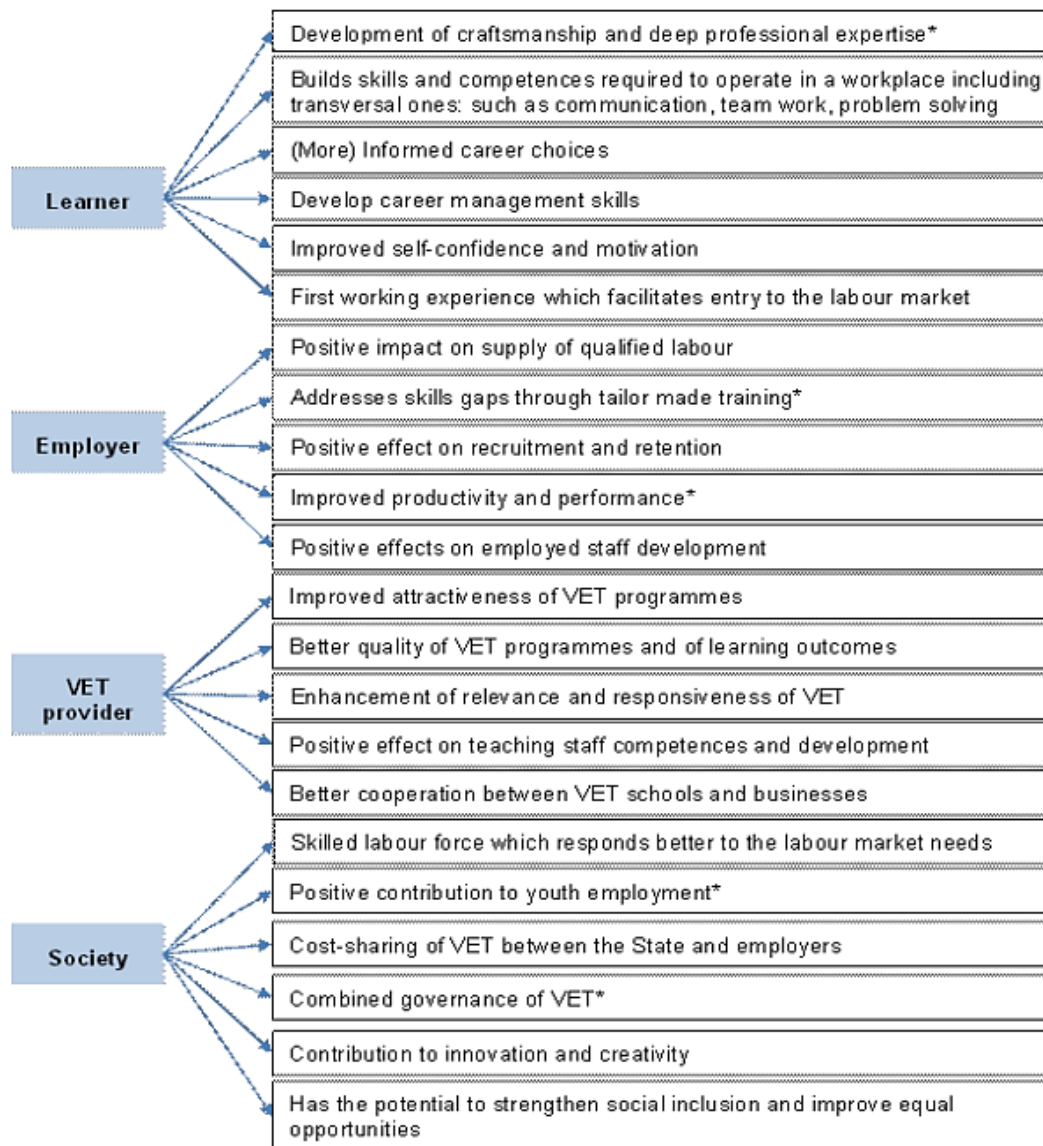
Workplaces are powerful learning environments: technical skills can be acquired from expert practitioners using real-life equipment, while also acquiring essential soft skills such as teamwork and communication (Musset, 2019). However, “applied learning that takes place through school-based or student-led enterprises, workplace simulations, workshops and even project-based learning in the classroom can also be labeled as WBL” (European Training Foundation, 2013, p. 13).

The Initial Vocational Education and Training system (IVET), based on a competence approach, is characterized by “learning by working” and “learning to work”. About the first aspect, it must be recognized that the cornerstone of cognitive development lies in the

² The context is the *Copenhagen Process*. Under the *Copenhagen Process*, Ministers responsible for vocational skill development from all EU Member States, EU Candidate Countries and EEA countries along with the European Social Partners and the European Commission met in Riga on 20 June 2015. Together, they agreed on the Riga Conclusions, which set out the ‘five VET medium-term deliverables’. These key deliverables form the basis of the agenda for modernizing VET over the 2015-2020 period.

³ The review covers all the main forms of WBL: apprenticeships, alternance training, work placements, internships, in-company training for employees as well as focussed reintegration and re-training programmes for the unemployed and for disengaged youth.

relationship between the individual and the environment, mediated by culture. This makes it possible to arouse knowledge construction processes that are located in the activities of a context. The educational path, therefore, consists of a sequence of learning situations that mobilize the intrinsic resources of the students and, when they perform real and significant tasks and solve the problems that these tasks gradually present, allow them to have a personal experience of knowledge (Nicoli, 2012).



* *These benefits are in particular attributed to work-based learning approaches where the period of time spent on the workplace is substantial, such as apprenticeships.*

Figure 1. Benefits of work-based learning for learners, employers, VET providers and society. European Commission, 2013, p. 8.

According to Raelin (2008), work-based learning must blend theory and action: “theory makes sense only through practice, and practice makes sense only through reflection as enhanced by theory” (p. 67). Regarding the second aspect, learning to work, it must be

acknowledged that a Vocational Training Center, intended as a learning community, presents a decisive openness to reality as a source and feedback of the most significant learning opportunities. The real world and that of work in particular, in this way, are not kept out of school “[...] but become a "textbook" that deserves to be browsed so that its potential value can be put to good use by the students” (Nicoli, 2012, p. 6).

In conclusion, it is clear that one of the most crucial challenges for the VET system and all the actors involved, also in light of the variety of experiences available to students, is the activation of a virtuous circle that allows designing meaningful work-based learning experiences, to be monitored and evaluated with efficiency and accuracy.

1.2. The VET system: changes and challenges for assessment and validation

The VET system is very dependent on the economical and social context. In recent years many studies (Misko, 2001, Callan & Ashworth, 2004) have focused their attention on the “growing interest in the formation of industry-VET partnerships” (Harris & Simons, 2006, p. 1) calling this new partnership as “third-space” and defining a sort of “de-institutionalization” of vocational learning.

This idea is very interesting, theoretically speaking, but it also has a very practical impact on the system itself. It has been addressed by the European Centre for the Development of Vocational Training (CEDEFOP) as a pivotal node for the VET system in the document *Developments in vocational education and training policy in 2015-19* (CEDEFOP, 2020, p.15).

As noted by Harris and Simons (2006), teaching and learning practices “were teacher-led and curricula were driven by processes which codified ‘acceptable’ knowledge and skills which were then delivered to learners in controlled environments using a defined set of teaching methods and practices” (p. 1). This means that learning, for example in apprenticeship, was far from being linked to institutional settings (that is school-based learning) and there was a sort of connection between the product of learning at school and the application of this product in workplaces. What if learning is, on the contrary, formally based on a mix of “places” where it is fostered and supported? This is the case, especially, of the VET system where learning occurs on different occasions (on-job and off-job sites), with a specific understanding: “learning from these multiple sites is recognized in the formal sense so that it can be codified and ‘counted’ towards the attainment of a VET qualification” (ivi, p. 2). Trainers and VET teachers are one of the multiple sources of learning, their role is changing and getting harder as facilitating learning is a “shared” task and this task needs to be fed by collaborative visions and common assessment and validation practices. Organizing experiences for learners in this new complex environment is the common function and demands to develop (or at least to use) common tools. Assessment and validation, as said, are the key aspect to make this connection even stronger to have a double effect on curricula and on workplaces. So, the association between the VET system and the industry/companies/labor market is the first element impacting assessment and validation.

Besides this aspect, a new relevance of assessment and validation is linked to the vivid recognition of competences as a core issue in VET. The CEDEFOP, for example, underlined the need for competences in relation to the labor market (2014): “social and personal competences are especially important in assessments for management positions, in promotion and succession planning, and with employees who have direct client contact.

Overall, social competences have become more significant in firms' employee assessments over the past few years" (pp. 19-20).

If we design, teach and learn according to the framework of competence, we need to assure the development of tools to assess and to promote the recognition of competences as a process. The VET system is called to answer the challenge of competences too, as reminded in the analyses of the use of the concept of competence in Vocational Education and Training in a European context: the authors gave two important suggestions, starting from the idea of competence as an integrated set of capabilities (or competencies): first, they conclude that "assessment of competences, especially in work situations, is a labour-intensive and time-consuming exercise" (Mulder, Weigel & Collins, 2007, pp. 81). This means that sharing tools (at national or international level, considering the European framework, but also in the same VET provider) could diminish the time we need to design tools, to test and then to use them in a broader scope. Second, they remind us that there is a risk represented by "competence being formulated in terms that are too general, which means that they have no discriminative power in assessments" (ivi, pp. 81-82). This second idea helps our reflection on assessment tools in the VET system (or broadly), as we will see in the last part of the contribution.

A third concept we should have in mind is represented by the variety of practices in assessment and validation. A CEDEFOP study (2014) mapped and analyzed the use of validation tools for competence assessment in European companies, including more than 400 companies. The conclusions are quite useful: "in general, competence assessment has become more important and an increasing number of companies have improved and developed their assessment tools" (p. 48-58). As described by Erwig (2017), there are a "number of critical issues associated with competency assessment (Hodge, 2014). For example, trainers were identified as having difficulties with interpretation, implementation and assessment of the competencies. Trainers are often viewed as capable of training diverse groups of learners, despite the fact that they may not have possessed in-depth knowledge of the competencies" (p. 1). As a consequence, the author investigated three strategies: diagnostic, scenario-based assessment and simulated assessment. And above all, as Gulikers, Kester, Kirschner & Bastiaens (2008), authentic or work-placement assessment is suitable for Vocational Education and Training contexts as the aim is to connect "learning and working by creating a correspondence between what is assessed in the school and what students need to do in the workplace during an internship or after finishing their education" (p. 172-173)

The need for quality in assessment is crucial and it also implies a culture of assessment, both in companies (company tutors) and in trainers, tutors and teachers. This culture has to be reinforced, and it is the ground for the *AppSkill+* project we will describe in the next section.

2. The AppSkill+ project

2.1. Context and objectives

Digital Innovation for Competencies Assessment and Validation in Work-based Learning Experiences (AppSkill+) is a funded project under the Erasmus+ program.

Aligned with the Council recommendation on a European framework for quality and effective apprenticeships (2018), the project focuses on the promotion of the development of the eight key competences for lifelong learning (2019) to foster employability and personal development through work-based learning and to ensure successful outcomes, to prevent and reduce dropouts as well as support those learners to re-engage into relevant education and training pathways.

The transnational initiative includes several players from three countries (United Kingdom, Belgium, Italy)⁴: VET providers, strategic partners such as work-based learning organizers and a digital technology provider to develop an innovative app-based tool to assess and validate the key competencies of lifelong learning and specific job-related competencies during work-based learning experiences for VET learners, aged 16–25, from poorer socioeconomic backgrounds and with cultural differences to enhance their inclusion in work-based learning activities.

The project is also addressed to the specialized teaching staff of VET providers, which support the educational development of VET learners, and company tutors, who support the implementation of the activities and follow the VET learners in their experience.

The main objective of the project is to strengthen the learning process of VET learners taking part in work-based learning activities (not only apprenticeships), leveraging on digital tools for the assessment and validation of their competencies.

This objective is specified in three specific sub-objectives: support VET providers in delivering work-based learning activities, through the acquisition of digital competencies by the development of innovative tools; strengthen the assessment and validation process in the work-based learning experiences, in all its forms; reinforce the resilience of the work-based learning ecosystems (VET learners-VET providers-company tutors-WBL organizers), by increasing the connections between the actors and developing shared solutions to the problems raised by the pandemic.

The project, which runs between June 2021 and December 2022, is structured in three phases and provides for the development of three Intellectual Outputs (Figure 2).

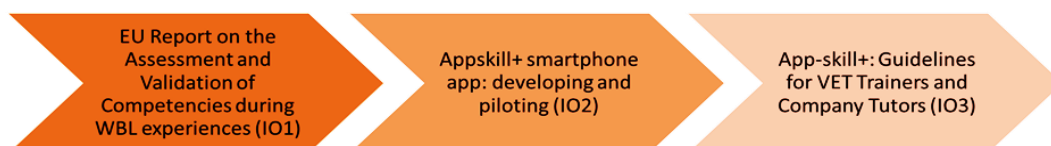


Figure 2. Project Timeline.

The first phase of the project (July-December 2021), already concluded, consisted of a desk-based research, focused on gathering and understanding the current practices from around Europe regarding assessment and validation of competencies during work-based learning activities of VET learners. The partners analyzed existing tools and wrote a national report, to be discussed with VET trainers and company tutors, in order to define

⁴ Conlan School Limited (United Kingdom), Provinciaal Onderwijs Vlaanderen Pedagogische Ondersteuning POVPO and Lemon Companies (Belgium), Catholic University of the Sacred Heart and Fondazione ENAIP Lombardia (Italy).

priorities and highlight the current issues derived from the pandemic (Intellectual Output 1). The methodology will be illustrated in the next paragraph.

Starting from this research, the second phase of the project (January-August 2022) entails the development of a smartphone app, easily accessible for Android and iOS, that, through gamified activities, encourages VET learners to monitor and assess their competencies with continuity during work-based learning activities. The assessment of competencies will be based on the key competencies of lifelong learning (2019) and the ESCO database skills⁵, allowing the partners to develop a common framework for the recognition of the competencies. The app will be piloted with VET learners from Italy, UK and Belgium taking part in WBL activities (Intellectual Output 2).

The final phase of the project (September-December 2022) will focus on the development of an interactive tool which will contain guidelines and activities for the VET trainers and company tutors, who play an important role in the learning process. The guidelines will allow users to gain the digital knowledge and skills needed for using the app, use the results for assessing the performances of VET learners and validate their competencies. The development of guidelines will allow to build knowledge, skills and attitude of these actors for using the app, as well as provide a tool to for other trainers and mentors in the academic and youth sector to expand the impact of the project and create synergies, as well as develop capacity building for company tutors to use the app (Intellectual Output 3).

The online resources developed throughout the project will be open source, strongly based on the European frameworks on digital competences of educators and will contribute to mitigate the impact of the pandemic on experiential learning activities, which provide great value for the learners but have been severely limited due to government restrictions.

The project will also contribute to the digitalization of work-based learning experiences, which has been hit by the pandemic and created new barriers for VET learners to get in companies for doing experiences or experience the workplace in all its forms. By using a digital approach, we aim at supporting the digital readiness of VET systems, work-based learning organizers, and the people involved (e.g. tutors, mentors, trainers) to further promote this methodology across and outside the VET sector.

2.2. Methodology

As the project is currently underway, in this paper we will focus on the Intellectual Output 1 (IO1). As mentioned above, the first step of the project consisted of a desk-analysis of the current practices from around Europe, regarding assessment and validation of competencies, acquired by students training on the job during work-based learning activities. Each partner was asked to select and analyze between 3 and 5 assessment/validation tools.

Conlan School (UK) developed a first draft of the analysis tool, to be used to point out strengths, weaknesses, opportunities and threats of each assessment and validation methodology. The template was discussed by the partners and agreed on the basis of the research experience of the people involved in the project.

The template, consisting of four main sections, includes:

⁵ To access the framework and the ESCO classification, available in 27 languages, we suggest reading the ESCO Handbook. <https://tinyurl.com/ya446pd8>.

1. General information: tool name, institution or organization where the tool is being used, tool type (assessment; validation; assessment and validation), age group (<16 y.o.; between 17-25 y.o.; >25 y.o.), work-based learning context (internship, job shadowing, service learning/volunteering, career-related competitions, workplace tours/field trips, career-related workshops, enterprise simulation, ...);
2. Tool description: details about how the tool is used, using phases (Eg. phase 1: initial interview, phase 2: observation, phase 3, etc.) and paying particular attention how the learner and the company tutor/VET staff are involved;
3. Competences and skills: selection of the key competences for lifelong learning (Multilingualism, Interpersonal skills and the ability to adopt new competences, Literacy, Cultural awareness and expression, Numerical, scientific, and engineering skills, Entrepreneurship, Digital and technology-based competences, Active citizenship) and the ESCO skills (attitudes and values, knowledge, language skills and knowledge skills) to which the tool refers;
4. SWOT analysis: identification of strength, weaknesses, opportunities and threats for the tool.

The results of the analysis and the synthesis that will bring to the design and implementation of the app will be discussed in the next sections.

3. Highlights on emerging practices

The analysis of the tools selected by the partners has been guided, as said in the previous paragraph, by a common methodological frame. This helped to focus our attention on selected items: practicability, effectiveness in grasping formative suggestions, possibilities and threats, the circularity of assessment, that is an aspect we consider as crucial for learning on the job. As said, each partner collected and analyzed from 3 to 5 tools⁶.

Conlan School analyzed two tools to assess students' competencies: the first (filled by the company tutor) refers to oral presentation skills, to the ability to use information technology tools to research, study and communicate, to the logical thinking and problem solving skills, using a scale from 0 to 5; the second refers to language competences and skills and it is applied at the beginning of each student's carrier [1]. Another interesting tool selected is the reflective learning diary to keep a record of the work undertaken in students' placement or part-time job, to note any existing skills developed, or new skills learnt, to identify areas to improve. The reflective learning diary is used throughout the experience, valorizing the use of prompt questions (for example, "What do you know now that you didn't know before this session? Have you done anything completely new?") and focusing on achievements and problem solving. The last tool is for validation purposes (the Work Experience Certificate) awarded to students who complete a work experience programme at Conlan School. The certificate also includes a work experience report divided into five areas: reliability, attitude, presentation, teamwork, attendance and punctuality. The report, filled in by Conlan School staff with the support of the company tutor, provides an overview of the behavior of the student during the work experience. The report contains specific references to the key competency for lifelong learning "interpersonal skills and the ability to adopt new competencies".

⁶ Part of the tools selected (11) have been collected and numbered in this link: <https://tinyurl.com/yc3uj4d9>. Due to copyright and privacy issues, some tools are not part of the collection accessible in this paper but can only be part of the analysis held by the partners.

ENAIIP analyzed an internship assessment form [2] provided by schools to assess behaviors, professional and technical aspects (attitudes and skills) in order to define a picture of the students' profile at the beginning, during and at the end of the internship. This is interesting as it considers assessment as a process and not just as a "one-shot task" and especially as a task with multiple voices: at the end of the internship, in fact, the evaluation expressed by the company is integrated into the final evaluation of the school year, through an integrated and recognized final evaluation. Then the second tool is an apprenticeship assessment form [3] with a specific timing (for example, in a six-month apprenticeship the first evaluation is done at the beginning, after 1 month; the second one, in the middle of the apprenticeship, at the 4th month and the last one, at the end of the six month). Last but not least, an assessment and validation form designed at ENAIIP, that allows to re-read of the evaluation in a more advanced and complete tool (it includes the ESCO system), sharing of a common language and bringing out self-evaluation.

Catholic University chose a mix of tools basically developed at a national level (3 out of 5): two rubrics, one for the assessment of management skills during the presentation of an artifact designed by the students - a digital augmented garden - as an authentic task [4]; one related to a job interview including indicators such as first impression, resume, attitude, answering questions and speaking ability [5]. Then a questionnaire for internship evaluation, a very classical tool with a list of items (simple but long) [6]; a grid for soft skills self-assessment [7] based on the ESCO classification of European Skills, Competences, Qualifications and Occupation⁷. And last but not least, a score sheet to assess students' "posture" during a kitchen laboratory (for example, preparation and recipe review, sanitation and safety, teamwork, kitchen clean-up) with technical and non-technical indicators. This last tool is interesting as it makes evident what being in a kitchen means, combining technical aspects typical of the professional contexts and soft skills. It can be very successful – when used by professionals to assess students' work on the job – and it can also be intended as a sort of algorithm, referring to the crucial actions in a kitchen, for professional situations from A to Z. The definition of the criteria is very clear and useful for a follow up. It can also be useful to record the kitchen service and make a comparison between good practice or mistakes and the grid.

POVPO selected a very articulated Excel form [8] to be used for assessment and validation during the internship experience anticipated by the determination of the different skills – described in the education profile – taught at school or in the company and accompanied by the screening of student's attitudes and skills in order to measure their evolution. Then the work was focused on three validation tools. The first is connected to enterprise simulation [9]: before the start of the simulation, competencies needed are discussed by the teacher with a short overview to help students in order to choose the competencies they want to focus on and the activity, being part of the design of the learning process. The second is linked to internship [10], in addition to the learning process, to combine things students have learnt at school and during work experience (different subjects are evaluated like communication, techniques, knowledge, social interaction with strangers etc.). Here the main figure involved is represented by the company tutor (or another employee) as if

⁷ As quoted in the document, "ESCO connects people with jobs by supporting both employers looking to find the right people for their vacancies and jobseekers looking to find the right jobs for their skills. It connects employment to education by providing a common language. On the one hand, this helps education and training providers to better understand labor market needs and adapt curricula accordingly. On the other hand, it helps employers to have a better understanding of the learning outcomes acquired by jobseekers" (p. 6). <https://tinyurl.com/ya446pd8>.

students were members of their team, fostering the fruitful process of self-evaluation discussed together with the formal evaluation expressed by the company. The third is a validated formal tool [11] that can be used in all organizations in Flanders, allowing to enlighten the combination of the skills reached during education at school and the ones reached during work-based learning.

On a general level, many tools have shown to be interesting but too complex and difficult to be used in a professional context (especially when tools are shared with the company tutors, who are not used to imagine and create that kind of tools typical of the school context): when tools are difficult or too long, they will also not be used by students (who need to be included in the active process of learning be aware of how they learn and what are the main elements of their competence) and they will not be selected by tutors in a collaborative environment.

Many of them need support for a simplification in reading and employing the indicators. As a consequence, the process implodes and many times it is very difficult to foster triangulation, that is the intersection and comparison between students' perspective (as peer assessment and as a self-assessment), teachers' perspective and the feedback from company tutors. For example, some tools are limited to the perspective of the company tutor regarding the work experience, overlooking other skills developed throughout the experience and detected by students themselves.

The analysis, in fact, pointed out the importance of self-evaluation: the advantage for students is to be able to reflect about their own steps and to gain a better knowledge when self-assessment is compared with others' perspectives. According to this indication, tools should be organized in steps to help students in their progress on the job (according to personal style and pace) and they should be based on both skills and attitudes that seem so important in a labor market such as the current one.

To ensure an adequate process the use of rubrics can be fostered but also the use of diaries to make students aware of every single step and to the possibility to improve (and get better and better). In terms of rubric, the best practices analyzed ([4] and [5]) refers to a four-level rubric (to avoid always getting at the intermediate level): beginning level (the student doesn't know the skills or only a bit), on the way (the skill is nearly reached), reached (the skill has been reached but can be improved more), excellent (highest mastery level). We can change the labels, but we should respect the level and the progression to let students know they can improve in a positive way (or even go back if they are not dedicated to the task or the learning experience).

The tool analyzed by Conlan School, the reflective diary, is another useful example referring to self-evaluation culture among students. As pointed out by Cattaneo and Motta (2021), "in the VET context, researchers showed the effectiveness of journal writing in the development of reflective and professional competences as well as deep learning" (p. 191). Usually, apprentices have no time to reflect on learning experiences, especially when they are in the workplace (Aarkrog, 2005), so the need for this tool is grounded.

This does not mean to leave students by themselves, but to introduce a balance between self-evaluation and formal experts' evaluation (that is from the institutional level), also because it is not easy. In some cases, as for the reflective diary, a level of guidance is needed as the tool can become a tedious activity useful for the student who may opt for "copy and paste" tasks and reflections. Prompt questions, then, are needed to guide the narration and the collection of information. In other cases, guidance is needed in order to avoid students losing their will to learn: for example, in a validation tool described by POVPO [9],

students might postpone difficult competencies and be demotivated at the end of the process as all difficulties come together. This risk can be avoided using continuous and guided practices.

On the other level, some tools seem incomplete and this means that we should invest in assessment and validation to make and diffuse the culture of assessment in the VET system. For example, the rubric chosen by Catholic University [4] was clearly well designed, with four levels and a very effective description of the behavior connected to the single level, but the rubric comprised just two indicators, leaving a space for implementation. Or, the language skill tool selected by Conlan School [1] does not actually measure the spoken skills and the technical language that the students should acquire during work-based learning experiences.

The suggestion, then, is to invest in the creation and the sharing of brief and very focused tools (rubric, grids, lists of items, questionnaires etc.) that can be easily selected, matched and integrated, according to the situation and to the specific aims. Too long, complex tools do not meet the needs of this specific context. Adaptability is, in fact, an important topic and opportunity in many of the analyses conducted, for example the reflective learning diary can be used for any type of work-based learning experience and, more importantly, can be used both for short and long-term experiences. Tools should be scientifically designed, but also easy to use (and accessible, with an online version) and quite flexible to be adapted to different skills and competencies associated with the professional profiles depending on the labor market.

The study also presents some limitations, due to the difficulty to gather more tools for the in-depth analyses: many tools were not in English, when published, and many others could not be accessed as they were simply part of a personal assessment routine (that means that a trainer or tutor design his/he own tool, but this is not shared with colleagues or within the institution). This picture is the basis of new studies and confirms the importance of fostering a common and more mature culture of assessment and validation, collaborating with other countries and other local institutions.

4. Digitalizing the assessment and validation process: the AppSkill+ proposal

Based on the priorities defined in the Intellectual Output 1 (IO1), the main goal of the process implied in the app is to assess the eight key competencies of lifelong learning and the ESCO skills. The app will be available for smartphones (2.3-2.5, iOS and Android) and it will include gamified activities. The official languages will be English, Italian and Dutch. The priorities just mentioned are intended to be interfaced with the results of the analyses we have discussed in the previous paragraph.

The first priority is to ensure an adequate validation, using rubrics in a 1-4 scale (under construction/in progress, basic level, relevant level, advanced/mastery level). The second is connected to continuous assessment and learning, as the AppSkill+ app should ensure more than one moment of evaluation, and to the shared authorship within the process (as evaluation will not only be the responsibility of the tutor). The third priority refers to students, who will reflect on their process of learning, adding the self-evaluation step, ensuring the comparison with the assessment from the tutor(s). Last, as EWBL is a process between company and the school context, the contact between both tutors (school and

company) is crucial: therefore, the AppSkill+ app will ensure interaction between stakeholders and learners.

Target groups are VET learners, in order to foster stronger competencies and to have an impact on trainers and tutors too, as synthesized in Figure 3.

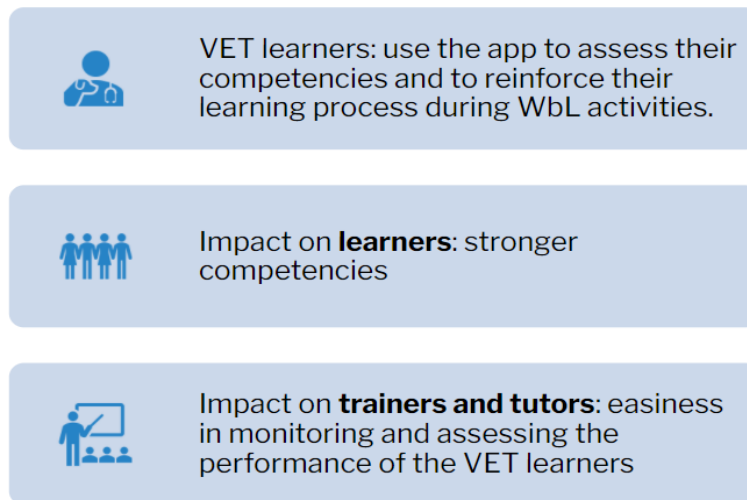


Figure 3. Target and impact.

The design of the app is now in its crucial phase.

We are reasoning on the structure, following the main principles set together, and the use of the app in the pilot study (with 20 students, 1 company tutor and a school tutor in each country) will start in April 2022. The selection of VET learners will take into consideration their background, to be aligned with the target group of the project (VET learners from poorer socioeconomic backgrounds and/or with cultural differences), their willingness to participate, and those who will take the most advantage from the work-based learning activities (e.g. no previous work experience, learners toward the end of their study path). They will be invited to apply and will be supported in line with the current work of the organizations. Each partner will explain the objectives of the project and explain the use of the app, as well as introduce them to the feedback form (allowing the learners to assess the app and suggest improvements). Finally, all the VET learners will see their competencies validated by the respective VET providers and a certificate attesting their participation in the project.

There will be three roles: the administrator, the tutor from VET schools (with a global access at the database), the company tutor (who can upload documents and materials as a sort of evidence of students learning and, of course, can access the app to share the contribution on the assessment), students with the same possibilities extended to company tutors (for example it can be useful to upload a picture of a product designed or a video of a performance). The fields of the app, in its initial section, will be listed as follows: course reference, student's name and surname, time, company information and company tutor data.

Tutors and students will be able to assess important indicators, for example working in a team. This item includes other subcategories such as “interact with others”, “give advice”, “assist colleagues”, “negotiate”, “show empathy”, “accept constructive suggestions”, “put

into practice the principles deriving from the knowledge of human behavior”. As illustrated in Figure 4, for each of these referencing, the app will show a description.

Working in a team	
Sub-categories	Descriptor
Interact with others	Interact in a wide range of situations, using strategies considered appropriate to the context and purpose
Giving advice to others	Make suggestions on the best course of action
Assisting colleagues	Drive or help less experienced or less informed workers
Negotiating compromises	Communicate with others with the intent of reaching a common understanding or resolving a point of divergence, without losing sight of an individual's intentions or goals
Demonstrate empathy	Act in a way that is understandable and conducive to the needs and feelings of others
Accept constructive suggestions	React to valid and well-reasoned opinions about your activities in a positive way
Put into practice the principles deriving from the knowledge of human behavior	Put into practice principles related to group behavior, trends in society and the influence of social dynamics.

Figure 4. Example of the level of the app, considering the item “Working in a team”.

5. Conclusion

The app has been chosen for its innovative allure and practical prerogatives, as it allows to assess the key competencies for lifelong learning during work-based learning activities, as well as the ESCO competencies, and export them for the validation across institutions as well as countries (at national and international level) and at the same time it reinforces the assessment process in WBL activities, by providing gamified tools for the learners to evaluate their experience in a holistic, yet simple and user-friendly, way.

According to the main results of the analysis of the tools, as described previously, the AppSkill+ app, then, should ensure more than a single moment for the assessment: this attention allows the company tutor and all the actors involved (students, teachers) to consider practices as a process and in particular as shared activities (it is not just tutors' responsibility).

We are confident that the AppSkill+ app will support a deeper and more fruitful interaction between stakeholders, schools and learners, considering these last issues discussed in the paper: the importance of tools with levels such as rubrics, the triangulation of assessment as a framework, the easiness of the tools to be selected “naturally” by every single actor in the process, the continuous assessment as a crucial element.

The main aim of the app development, as defined in the presentation of the framework, is to create an agile, easily transferable and interactive instrument to assess and validate the competencies acquired on the job. This will provide a new alternative to commonly used

tools (e.g. questionnaires) which, according to our studies with VET learners and teachers, are becoming ineffective and lacking efficiency and performing poorly.

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