

Assessment for Learning in Vocational Education and Training (VET)



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EXECUTIVE SUMMARY

This concept paper has been written in the context of the COVID-19 pandemic. Across countries, VET programmes have had to adapt rapidly to remote and blended learning approaches. This has proved challenging as teachers and trainers have had little time to adjust teaching and assessment methods for this new context. Remote learning during COVID has thus highlighted the need to strengthen assessment in VET learning, and to sustain changes in both face-to-face and blended learning environments beyond the crisis.

The main focus of the paper is on formative assessment -- sometimes referred to as assessment *for* learning – as a way to support learning processes and improve outcomes for vocational education and training (VET) learners. The paper also explores the extent to which formative and summative assessments -- or assessment *of* learning -- may be more effectively aligned so that they are part of a coherent and transparent framework.

Assessment approaches have of course been shaped by broader trends in education policy. Internationally, the learning outcomes approach had had profound implications for learner assessment. Learning outcomes are defined as “*statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence*”. Thus, the focus of assessment is on the learner’s capacity to apply knowledge and skills – and not only on their theoretical knowledge.

The learning outcomes approach is also part of an effort to modernise education and training systems, in part by promoting learner-centred approaches. In learning settings featuring formative assessment, teachers/trainers focus on competences to be developed and how they will gather evidence of student learning, and what may be needed to support students to address gaps in their learning. Learners also take a more active role in developing their skills for learning to learn, and understanding what they will need to do to move their own learning forward in order to meet expectations. Over time, they develop their competences for self-regulation and learning to learn -- competences that are also vital in the workplace and daily life.

Assessments, whether formative or summative, need to capture learning effectively. “Authentic” assessments, which may include demonstrations of work-based tasks; multi-media portfolios; and so on invite learners to perform ‘real-world tasks’, whether routine tasks or tasks that draw on complex problem-solving skills. Assessors may use rubrics setting out performance criteria and gradations of quality levels, to assess learner competences. For assessments with high stakes (e.g. certification), moderation processes are developed to ensure consistency of scoring.

The paper also provides a more detailed look at the elements of formative assessment in classrooms. International research highlights the importance of: learning environments that support interaction and inquiry; varied assessments and teaching approaches to meet the needs of diverse learners; and learners’ active engagement in assessing their own and their peers’ learning.

The final section of the paper features seven brief case studies of assessment in a variety of settings. Each of these cases highlights dimensions of effective assessment (e.g. inquiry-based learning; problem-solving using VET 4.0 technologies; creating learning environments to support deep learning; the development of shared e-portfolios to support group learning; tools to structure observation and feedback on student performance; peer assessment in a MOOC environment; and a whole-school approach to integrating formative assessment).

1. INTRODUCTION AND CONTEXT

This concept paper explores formative assessment -- sometimes referred to as assessment *for* learning – as a way to support learning processes and improve outcomes for vocational education and training (VET) learners. The paper also explores the extent to which formative and summative assessments -- or assessment *of* learning -- may be more effectively aligned so that they are part of a coherent and transparent framework.

This paper is being written in the context of the COVID-19 pandemic – and will continue to be relevant in its aftermath. Across countries, VET programmes have had to adapt rapidly to remote and blended learning approaches (or in some cases, have shut down altogether). This has proved challenging as teachers and trainers have had little time to adjust teaching and assessment methods for this new context (ILO/UNESCO/WBG, 2020). Learners may have had difficulty in gauging their own progress in these circumstances (OECD, forthcoming).

Remote learning during COVID has thus highlighted the need to strengthen assessment in VET learning in general -- whether in a face-to-face or blended learning environments. Indeed, a more deliberate and systematic approach to assessment of and for learning may support all learners to achieve. As will be shown throughout this paper, as learners engage with formative assessment approaches, they will develop their capacity to reflect on and improve their work (Hattie, 2009). These are important competences for lifelong learning and for working life.

The following section (section 2) sets out the aims of this concept paper and describes research methods. Section 3 describes how “the learning outcomes approach” which underpins national and regional qualifications frameworks, may also shape VET learning and assessment. Section 4 sets out a model for formative assessment, referring to evidence on how each of the elements supports learning. Section 5 shares examples of face-to-face and digital assessments to illustrate how they are used in practice. The paper concludes with a discussion of implications practice and policy (section 6).

2. METHODS AND SCOPE OF THE PAPER

This paper is based primarily on desk research, drawing on research literature on assessment in VET, as well as the school and higher education sectors. We consulted three online databases – EBSCO, Google Scholar and Spring Open to identify relevant articles.

Articles exploring assessment in classroom and workplace settings as well as articles exploring specific digital learning and assessment approaches were included.

Key words used in the search process include:

- Assessment (formative and summative) or evaluation
- Feedback

- Digital learning (virtual reality or augmented reality; simulations, e-portfolios; mobile learning or m-learning; games or serious games; remote or distance learning; blended learning; MOOCs or massive open online courses)
- Peer assessment
- Self-assessment

These broad parameters allowed us identify research on theoretical as well as practical aspects in VET, school and university sectors.

Based on the results of the search, a significant portion of the literature on formative and summative assessment has focused on the school-level – both in terms of conceptualisation and empirical research. In higher education, selected articles focused on peer assessment in Massive Open Online Courses, learning management systems, observation tools, for example, to assess clinical skills.

Importantly, the core principles of effective assessment (both formative and summative) highlighted in literature are consistent across education sectors. However, the VET studies identified also highlight assessment competences as integral to learner’s own problem-finding and problem-solving competences. In other words, assessment is not merely a tool to gauge learner progress against externally defined criteria and standards and to award grades. It is also integral to effective work processes (e.g. identifying specific challenges in the workplace, using appropriate problem-solving approaches, and self-assessing the problem-solving process and success in addressing the problem).

It should be noted that the literature search was limited to English-language publications and websites. However, the international nature of journals has allowed us to have a relatively broad coverage of approaches in different country contexts (again – primarily focused on school level). Additional input from ETF stakeholders may, in future, allow this research to be further extended.

3. THE POLICY CONTEXT AND CORE CONCEPTS SHAPING ASSESSMENTS OF AND FOR LEARNING

The learning outcomes approach

In Europe, the ‘learning outcomes approach’ is now at the foundation for most education and training systems (Cedefop, 2016). A 2019 survey of 1,500 vocational education and training (VET) providers found that stakeholders and experts in 30 European countries consider the shift to learning outcomes as one of the most significant trends influencing European VET over the past two decades (Bjørnåvold, 2019). Learning outcomes are also increasingly used by countries as they review and update qualifications¹.

¹ www.cedefop.europa.eu/en/events-and-projects/projects/changing-nature-and-role-vocational-education-and-training-vet-europe

Learning outcomes are defined as “*statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence*”. They provide a conceptual basis and common language to describe and compare individual skills and qualifications across sectors and international borders (Cedefop, 2014a, pp. 165 – 165). They are also intended to spur modernisation and reform in education and training systems – strengthening accountability and relevance for users by shifting the focus to the quality of outcomes.

The definition of learning outcomes also includes the concept of “competence”. Cedefop, in its regularly updated Terminology of Education and Training policy manual, defines competence as: *the ‘ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development)’* (Cedefop, 2014a, p. 47). The focus of assessment is thus on the learner’s capacity to apply knowledge and skills – and not only theoretical knowledge. As learners develop higher-level competences, these may also involve the capacity to address unique challenges and situations in a range of different contexts

The European Council Recommendation on key competences for lifelong learning reinforces this emphasis on the ability to address unique challenges, highlighting that:

‘In the knowledge economy, memorisation of facts and procedures is key, but not enough for progress and success. Skills, such as problem solving, critical thinking, ability to cooperate, creativity, computational thinking, self-regulation are more essential than ever before in our quickly changing society. They are the tools to make what has been learned work in real time, in order to generate new ideas, new theories, new products, and new knowledge.’

European Council (2018, p. 2)

The concept of competence also brings a more holistic dimension to the understanding of learning outcomes. Hoskins and Deakin Crick (2010), for example, extend and deepen the understanding competence as including:

‘...a complex combination of knowledge, skills, understanding, values, attitudes and desire which lead to effective, embodied human action in the world in a particular domain. One’s achievement at work, in personal relationships or in civil society are not based simply on the accumulation of knowledge stored as data, but as a combination of this knowledge with skills, values, attitudes, desires and motivation and its application in a particular human setting at a particular point in a trajectory in time. Competence implies a sense of agency, action and value’.

Hoskins and Deakin Crick (2010, p. 122)

In brief, the systematic use of learning outcomes and competences in regional and national qualifications frameworks is intended to:

- support international mobility by providing a common way to describe and compare skills and qualifications across countries (Hart and Chakroun, 2019; Cedefop, 2016)
- strengthen the focus on helping all learners, to achieve, and not just those at the top of their cohort (OECD, 2005)
- allow national authorities to steer education and training systems, and support responsiveness to labour market needs (Bjørnåvold, 2019).
- strengthen accountability for learner achievement (Bjørnåvold, 2019, Cedefop 2016)
- clarify learning objectives and improve the coherence of educational provision (Bjørnåvold, 2019, Cedefop 2016).
- spur modernisation and reform of teaching, learning and assessment (Bjørnåvold, 2019).

This last point is particularly relevant to this paper. Learning outcomes, are intended to support shifts from “traditional” approaches featuring teacher-centred transmission of knowledge to more learner-centred pedagogies. Learner-centred approaches include active, problem-based learning, flexible pathways and personalisation, and so on. Formative assessment, which may support tailoring of learning to meet individual learning needs, is integral to these pedagogies.

The learning outcomes approach has also facilitated the introduction of ‘learning modules’ and more recently, micro-credentials, which are intended to support flexibility in the award of credentials. Learning modules, for example, set out expected learning outcomes for that module and this allows learners to articulate course work across a range of course options (Graham et al., 2019, p. 83). Countries report that modular curricula are now routine in many VET schools (ETF et al., 2019).

The introduction of “micro-credentials” is also intended to support certification of “smaller chunks of learning” (p. 27) (Keavy and Chakroun, 2019) to develop specific skills. Credentials such as “open badges” “digital badges”, developed to certify online learning also allow “stacking” (i.e. sequential, asynchronous accumulation).

The focus on flexibility allows individuals to design their own learning pathways as they update their knowledge and skills to remain “employable” (Sanseau and Antstart, 2013).

Broad trends in learner assessment

The learning outcomes approach has profound implications for learner assessment. These include:

- A shift to criterion-referenced assessment
- Formative assessment in support of active learner-centred pedagogies
- An emphasis on balance and coherence across assessments
- An emphasis on more “authentic” summative assessments

Each of these areas is discussed in more detail below.

A shift to criterion-referenced assessment

Learner assessments within the learning outcomes approach are criterion-referenced. In other words, intended learning outcomes establish the knowledge, skills and attitudes (i.e. the competences) that learners are expected to achieve, whether in the classroom or in a workplace setting. Criteria for assessment are clearly defined and learners are aware of expectations (Blamire, Engelhardt and Looney, 2017).

This emphasis on criterion-referenced assessment is an important shift from the traditional “norm-referenced” approach, in which the reference point for assessment is the “norm” of performance within a particular cohort of learners. The focus is on improving transparency of expectations, and helping all learners to meet minimum standards – a learner centred approach (Cedefop, 2016).

The same intended learning outcomes and criteria may be used for both formative and summative purposes. In the case of formative assessment (assessment *for* learning), intended learning outcomes and criteria are used to identify any learning gaps, and to adjust next steps for learning to help close the gap. In the case of summative assessment (assessment *of* learning), assessments are used to measure achieved learning outcomes and to make a summary judgement, such as promotion to the next class or certification.

Whether formative or summative, assessments need to be valid, reliable and fair. Definitions for these core concepts are set out in Box 1.

Box 1: Validity, reliability, and fairness in learner assessment

The effectiveness of learner assessment, whether formative or summative, depends upon the validity, reliability and fairness of the information gathered.

The International Bureau of Education defines these key terms as follows:

Validity in assessment refers to what is assessed and how well this corresponds with the behaviour or construct to be assessed....Current theories of validity address concerns about fairness and bias...Validity is not simply the way in which [an assessment] functions, but depends on what it is used for and the interpretation and social consequences of the results. Thus, **an essential part of validity is the concern with whether the inferences made from the results of an assessment are fair to all those who were assessed.** (Source: Wyatt-Smith & Joy Cumming 2009, (<http://dmz-ibe2-vm.unesco.org/fr/node/12102>))

Fairness in assessment refers to the consideration of learner's needs and characteristics, and any reasonable adjustments that need to be applied to take account of them. It is important to ensure that the learner is informed about, understands and is able to participate in the assessment process, and agrees that the process is appropriate. It also includes an opportunity for the person being assessed to challenge the result of the assessment and to be reassessed if necessary. Ideally an assessment should not discriminate between learners except on grounds of the ability being assessed (<http://www.ibe.unesco.org/en/glossary-curriculum-terminology/f/fairness-assessment>).

Assessments are **reliable** if the results may be replicated (over time and across different sites). This puts us in a better position to make generalised statements about a student's level of achievement, which is especially important when we are using the results of an assessment to make decisions about teaching and learning... Factors which can affect reliability [include]:

- The length of the assessment – a longer assessment generally produces more reliable results.
- The suitability of the questions or tasks for the students being assessed.
- The phrasing and terminology of the questions.
- The consistency in test administration – for example, the length of time given for the assessment, instructions given to students before the test.
- The design of the marking schedule and moderation of marking procedures.
- The readiness of students for the assessment – for example, a hot afternoon or straight after physical activity might not be the best time for students to be assessed.

<https://assessment.tki.org.nz/Using-evidence-for-learning/Working-with-data/Concepts/Reliability-and-validity>

Formative assessment in support of active learner-centred pedagogies

Formative assessment is not one specific practice, but rather a dynamic process in which teaching and learning are adapted according to identified needs. Black and William's definition, which is perhaps the most widely cited in this field, emphasizes formative assessment as a process (Black and William, 2001):

Those activities undertaken by the teacher, and by their students in assessing themselves (that is, students' assessment of their own work as well as their peers), which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. Such assessment becomes 'formative assessment' when the evidence is actually used to adapt the teaching work to meet the needs.

Formative assessment thus implies a shift in both teachers'/trainers' and learners' roles. Teachers/trainers may need to organise classroom time differently. Rather than planning what content they will cover, they focus on competences to be developed, how they will gather evidence of student learning, and identify resources to support further learning. In this way, they may also address challenges inherent in providing individual feedback and responding to varied learner needs.

Clark extends this definition, highlighting shifts in the learner's role, and suggesting that assessment is formative not only when teachers adjust strategies, but also when learners:

- *are engaged in a process that focuses on meta-cognitive strategies that can be generalised ...*
- *are supported in their efforts to think about their own thinking*
- *understand the relationship between their previous performance, their current understanding and clearly defined success criteria*
- *are positioned as the agent improving and initiating their own learning.*

(Clark, 2010, p. 344)

Learners thus play a much more active role in the learning process. Over time, they develop their competences for self-regulation and learning to learn -- competences that are also vital in the workplace and daily life.

A number of studies have pointed to significant learning gains associated with formative assessment, including for learners considered as lower achieving (Black and William, 1998; Hattie, 2009, 2018). However, as Bennett (2011) emphasises in his critical review of the literature, the effectiveness of formative assessment practices will ultimately depend on its implementation, and impact may vary from one implementation to the next.

While impact may vary from one implementation to the next, what is clear is that formative assessment is most effective when it is carefully planned and when learners are fully engaged in the process. For example, in classroom settings, lesson plans integrating formative assessment may describe the overall aims for the unit, potential discussion topics and questions that will elicit evidence of learner understanding (avoiding close-ended questions that do not reveal thinking processes), and specific tasks in which learners may apply concepts they are learning (working individually or in teams). Teachers/trainers may prepare by developing a broad repertoire of materials and methods to address the range of questions that may arise and to address diverse learner needs. (See the elements of effective formative assessment in the section below and case study 1 on putting formative assessment into practice, which follows).

An emphasis on balance and coherence across assessments

In systems with high-stakes summative assessments (e.g. certification decisions based on a single final examination), teaching and learning are more likely to be focused on preparing learners for the examination, rather than coverage of the overall curriculum. Because no single examination can measure proficiencies in any given domain exhaustively, teachers/trainers may narrow learning significantly if they focus primarily on content most likely to be included in the examination. To the extent that preparation for high-stakes assessment is more focused on superficial knowledge, learners may miss opportunities for deeper reflections on complex concepts, or to develop transversal competences for teamwork, creativity, and so on (Looney, 2011).

Black and Wiliam (2018) suggest that tensions between summative and formative assessments may be addressed by:

- ensuring that summative assessments are designed so that they are supportive of learning, and are based on a broad range of inferences about learning;
- balancing external assessments with teachers/'trainers' professional judgments (see the section on authentic assessments below).

Ideally, Black and Wiliam argue, the relationship between formative and summative assessment “could be – and should be – one of helpful overlap – and perhaps even mutual support” (Black and Wiliam, 2018, p 554). They note that same assessment instrument, and indeed, the same assessment outcomes, can, be used both summatively and formatively – but also caution that although such uses may not be equally valid across the two forms of assessment.

Some caveats should also be noted. The first is that there is a need for a clear separation as to when an assessment is being used for formative or for summative purposes. Formative assessment is most effective when learners feel safe to reveal what they do and do not understand; to the degree that they believe that their work will count toward a summative assessment, they may be unwilling to reveal gaps in learning (OECD, 2005; Hattie and Clarke, 2019). A second caveat, as highlighted by Newton (2012) is that that while the same assessment tools may be used for both formative and summative inferences, the uses may not be equally valid. Rather, the validity of the press and how evidence is used in assessment learner performance need to be considered

An emphasis on “authentic” summative assessments

The focus on competences also highlights the need for innovations in summative assessment. Paper-based standardised assessments, which require all learners to answer the same questions in the same way (e.g. multiple-choice, yes/no questions) cannot easily capture learners' problem-solving processes.

Authentic assessments, on the other hand, invite learners to perform 'real world tasks' to demonstrate competence. They may include: demonstrations of tasks performed in the work setting; simulations; multi-media portfolios which may include written products, videos, and so on; essays; interviews in which learners talk through their approaches; demonstrations of

team-based problem-solving; and so on. Learners thus apply their knowledge to meaningful tasks – whether routine tasks or tasks requiring the learner to demonstrate complex problem-solving skills.

Authentic assessments have a number of advantages over paper-based standardised assessments. They provide more ways for learners to demonstrate understanding than they might have on a standardised test, thus avoiding measurement errors resulting from ‘guesses’ about answers or misinterpretation of the questions (Williams, 2017). Authentic assessments also provide direct evidence of a learner’s knowledge. Learners demonstrate their ability to reason, analyse, synthesise and apply knowledge (Abdao, 2015). Authentic assessments are considered as more “valid” in that they are focused on competences learners will require in the workplace.

To ensure reliability of scoring, assessors (including teachers/trainers; peers and the learner him/herself) may use rubrics setting out performance criteria and gradations of quality levels, to assess learner competences. Moderation processes may also be established. Within a VET school or workplace, teachers/trainers may develop a common understanding of levels of quality by review examples of learner work, discussing whether and how the work meets and expected standard, and agreeing on the attainment level. More formal trainings for assessors may be established for scoring of authentic assessments with high stakes, and external organisations may also systematically check school-based marking (OECD 2013, cited in IBE <http://dmz-ibe2-vm.unesco.org/fr/node/12266>).

Because no single assessment can fully capture the extent to which learners have achieved learning outcomes set out in the course curriculum, one approach is to use multiple assessment measures, implemented over time, to capture the different dimensions of competence-based learning. These may include a combination of standardised and authentic assessments to further strengthen validity and, reliability (Looney, 2011)

4. THE ELEMENTS OF FORMATIVE ASSESSMENT

Formative assessment is not one specific practice, but rather an approach to teaching and learning. Clark (2010) argues that formative assessment may be best seen as a conceptual approach – a dynamic process which teachers adapt according to conditions and needs.

The model of formative assessment set out in Figure 1, which is grounded in international literature and examples of practice, highlights the dynamic and multi-dimensional nature of formative assessment². The model aligns well with the learning outcomes approach. It highlights a learner-centred approach with varied assessments and teaching approaches,

² The model has been adapted to highlight aspects important to VET learning, including: learning environments (to capture learning in the workplace as well as online or in the classroom) (Element 1), the importance of learner engagement in identifying problems and initiating learning (to capture the importance of learners’ self-directed learning/work) (Element 3), and the importance of varied opportunities to bring together both theoretical and practical competences (Element 4).

and a clear focus on learning objectives and criteria, and feedback – all of which are intended to help move learning forward. The focus on learning environments and cultures highlights a holistic approach to assessment, with learners actively engaged in improving and initiating their own learning.

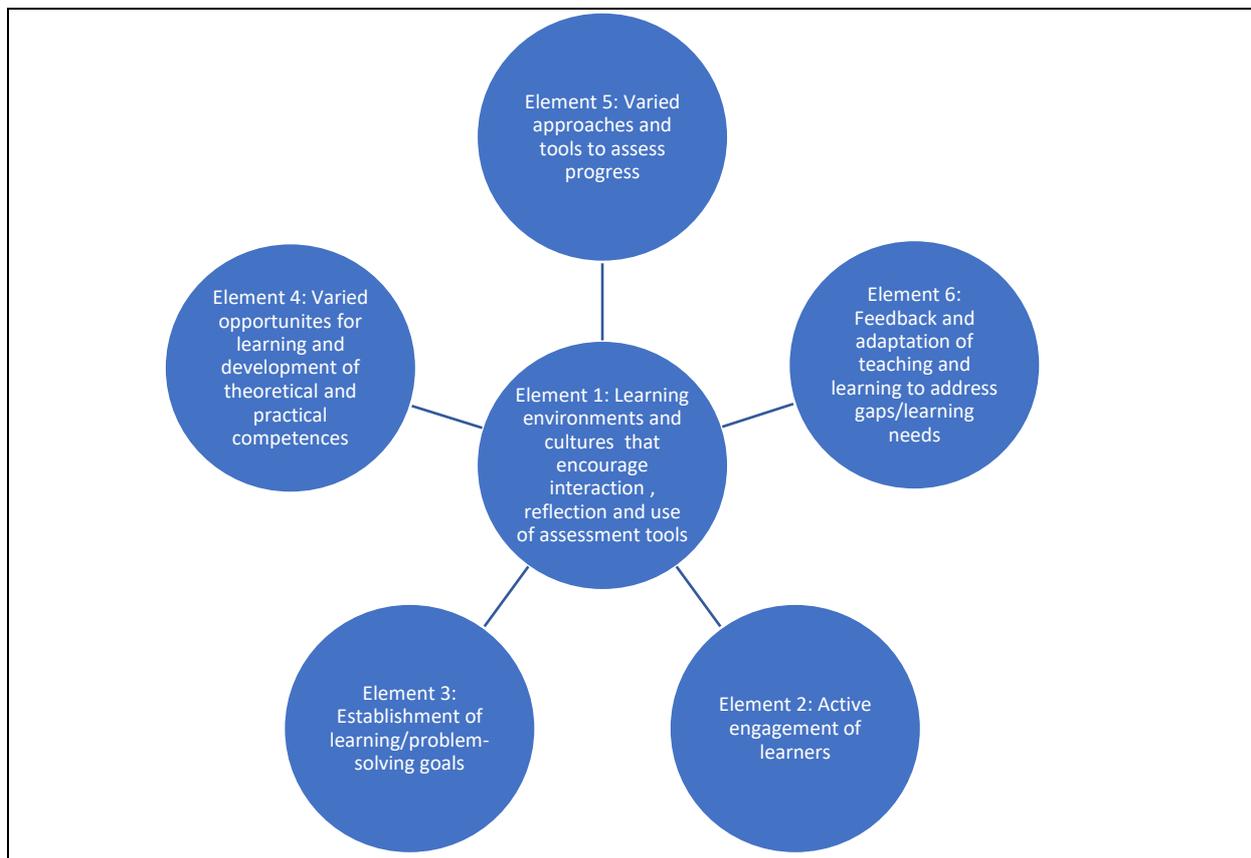


Figure 1: The six key elements of Formative Assessment in VET

Source: Adapted from OECD (2005)

This model assumes that each of the six elements are part of an overall framework, and work synergistically.

- **Element 1: Learning environments and cultures that encourage interaction, reflection and the use of assessment tools.** The first element has been placed at the centre of the figure to emphasise what Ecclestone (2008) refers to as the “spirit” of formative assessment, where the main aim is to encourage learners to be more independent and critical learners (in contrast to the “letter” of formative assessment, which tends to depend upon more teacher-centred approaches with a focus on transmission of knowledge and skills).

Learning cultures that support trust and reduce anxiety are vital. Hinton and Fischer (2010), for example, highlight the importance of positive relationships with their students and the crucial role of motivation and emotions in learning (see also Immordino-Yang and Damasio, 2007). Marzano, in his research on classroom climate and management found that teachers' clarity of purpose and effective guidance, along with concern for the needs/opinions of others had a significant positive impact on learning (Marzano, 2000). Openness to discussion – and even celebration – of errors and mistakes is also vital (Hattie and Clarke, 2019).

In the section below on “Formative assessment in practice”, case study 3 (“A classroom culture supporting deep learning and assessment”) highlights how a VET teacher in England nurtured a classroom culture that welcomed open discussion among students. Student errors were welcomed as opportunities for learning, and learners were encouraged to work together to construct their knowledge. The focus was on developing higher-order skills for problem solving. This type of cooperation requires high levels of trust and engagement in the learning process.

Case study 7 explores how teachers in the *Zespół Szkół* secondary initial VET and general education secondary school in Lubliniec, Poland has developed a whole-school approach to formative assessment. Teachers working in the same subject area collaborate on lesson plans, carefully planning the classroom discussions and tasks that will elicit evidence of student understanding, and the types of activities that will help them to close gaps in student performance and intended learning outcomes. Teachers across the school visit each other's classes to support ongoing peer learning, and to support further school development.

- **Element 2: Active engagement of learners** – This second element reinforces the importance of learner engagement in assessment activities. As highlighted above, Clark (2010) has argued that feedback is only formative when learners are fully engaged as agents in the assessment process. (See also Black and Wiliam, 1998; Hattie and Clarke, 2019).

This is a learner-centred approach to learning and assessment which has deep roots in the constructivist school of thought. Deep knowledge of a subject domain is constructed by the learner, who builds on the foundation of prior knowledge and understanding. Learning is seen as active, social, contextual, and personal (Piaget, 1972; Kolb, 1984). Learners are actively engaged in the assessment process – in developing meta-cognitive strategies, thinking about their own thinking and developing an understanding of what they need to do to move their learning forward.

Case study 1 (‘Classroom-based assessment of inquiry learning in science), in the next section, highlights a classroom to support student centred, inquiry-based learning. The lesson plan featured begins with questioning and dialogue in order to engage students in exploring key concepts and to connect this to prior knowledge and experience; student team work; and the use of rubrics related to various learning objectives to support student self- and peer assessment.

- **Element 3: Establishment of learning/problem-solving goals** – In planning instruction, VET teachers/trainers need to decide on those complex skills, knowledge or other attributes that are to be learned and assessed, and the tasks or situations that will provide evidence of student learning (Mislevy and Haertel, 2006) and which will also challenge mindsets and support metacognition (Hattie and Clarke, 2019). Within competence-based models, learning tasks are most effective when grounded in authentic contexts and are structured in a progressive fashion, thus enabling learners to draw on prior knowledge and experience (OECD, 2005).

As learners develop greater levels of expertise in a domain, they also may be encouraged to identify and address problems (and not to rely only on teacher/trainer designed tasks). A number of commentators (e.g. Hargreaves, 2005; Crossouard and Pryor, 2012) argue that it is important to also allow opportunities for learners – both individually and collectively -- to identify and address ill-structured and complex problems (Looney, 2019).

A number of researchers have found that teachers who show they care about students' learning and set challenging goals for learning are particularly effective (Bishop and Glynn, 1999; Cornelius-White, 2007; Hattie, 2009; Marshall and Wiliam, 2006). On the other hand, teachers who communicate low expectations for their students, have a negative impact on student achievement (National Academy of Sciences et al., 2018; Rubie-Davis et al., 2006; Rubie-Davis, 2007).

Case study 2 ('Developing competences for VET 4.0), below, highlights how upper secondary VET students worked with a local company to design a cyber-physical system (e.g. a plant irrigation system that could be controlled remotely through a web- or mobile-based application designed by the learners). Learners were focused on developing and piloting a practical tool that could address a specific challenge.

- **Element 4: Varied opportunities for learning and development of both theoretical and practical competences** – Just as varied tools capture different dimensions of learning, varied learning opportunities may also broaden and deepen learner competences and skills. Stenström and Laine (2006) argue, the impact of assessment on learning grows in “direct proportion to the variability and unpredictability of the workplace” (p. 15). The challenge for teachers/trainers is to design assessments that capture context-specific competences that are relevant to varied work tasks (Björnavåld 2001, p. 25).

Blended learning, with its mix of classroom/workplace and digital environments is extends opportunities for developing different dimensions of learner competence. Face-to-face learning in classrooms and workplaces is vital to building a strong assessment culture, and for the development of teacher/trainer and peer relationships that are built on trust. Face-to-face settings favour extended dialogues and discussions and opportunities for reflective and critical learning. Workplace settings, in particular, provide opportunities authentic, context-based learning.

Digital tools also offer a number of valuable features for learning and assessment, including:

- rapid (real-time) automated feedback and scaffolding of next steps for learning at an appropriate level of difficulty.
- immersive learning environments to support situated learning
- set up of complex ill-defined problems that challenge learners and support collective engagement in problem solving in small groups or in massive multiplayer online platforms; assessment is based on effectiveness of the group is addressing the problem.
- mobile tools to support assessment of 'anytime, anywhere' learning
- collection (or 'mining') of educational data to better understand learning processes and contexts, and in turn, use these data to generate learning analytics to predict learner progress and adapt next steps
- opportunities for peer-assessment (e.g. through asynchronous discussion boards, feedback on portfolio elements, crowd sourcing of peer assessments, and so on).
- guided self-assessment
- access to resources and online exemplars
- opportunities for learners to design their own learning goals and strategies

Decisions on how to integrate digital technologies with face-to-face learning need to be based on the different affordances and limits of technologies (e.g., mobile learning programmes that may support field work, digital storytelling to encourage the use of narrative and logical thinking, the use of games to reinforce skills for argumentation in a story, and so on – which may also be used in different combinations). Pedagogical decisions on when and how to use digital learning activities within a specific lesson are also important (e.g. before a lesson in order to assess prior learning and engage students in the new content, or during a lesson to reinforce learning). (For a more in-depth discussion on digital formative assessment, see Looney, 2019).

Case study 5 ('Online shared portfolios'), below, highlights the use of online shared portfolios in an initial teacher education programme. The portfolio provides an opportunity for learners to reinforce course content from their in-person classes and practice teaching, and to co-create resources for their own students. The portfolio format also supports multi-media formats.

Element 5: Varied approaches and tools to assess progress –This element emphasises the importance of using a range of assessment tools and approaches to capture different dimensions of learning and to track learner progress over time.

Scoring rubrics, which set out learning aims and criteria to assess learner performance levels, underpin a range of authentic assessments in VET learning, and may be used for either formative or summative purposes. Rubrics typically include: categories for which performance is to be rated; definitions and examples illustrating the element being rated; and a rating scale for each component (Perlman, 2002).

Well-designed rubrics can support assessors to gather appropriate evidence of learning (i.e. to make valid inferences), and support consistency of judgements (across assessors). Rubrics may be used by external scorers (e.g. in the case of higher-stakes assessments for certification), teachers/trainers, peers or the learner themselves (for either formative or summative purposes).

Black and Wiliam (2018) suggest that formative assessment tasks that are designed to elicit evidence of learner understanding should also be designed help student develop the disciplinary habits of mind students that are necessary for expertise in a given domain (e.g. inquiry-based science learning, mathematical thinking, design thinking).

Ultimately, learners develop their own sense of what counts as high-quality work. Bandura (1971) found that as individuals develop their competences in a given domain, they are more likely to judge their work based on internalised quality standards – and that these are more powerful than extrinsic standards designed or enforced by others. Internalised standards for quality are vital as learners transfer their learning to address new challenges in new contexts.

Case studies presented throughout the section on formative assessment in practice, below, highlight a range of approaches to formative assessment, including classroom dialogue, tasks designed to elicit evidence of student understanding, the use of rubrics and checklists to support assessment, and digital assessment. Case study 6 ('Teachup: Peer assessment in a Massive Open Online Course') features an innovative project to develop valid and reliable peer assessment in a MOOC for initial and continuing teacher education (based on a policy experimentation). Peer assessors used a rubric setting out clear standards and criteria with descriptors and exemplars of work at different performance levels to support inter-rater reliability for peer scores.

ELEMENT 6: Feedback and adaptation of teaching and learning to address gaps/learning needs – Feedback, which is defined as "...information about the [learning task] that fills a gap between what is understood and what is aimed to be understood." (Hattie and Timperley, 2007 cited in Hattie and Clarke, 2019, p. 3) – can have a powerful impact on learning.

However, not all feedback is effective. Indeed, Hattie and Clarke (2019) observe that most feedback is provided in the form of grades, or identifies missing elements, but does not include advice on how to improve.

Studies have shown that feedback is most effective when it:

- ***is tied to criteria regarding expectations***, rather than in comparison with other learners (Crooks, 2001 – cited in Hattie and Clarke).
- ***is focused on the task at hand***, rather than the learner's ego, even in the form of praise (Boulet et al., 1990).

- **is timely.** Feedback is most effective when it is provided within minutes (or even seconds) – or at the most, within a period of days (William, 2006). At the same time, feedback should not be provided too rapidly– i.e. before the learner has had a chance to try to work out a problem (Looney, 2011)
- **provides as much or as little information as is needed for the learner to progress to next steps.** A first priority is for learners to progress as far as possible on their own. Feedback may consist of hints and ideas on how to proceed (OECD, 2005).
- **includes suggestions for how to improve future performance and meet learning goals.** Feedback needs to be both specific and challenging, and tasks are broken down to an appropriate level (Kluger and DeNisi, 1996).

Learning cultures that support trust also ensure that learners are more receptive to feedback and ready to act on it. Hattie and Clarke (2019) further emphasise that learners may need to be taught to “...receive, interpret and use the feedback provided”, adding that “...feedback given but not heard is of little use”.

Teachers/trainers need also to be open to feedback from learners – about what they already know or do not know, their perceptions of the learning process, about the impact of the teaching/training, and so on.

An effective feedback culture includes opportunities for peer feedback, whether in an online and in face-to-face settings. Peers may act as coaches, helping each other to reflect on their performance against success criteria, posing questions, suggesting strategies, and providing specific suggestions to support each other (Slavin, Hurley and Chamberlain, 2003). Older learners typically have “spikey” profiles (i.e., strengths in some areas, and gaps in others) (OECD, 2008). Peers with varied experiences may bring different strengths and share different types of insights, depending on their own backgrounds and experiences.

A number of researchers have focused on the impact of online peer assessment – which may be particularly important in the context of massive open online courses, where it may not be possible for instructors to provide feedback. Tsai (2012) notes that peer assessment and feedback may improve cognition and metacognition, social and thinking skills (see also Topping, 1998; Tsai, Lin and Yuan, 2002). Yu and Wu (2013) found that peers providing assessment also benefit as they use critical thinking skills to evaluate the quality of peers’ work and also develop their social and argumentation skills. Vickerman (2009) suggests that learners engaging in peer³assessment and feedback may gain insight on the quality of their own work. Hattie and Clarke note that that learner to teacher/trainer feedback is more important than feedback from teacher/trainer to learners (Hattie and Clarke, 2019).

Case study 4 (‘A tool to structure observations and feedback for patient interaction) highlights the use of a tool to structure observations and feedback for medical

students learning to interact with patients. The tool helps to ensure that faculty provide timely and reliable feedback to postgraduate trainees in a way that could support their learning

In the next section, we set out examples of formative assessment in both online and face-to-face environments. These examples are drawn from schools, VET and university-level programmes. While the examples are focused on the use of specific tools to support formative assessment, their effectiveness in any setting will depend on the extent to which they are effectively integrated in a learning culture that encourages learner interaction and reflection, and help to elicit evidence of progress in achievement of learning outcomes.

5. FORMATIVE ASSESSMENT IN PRACTICE

In this section, we highlight how teachers/trainers use different assessment approaches and tools to support assessment of and for learning. The examples, which are from different education sectors and settings, emphasise assessment in a face-to-face context (questioning techniques; observations tools), and online (collective e-portfolios, peer assessment in MOOC platforms, and mobile learning).

For each of the cases, we, provide a short description of the approach, the motivation for introducing it, and observations on the implementation process. In some cases, evidence of impact is included. In other cases, evidence of impact is not available, but because the practices are highly relevant and the approaches are grounded in research, we have chosen to include them.

Case study 1: Classroom-based assessment of inquiry learning in Science

Region: Europe (Belgium, Denmark, Germany, Greece, Hungary, Ireland, Poland, Portugal, Slovakia, Sweden, Turkey, UK)

Educational sector: Secondary schools

Focus: Formative and Summative Assessment

*Concept described: **This case highlights how all six elements of the Formative Assessment model (Figure 1) may be integrated in an inquiry-based classroom to support learning***

(1) a short description

The European Union SAILS project (Strategies for Assessment of Inquiry Learning in Science) (2012 – 15) provides an overview of principles of effective assessment in inquiry learning, and exemplary teaching units in a different areas of science learning (<http://www.sails-project.eu/index.html>).

The different units cover a broad range of science subjects in biology, chemistry, earth sciences, nutrition and physics and astro-physics. Each unit describes the key content and concepts to be learned, inquiry skills and competences to be assessed, and specific

assessment methods (including classroom dialogue, teacher observations, worksheets, peer- and self-assessment, and student devised materials and student presentations).

The Unit on Polymers, for example, suggested activities are to help learners to understand” the density of samples of plastics in comparison to the density of water; combustion of plastic materials; thermal stability and thermal conductivity of plastic materials; and electrical conductivity of plastic materials. Key concepts, a suggested learning sequence and activities are outlined.

For each of the activities, learners are invited to study the physical and chemical properties of various polymers, to estimate their practical and industrial uses and their existing and potential applications.

In the unit activities, students have the opportunity to study various polymers, looking at their physical and chemical properties. Then, on the basis of these observations and relevant prior knowledge, students estimate their practical and industrial utilisation, considering both existing and potential applications. Learners are invited to think of polymers occurring in their surroundings and consider the reasons for application of the given polymer based on its properties. Learners also have the opportunity to analyse the properties of plastics using several tests (flame test, polymer density) and propose the applications of polymers tested. They are encouraged to formulate their own questions (developing hypotheses) and to design experiments to investigate properties. Students demonstrate scientific reasoning as they interpret and report their results.

Learning is assessed through:

- **Questioning and dialogue.** The unit suggests a number of open questions teachers may pose in order to engage students in an exploration of key concepts and help them to draw on prior knowledge. For example, questions posed at the beginning of the unit might include: which are the properties that have enabled their widespread use? Do all plastic materials have the same properties? Does plastic have negative properties as well as positive properties? And which properties of plastic would you like to study in more detail?

These questions are designed to identify students’ prior knowledge and to identify any misconceptions or confusion about the topic.

Other more specific questions and suggestions for class discussion are outlined for the different activities that are planned to help students learn key concepts, related to: determining density of plastic materials by comparing with water density; thermal stability and thermal conductivity of plastic materials; combustion of plastic materials; electrical conductivity of plastic materials.

- **Observations.** Students work in teams to carry out various experiments which enable them to observe the properties of plastics. Teachers observe student work and provide support and suggestions, as needed.

- **Worksheet.** Key questions (e.g., on the combustibility of plastics) are set out, and students set out hypotheses, design procedures to test their hypotheses, and present their findings. Their answers provide the basis for discussion and identification of possible misconceptions, or gaps in understanding.

Rubrics setting out performance levels related to various learning objectives are included in the Unit lesson plan (e.g. assessment of ability to: form coherent arguments; develop hypotheses; and plan investigations);

These different assessment approaches may be formative (with a focus on how to move learning forward), as well as summative (leading to summary judgement of performance for the particular lesson).

(2), why this activity is introduced/ implemented (rationale, what are the supposed strengths (and weaknesses))

The aim of the SAILS project was to demonstrate how inquiry approaches could be used to teach a range of science topics and to support teachers to become confident and competent in assessment of student learning through inquiry.

Inquiry-based pedagogies provide plentiful opportunities for active and constructivist learning, and opportunities for formative assessment of learner understanding and feedback. Teachers are encouraged to use a variety of tools and approaches, and based on these to determine what next steps are needed to move learning forward. As teachers plan, they consider what is to be assessed, at what point in the lesson, and by whom (teacher, peer, the learner him/herself).

(3) results/experiences: did it work as expected?

The unit on polymers was piloted by teachers in Ireland, Poland, Slovakia and Turkey – and five case studies of implementation were developed (four case studies with students 14-16 years old, and Turkish case study with pre-service teachers).

Overall, more than 2 500 science teachers in the 12 countries represented in the project participated in SAILS teacher education, strengthening inquiry pedagogy and assessment practices.

CASE STUDY 2: DEVELOPING COMPETENCES FOR VET 4.0

Country/Region: Málaga, Spain (as part of a European Erasmus+ project)

Educational sector: Upper secondary vocational education

Focus: Formative and Summative Assessments

Trend/concept described: Problem-based learning to develop VET 4.0 competences

This case highlights how all six elements of the Formative Assessment model (Figure 1) may be integrated in a problem-based approach to learning

1) a short description

Partners in a European Erasmus+ project, VET 4.0⁴, worked with companies to develop a competence framework to support learning in mechatronics and electronics. The competence areas for hyperphysical systems include: installation and start-up initiation, maintenance, operation and monitoring, planning, and organisation of work processes. For each of these areas, the competence framework sets out 4 or 5 performance levels requiring increasing levels of sophistication.

IES Campanila in Málaga, Spain, one of the project partners implemented the matrix in its course, “Internet of Things - Plant Irrigation”. Learners were tasked with designing an intelligent, real-time plant irrigation system to monitor plant humidity, and control irrigation remotely by web or mobile.

This interdisciplinary course brought together teachers and learners working in electronics and software design. Teachers in the different areas used a concept map setting out key concepts and learning progression through submodules. The learning module was subdivided in 5 integrated submodules: Electronics, Linux operating system and sensors data exchange, Real time Database, Hybrid Application, Statistics. Each submodule contains the learning process for developing a part of the prototype, and the final product is completed by the end of this process.

Learners worked collaboratively to design code for the remote irrigation system, and teachers monitored their progress online. If they identified errors, they were able to discuss these with the learners directly, and to point them to other examples that might reinforce important concepts and approaches.

Because learners were focused on developing a practical tool and were able to test this on a real garden, peer- and self-assessment focused on how well their design was working, and what they might need to do to improve it.

A main aim was for learners to become more autonomous, so teachers scaffolded learning to provide as much or as little support as needed. Toward the end of the course, learners were encouraged to suggest other innovative uses for the applications they had developed.

During the course, all assessment was formative (focused on learner progress and identifying next steps). Summative assessments were based on learner presentations of their design process and results.

2) why this activity is introduced/ implemented

⁴ This case is based on an 11 September 2020 interview with Sergio Banderas Moreno, FP IES Campanillas

The VET 4.0 project partners worked with industry experts to develop competence profiles for learners as well as for teachers/trainers, which were adapted to the “working world 4.0” in the fields of electronics and mechatronics, and which could be implemented at a low cost. Training modules for VET students were developed.

3) results/experiences: did it work as expected?

Learners in the course moved successfully through the submodules of the course and were able to design a successful remote plant irrigation system. The fact that the project was designed to meet the needs of local industry served as strong motivation for students. The module will be used again in the future.

Background and materials for this course may be found here: <http://www.vet-4-0.eu/learning-module-a1.html>

CASE STUDY 3: A CLASSROOM CULTURE SUPPORTING DEEP LEARNING AND ASSESSMENT⁵

Country/Region: England, UK

Educational sector: General advanced vocational education (preparatory to Further Education)

Focus: Formative Assessment; (Advanced Vocational Certificate of Education (AVCE))

Trend/concept described: Development of Classroom Learning Culture

This case highlights the establishment of classroom cultures, including the development of trust, and a celebration of errors as opportunities for learning

3) a short description

The case highlights the development of a learning culture to support the “spirit” of formative assessment in a class at Moorview College in rural southwest England. The class included sixteen Year 13 students aged 17–18 and three teachers in the areas of physics, chemistry and biology.

Learners in this class were encouraged to work together to construct their knowledge and understanding, and to work actively to understand and learn from their mistakes. The teachers encouraged students to consider a problem as an interesting issue to be explored with one another (through peer-and self-assessment). In other words, errors were seen as opportunities for learning rather than an indicator of lack of ability.

Critical and positive feedback was also integral to teaching. The focus was on working through errors *with* students so that learners were able to understand the source of

⁵This case is based on a study by Kathryn Ecclestone (2008) exploring the impact of learning cultures on formative assessment in vocational education

misunderstanding themselves. Students were encouraged to apply their own critical judgement on the quality of their work, rather than working through a checklist of criteria.

2) why this activity is introduced/ implemented

The lead teacher for this case emphasised that his aim was not to “teach to the test”, but rather, to develop students’ understanding and appreciation for scientific knowledge, and to become more independent learners.

Formative assessment was seen as a way for learners to acquire self-knowledge in order to be able to learn effectively, including knowing when to ask for help: Teaching and assessment practice encouraged dispositions that could lead to deeper learning, rather than success in meeting targets.

4) results/experiences: did it work as expected?

The teachers’ pedagogy and formative assessment allowed students to accept challenge and risk as they became more active in their own learning processes . Learners explained their work to their fellow students (along with the teacher), negotiated how they might go about tasks and lost any initial wariness about asking questions to the teacher and to one another.

CASE STUDY 4: A TOOL TO STRUCTURE OBSERVATIONS AND FEEDBACK FOR PATIENT INTERACTION

Country/Region: UK

Educational sector: medical education

Focus: Formative assessment (with potential use in summative assessment as well)

Trend/concept described: Observation tool: (mini-CEX)

This case highlights the use of an assessment rubric to support observation and feedback

(1) a short description

The Mini CEX assessment tool helps to structure faculty observations and ratings as well as feedback of medical trainees in authentic workplace-based patient encounters. Trainees perform clinical tasks, such as taking a patient’s history or conducting physical examination. Following the observation, faculty members provide a summary of the patient encounter and discuss next steps (e.g., a clinical diagnosis and a management plan).

(2), why this activity is introduced/ implemented

The core purpose of the assessment tool is to structure faculty observations and to provide feedback. Each patient encounter takes roughly 15 minutes and is followed by 5–10-minute

session of feedback. Trainees are typically evaluated by different faculty members and with different patients during their training period.

(3) results/experiences: did it work as expected?

This assessment tool has shown to be a reliable way of assessing postgraduate trainee performance. In addition to the postgraduate setting, the mini-CEX has been successfully implemented in undergraduate medical training programmes. In this context, the period of observation and feedback is often longer, ranging from 30–45 minutes.

Faculty members received training to use the mini-CEX form, based on videos which were scripted to represent different levels of ability, and thereby helping them to develop a shared understanding of performance levels.

Mini-CEX performance have been found to be as effective as other assessments tools used to support observations (e.g. checklist scores and standardised rates of patient communication skills used in undergraduate programmes, etc.).

Feedback based on observations supports formative assessment of learning. The results of the observations could potentially be used as part of a summative assessment as well.

https://foundationprogramme.nhs.uk/wp-content/uploads/sites/2/2019/11/Mini-CEX-Guidance-for-doctors-and-trainers_0.pdf
[and-assessment-in-apprenticeships-and-traineeships](#)

CASE STUDY 5: ONLINE SHARED PORTFOLIOS

Country/Region – Norway

Educational sector – Higher Education (Initial Teacher Education)

Focus on FA, SA or combination – Formative (with potential use for summative assessments)

Trend/concept described – Online shared portfolio (OneNote)

This case highlights collaborative development of an online portfolio, with peer assessment and feedback.

(1) a short description

Learners in initial teacher education (English as a foreign language) use the online *OneNote for Classroom* to create shared learning portfolios. Learners reflect on their own experiences in integrating formative assessment in their own teaching. In turn, the shared portfolio provides a way for student-teachers to collaborate and assess their peers.

The project introduces a practical framework for the use of digital formative assessment in an undergraduate programme in Norway. The ONE NOTE platform allows learners and trainers to work in both a shared workspace and individual workspaces. Each “class notebook” includes a teacher’s area (which students can view but not contribute to), a collaborative area (where both students and teachers can contribute content), as well as individual areas

for each student (accessed only by that student and the teacher). These features allow both students and tutors to monitor progress, rather than simply review the final products. It was also chosen for its user-friendliness; quality and support and broad functionality.

(2), why this activity is introduced/ implemented

The digital portfolio supports greater opportunities for collective engagement and for peer assessment. For example, digital portfolios easily allow students to submit multiple versions of assignments, including writing tasks, video clips, audio recordings, and presentation slides, which they can improve based upon on peer feedback (provided in either written and oral form). The learner may also upload and share helpful resources such as video presentations.

(3) results/experiences: did it work as expected?

Project developers created a practical guide to digital formative assessment with OneNote in higher education following an initial trial. Participants in the trial were generally positive in regard to portfolio assessment and appreciated having the opportunity to work on and improve the assignments throughout the course. One interesting finding was that oral peer discussion sessions about portfolio projects were, in general, highly valued by the learners. Oral peer discussion groups are considered a more effective and useful way of conducting peer assessment – instead of formalized written commentary. In the discussions, students not only helped each other, but also made sense of the teacher feedback and agreed on revision strategies.

<https://blogg.hvl.no/formative-assessment/>

CASE STUDY 6: TEACHUP: PEER ASSESSMENT IN A MASSIVE OPEN ONLINE COURSE SUPPORTING INITIAL AND CONTINUING TEACHER EDUCATION

Region – Ten EU countries (Austria, Estonia, Greece, Hungary, Lithuania, Malta, Portugal, Spain, Slovakia, Turkey)

Educational sector – Higher Education Teachers in ITE/CPD

Focus: Summative Assessment

Trend/concept described – Peer summative assessment in an online MOOC environment

This case highlights an approach to supporting valid and reliable peer assessments

(1) a short description

“Teach-UP” (<http://teachup.eun.org/>) was a policy experimentation which ran from 2017 to 2020, and involved partners in ten countries. The project aimed to build novice and more experienced teachers’ professional competences. Teach-UP tested two different instructional design approaches in Initial Teacher Education (ITE) and Continuous Professional Development (CPD) by delivering scalable online courses on new teacher competences in

four areas: formative assessment, nurturing learner creativity, supporting collaborative learning, and personalised learning

The project also explored the viability of peer summative assessment of learning achievements in a scalable online learning platform (Massive Open Online Course, or MOOC) as an appropriate alternative to expert assessment.

The TeachUP policy experimentation compared assessments of the final course assignment – a lesson plan – by external experts and by course participants in the third TeachUP online course. The assessments included numerical scores, as well as qualitative feedback.

TeachUP compared the peer and expert assessments of 106 randomly selected course assignments from the third TeachUP course in order to evaluate the reliability and usefulness of peer assessment in online courses for teachers. For each of the 10 countries, one expert was appointed to assess the course assignments following the same guidelines as peers. Each assessment was based on a scoring rubric setting out criteria for performance at different levels.

(2) why this activity is introduced/ implemented

In scalable online courses such as MOOCs, with potentially many participants, external expert assessment of course work is more challenging and costlier. Peer assessment can potentially play an important role in online teacher training, an appropriate alternative to expert assessment.

(3) results/experiences: did it work as expected?

Assessments provided by three peers were generally consistent with ratings provided by experts (thus demonstrating inter-rater reliability). This underlines the importance of providing a well-designed assessment tool, such as a rubric, setting out clear standards and criteria with descriptors and exemplars of work at different performance levels. Inter-rater reliability for peer scores was high. Peer scores were however, consistently slightly higher than expert scores. Overall, peers' and experts' qualitative feedback was quite similar. Peers' feedback on teachers' plans was typically less detailed, included fewer concrete suggestions for improvement and was slightly more positive in tone than feedback provided by experts.

Assessments by both experts and peers were largely perceived as both useful and fair, with higher agreement rates on the fairness of peer assessment

<http://teachup.eun.org/>

CASE STUDY 7: A WHOLE-SCHOOL STRATEGY FOCUS ON FORMATIVE ASSESSMENT⁶

⁶ This case study is based on 1 October 2020 interview with Joann Wolczak and colleagues at the Zespół Szkół secondary school

Region – Poland

Educational sector – Initial VET and upper secondary school general education

Focus: Formative Assessment

Trend/concept described – Whole-school change

This case highlights a whole-school approach to introducing formative assessment across initial VET and upper secondary general education classes

(1) a short description

The *Zespół Szkół* secondary school in Lubliniec, Poland, provides both general academic and initial VET classes. VET learners studying areas such as hotel and restaurant services construction, mechanics, landscape architecture, logistics and information technology benefit from hands-on learning opportunities as well as language, mathematics and other classes that will support them in their future professions. Students in VET prepare for the Matura examination and are also eligible to continue their studies at the university level.

Teachers now work together to develop lesson plans and assessment tools with learning aims and criteria for assessment of learners' performance. The school also introduced 'learning walks' as a way to promote peer learning among teachers as they visit each other's classes.

Teachers place strong emphasis on provision of feedback to learners, as well as student peer- and self-assessment. A strong emphasis has also been placed on building students' self-efficacy for problem solving. They are never told that they are wrong. Rather, teachers and peers are more likely to ask questions that will help guide students toward a better understanding. Students learn to share their own ideas, and also to listen. The view is that each student has knowledge and competences to contribute to the team.

Teachers now spend more time on lesson preparation than in the actual classes.

Students are also provided with several options for homework at varying levels of difficulty. Students may consistently choose to work only on easier assignments, but teachers also encourage them to challenge themselves.

The school has introduced interactive white boards to support classroom polling and quizzes that help gauge students' current knowledge and allow teachers to adjust according to learning needs.

(2) why this activity is introduced/ implemented

In 2011, three teachers at the school who had read about formative assessment developed a pilot project in a single class to see if it could be implemented in their school's context.

(3) results/experiences: did it work as expected?

Based on the success of this pilot and evidence of improved examination results, the decision was made to introduce formative assessment as a whole-school approach. Teachers across the school participated in professional development opportunities to learn more about formative assessment (incoming teachers are also encouraged to do so). Students at the school perform well on external examinations.

The school staff takes a formative approach to its ongoing development, examining what might be improved and how.

6. IMPLICATIONS FOR PRACTICE AND POLICY

As we noted at the beginning of this paper, the value of assessment to monitor learner progress and understanding was made particularly apparent in the context of the COVID-19 pandemic and the move to remote learning. High-stakes summative assessments were either cancelled or postponed and, in some countries, teacher's own assessments were used to make decisions for end of the year marks or school graduation/certification. In the absence of structured learning environments, an OECD online consultation found that learners expressed concerns that they did not know how well they were progressing. Teachers/trainers indicated they tried to address their concerns by providing individual learners with regular feedback on how well they were progressing (OECD, forthcoming).

The context of shutdown has served as a catalyst to consider how learner assessment may be strengthened over the longer-term. But real, long-term change will require a deliberate strategy, investments in teacher/trainer development, as well as policy support.

Implications for practice

As has been emphasised, assessment is at heart, a procedure for making inferences about learning (Cronbach, 1981). The information gathered in the assessment process may be used to guide decisions on next steps for learning (a formative purpose), or to assign final grades or award certificates (a summative purpose).

The core of the paper has focused on classroom-based formative assessment (with reference also to selected examples of digital assessment). Many readers will recognise practices that they already intuitively integrate in their teaching. But formative assessment is most effective when it is carefully planned and integrates each of the six elements highlighted above so as to create synergies in learning. Indeed – effective practice cannot be reduced to a narrower focus on sharing learning goals or on providing feedback.

Careful planning is also essential for effective blended learning. Digital tools clearly expand the opportunities for learner assessment – including collective peer feedback, learning through interaction with simulations or serious games, and quizzes providing rapid, automated feedback based on artificial intelligence. Teachers/trainers will want to plan how different tools may elicit different types of evidence for student learning, and how to ensure the different approaches complement each other

Teachers/trainers may not have had any significant training in assessment methods and may benefit from opportunities to participate in peer networks, collaboration with peers in their own school or workplace, or initial or continuing professional development focused on effective assessment methods in general, as well as effective methods in their subject area. Indeed, a subject-specific focus can be important for thinking about typical learner misconceptions in a given domain, how to use assessment to reinforce “disciplinary habits of mind” (e.g. mathematical reasoning, design thinking, and so on).

Training needs also to address requirements for validity and reliability of effective assessment – whether for summative or formative purposes.

Implications for policy

Policy makers have a role to play in supporting effective formative and summative assessment in VET learning, for example through:

- Ensuring that teacher/trainer professional competence frameworks and teacher appraisals feature assessment as a core competence,
- Developing assessment frameworks, tools, guidelines and exemplars and sharing these in online repositories.
- Encouraging the development of teacher peer networks focused on the development of assessment competences, including subject-area networks.
- Investing in teacher/trainer professional development and capacity building. This may include Massive Open Online Courses for teacher development, which provide ready access to training, as well as opportunities to provide and benefit from online peer feedback. Free and open-source learning management system (LMS) such as Moodle “Modular Object-Oriented Dynamic Learning Environment”- may also support teachers to generate customized learning.

Policy makers also have a vital role to play in ensuring that assessments are effectively aligned with competence-based curricula and intended learning outcomes. This may mean finding ways to ensure that higher-stakes assessments include “authentic assessments” that provide opportunities for learners to demonstrate competences, while also ensuring that they clearly linked to national and regional qualifications frameworks.

Finally, policy makers may engage with education stakeholders for feedback and input on ways to strengthen the quality of assessment. In this way, the system may also benefit from feedback, deepen teacher/trainer commitment to assessing in new ways, and commit to improvement.

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