New Zealand Key Competence Self-Audit Framework

What it is: The tool is a self-audit framework of questions for teachers about effective pedagogy and the design of learning experiences that will stretch students as they encounter purposeful key competency/learning area combinations.

How it works: The framework provides nine simple questions that can underpin teachers' inquiries into how well the key competencies (KC) are being embedded into learning.

	Taking the initiative	Building connections	Being challenged
Design	Which KC do I plan to foreground and why? How will students know what my purpose is?	What relevant prior experience and knowledge might students have already? How do I plan to check?	What specific learning opportunity could this Key competency/Learning area mix create?
In action	How am I modelling and encouraging the capability I want my students to build?	Are/how are students identifying relevant connections to other learning and prior experiences?	Have I got the right balance between challenge and capability? How do I know?
Future focus	How have my students and I identified and documented their learning gains?	How might students use their strengthened capabilities in other contexts? What will support them to do so?	What new insights about the challenges and opportunities in this subject might my students take forward?

Benefits: There are reciprocal relationships between the learning areas and the key competencies. When these relationships are purposefully exploited both the learning areas and the key competencies are strengthened. Opportunities to develop key competencies can play out as opportunities to develop learning areas and vice versa. These materials support in-school professional learning conversations.

Challenges: Focus may be lost if teachers are faced with an overtly complicated construct (sheer amount of skills, attitudes to bear in mind). Lack of clear progression models and failure to find common strategy with other teachers/learning areas may also hinder the potential of this tool.

Relevance for entrepreneurial teaching: The nine questions prompt a useful reflection on how to better embed the entrepreneurial key competence in the classroom.

Applied assessment methods: Self-assessment (teacher),

Examples from practice: The tool incorporates a mosaic of 14 engaging examples of practice that show what this pedagogy might look like in different learning areas and insights into important aspects of the key competencies.

EntreComp

What it is: The EntreComp framework is a reference de facto for any initiative aiming to foster entrepreneurial capacity. It consists of three interrelated and interconnected competence areas, each of which is made up of five competences. Together, they constitute the building blocks of entrepreneurship as a competence. The framework can be used as a basis for the development of curricula and learning activities and is useful for the definition of parameters to

assess learners' and citizens' entrepreneurial competences.

How it works: The EntreComp framework can be used to both plan lessons based upon the competencies and to facilitate learner and/or teacher led assessment of attainment. The progression in entrepreneurial learning is made up of two aspects:

1. Developing increasing autonomy and responsibility in acting upon ideas and opportunities to create value
2. Developing the capacity to generate value from simple and predictable contexts up to complex, constantly changing environments.

Benefits: The framework provides simple to follow progression levels, which can be readily mapped against a learner's attainment. There are ready-to-use learning outcomes that can be used to develop and evaluate lessons. The EntreComp Framework is readily available and free to download which makes it accessible to all. It is easy to share with pupils in a language which they can understand. It can also be used to show the progress of pupils who struggle in more formal subjects such as English and Maths.

Challenges: The main challenge of using EntreComp is that it is currently not a statutory requirement to assess enterprise skills in many national curricula and therefore interaction with it may be limited. If enterprise is not a main priority in a curriculum and its assessment, application of the framework could feel like a pointless exercise because it does not count towards any end of key stage level.

Relevance for entrepreneurial teaching: EntreComp is a result of a multi stakeholder approach to linking entrepreneurship in schools and work. It is designed to be a reference point for anyone taking part in entrepreneurial education.

Applied assessment methods: The full range of assessment vehicles, formative and summative, can be used. Progression can be seen through 'distance travelled' between learning

outcomes.

Examples from practice: The EntreComp framework facilitates learning, teaching and assessment across all levels. For example, in Wales it is being used to train primary school teachers at one end of the spectrum, and as learning outcomes in Doctoral Level studies at the other.

Enterprise and Employability Challenge

What it is: The Skills Challenge Certificate acnowledges the assessment of the essential skills within the Welsh Baccalaureate qualification, including literacy, numeracy, digital literacy, critical thinking and problem-solving, planning and organisation, creativity and innovation and personal effectiveness.

How it works: The purpose of the Enterprise and Employability Challenge is to provide opportunities for learners to develop enterprising skills and attributes and enhance employability. In this Challenge learners have the opportunity to create and implement innovative ideas based on meeting the needs of customers and/or businesses by developing a product or service through a guided enterprise process, which includes liaising with employers and interacting with successful local entrepreneurs. Learners complete challenges that are designed locally or nationally, either by the Centre delivering the

qualification, or by external organisations.

Benefits: During the Enterprise and Employability Challenge, learners explicitly develop skills in Digital Literacy, Creativity and Innovation and Personal Effectiveness and apply them in an appropriate manner. The challenge enhances employability by enabling learners to be more opportunity-focussed, self-aware and attuned to the business environment, offering them the opportunity to develop team-working and positive relationship-building skills, as well as the ability to work independently. Learners also gain an appreciation of the use of social and other electronic media in business by developing and applying digital literacy skills in creative and innovative ways.

Challenges: The greatest challenge with this tool is the ability and confidence of the teacher in developing, modelling and assessing the essential skills, particularly those related to creativity and innovation, as these are relatively new concepts within the national curriculum in Wales. Therefore, teachers need support in applying more active and participatory pedagogies within the traditional classroom. Teachers, as well as learners, need to have a can-do attitude and the drive to make ideas happen.

Relevance for entrepreneurial teaching: The Enterprise and Employability Challenge within the Welsh Baccalaureate was written specifically to offer learners the opportunity to develop the creativity and innovation skills needed to become an entrepreneur. The Challenge itself is based on active hands-on learning and, as such, fully supports entrepreneurial education. The emphasis is on applied and purposeful learning and to provide opportunities for assessment in a range of real life contexts.

Applied assessment methods: The Enterprise and Employability Challenge is assessed through self-assessment (via a skills audit), performance assessment (via a visual display and

'pitch' of the business proposal), and reflective assessment (via a personal reflection).

Examples from practice: The Enterprise and Employability Challenge is undertaken by learners aged between 14 and 16 years in comprehensive education in Wales, as well as 16+ year olds undertaking post compulsory education.

See more at: www.wjec.co.uk

E-PORTFOLIO

What it is: An electronic portfolio, also known as an ePortfolio or digital portfolio is a purposeful collection of student work that exhibits the student's efforts, progress, and achievements in one or more areas. The collection often includes student participation in selecting content, the criteria for selection, the criteria for judging merit, and

evidence of student self-reflection. Portfolio means both process and product, path and goal, tool and toolbox, method and principles. The term "E-Portfolio" appears both in educational and professional contexts and involves using online tools.
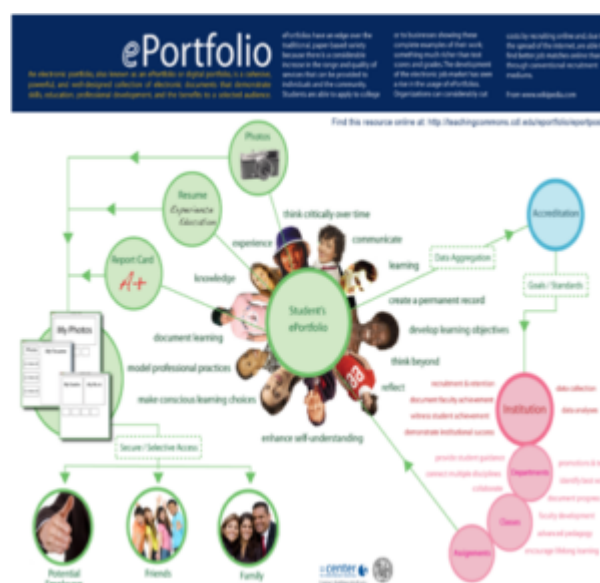
How it works: An ePortfolio is made by the student and is a cohesive, well-designed collection of electronic documents that demonstrate skills, education, professional development, and the benefits to a selected audience. Students are able to

apply to college or businesses showing these complete examples of their work, which are often much richer than test scores and grades. An ePortfolio can be 'open' and 'shared' with other students, partners and whole professional communities. In the construction of the portfolio the student can take the initiative, and can demonstrate responsibility for himself and his peers. ePortfolios can be used to integrate non-formal and informal learning outcomes into the formal learning process and result in the student becoming more aware of his or her competences.

Benefits: Students can experience team work and practice cooperation and dialogue. In addition they learn how to effectively self-assess, document and present their achievements. The teacher has a good overview of how students learn and sees evidence of their efforts, progress and achievements. The school can assess students' learning and progress more frequently and more accurately in a process of dialogue, where feedback is provided in the process of developing the portfolio. Overall, the teacher can see the students' growing authenticity and can learn more about his/her personalities.

Challenges: ePortfolios may be mismanaged whenever the above principles are neglected for reasons of impatience, ignorance or simple misunderstanding. When used for examination purposes, ePortfolios can lead to a demand for and overemphasis on standardisation, in contradiction of the various aspects of the principal of choice ("Standardised Portfolio"). Portfolios can ask too much of students if all teachers want to employ portfolios for all purposes all the time.

Relevance for entrepreneurial teaching: In relation to entrepreneurial education, ePortfolios show experiences of young people as active participants in society, engaged in continuous learning, self-discovery and exploration of the world. It is an interesting tool because teachers can evaluate

the level of development in entrepreneurial competences overall, particularly if they use rubrics. It can be useful in active learning methodologies where students become the protagonists of their own learning especially where the main goal is the development and acquisition of varied and relevant skills, a diverse range of competences and meaningful, positive learning dispositions.

Applied assessment methods: The ePortfolio is a good example of an e-assessment tool that allows reflective assessment, development of skills feedback and is useful when applied toperformance assessment models. Through this process of learning and development, the young person begins to acquire and develop capacities for reflective judgement, self-awareness, personal responsibility and self-directed ethical behaviour.

Examples from practice: There are several good practises in Basque Country VET Schools of using E-portfolios.

Five habits of creativity

What it is: Five habits of creativity (see here and here) is a tool to carry out formative assessments of student creativity in school. It presents a five-dimensional definition of creativity:

1. Complex and multifaceted, occurs in all domains of life;
2. Learnable;
3. Important to be successful in life;
4. Analysable as personal dispositions;
5. Influenced by context and social factors.

How it works: The tool focuses on five dispositions of creativity (each with three sub-dispositions) called "habits":

1. Inquisitive;
2. Persistent;
3. Imaginative;
4. Collaborative;
5. Disciplined.

The tool is "a paper-tool" designed to track the development of each of the 15 sub-dispositions along three dimensions — strength, breadth and depth: Strength is seen in the level of independence demonstrated by pupils in terms of their need for teacher prompts or scaffolding, or their need for favourable conditions; Breadth is seen in the tendency of pupils to exercise creative dispositions in new contexts, or in a new domain; and Depth is seen in the level of sophistication of disposition application and the extent to which application of dispositions is appropriate to the occasion.

Each student's profile is mapped regularly by assessing the sub-dispositions of the five habits and recording achievement, citing concrete behaviours and, describing the depth, breath and strength according to the teacher´s observations. The tool is presented to the students in connection to aims, content of learning and vocabulary. Students assess their progress on sheets with exemplar statements describing each sub-disposition, showing how he/she is developing. It has been found that focusing on one habit at a time can be useful.

Benefits: The tool acts as a prompt to teachers to maintain focus and as a formative assessment tool to track pupil

creativity. The two main benefits of assessing progress in the development of creativity were identified as: 1) teachers can be more precise and confident in developing young people's creativity; and 2) learners gain an understanding of what it is to be creative (and how to use this understanding to record evidence of their progress). This leads to a greater likelihood that learners can display the full range of their creative dispositions in a wide variety of contexts.

Challenges: Formative assessment has a view of reality that sees reality as socially constructed rather than objective and thus variables assessed formatively are complex, interwoven and difficult to measure. From a teacher's perspective this tool seems to be time consuming, as many formative assessment tools tend to be.

Relevance for entrepreneurial teaching: The relevance of the five habits of creativity tool lies in: Clarifying and understanding learning intentions and criteria for success; Engineering effective classroom discussions, questions and tasks that elicit evidence of learning; Providing feedback that moves learners forward; Activating students as instructional resources for each other; and Activating students as owners of their own learning.

Applied assessment methods:

1. Assessment for learning,
2. Possibilities for using as Assessment of learning,
3. Self-assessment.

Examples from practice: A list of the schools (different school levels) is provided in the 2012 report and both reports describe to some extent the experience of their use of the tool.

Simply Do Ideas

What it is: Simply Do Ideas is a business canvas tool to support the development of early stage business ideas.

How it works: An IT platform that works on desktop or mobile devices, whereby users input information about an idea into a canvas, based on the six C's of: Customers, Competitors, Concept, Contents, Compatibility and Cash, using text, images and weblinks. The site draws together the information to create a visual business plan and a pitch.

Benefits: There is a saving in staff time and resources, as the technology allows 24/7 multi-device access, enabling wide geographical reach and access. The tool fosters creativity, vision and valuing ideas during all stages of the development of business concepts, under the 6 C's, designed to be visually exciting in order to engage learners.

Challenges: For maximum benefit learners need access to a computer or mobile to use the on-line platform. However, it is possible to use a printed document to capture thoughts and ideas.

Relevance for entrepreneurial teaching: The tool was specifically designed to meet the needs of and empower young people and organisations to capture information to develop and take forward ideas. It was mapped against the requirements of the UK Quality Assurance Agency, which enhances its relevance

to Universities as well as schools. As the tool explores business ideas it can be used for any learning activities surrounding business planning. Any product or service can be explored with the tool, either new or existing, using action-orientated assignments.
The tool can also be used for pitching events or idea 'hackdays'.

Applied assessment methods: Simply Do ideas is an example of an e-assessment tool that can be used for formative and summative learning. The tool facilitates continual reflection and is therefore relevant for self and peer assessment. Performance assessment can be applied through the authentic task(s) that the learners are asked to perform.

Examples from practice: Simply Do Ideas has been used across all levels of learning and is seen to be particularly effective as a mode of delivering entrepreneurship education that incorporates business planning as a vehicle for assessment. Learners can refine and revisit their video pitches, which educators/stakeholders can view and assess within or beyond a classroom environment. The tool has also been used by Startups and by those wishing to encourage innovation in business (Intrapreneurship).

Authentic performance-based assessment of problem-solving in VET

What it is: Problem-solving is performed as part of coursework and used to assess technical/vocational skills but assessed using separate criteria. Problem-solving is not specifically "taught" as such and the assessment instruments are viewed as "developmental tools" (assessment for learning). Key competence assessments are voluntary and the teacher plays a validator role.
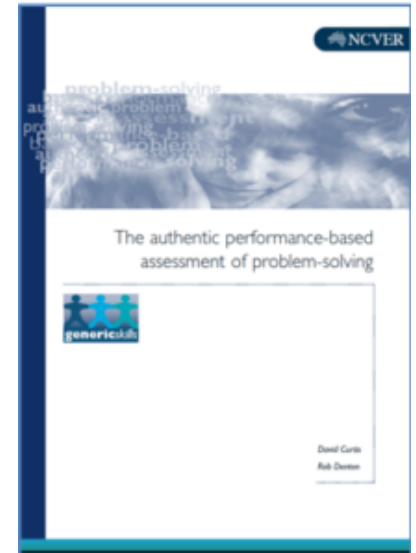
How it works:

1. Students select a task from a list of "recommended" assessment activities.
2. Using a Problem-Solving Assessment sheet (indicators and levels of performance), students self-assess their performance and identify evidence for each item ticked.
3. The teacher assesses the evidence using the same Problem-solving Assessment sheet.
4. The student and the teacher compare and discuss the final assessment results.
5. The teacher enters successful key competency results for "Problem-solving" and a brief explanation in the mastery tracking online system.

Formal recognition for a problem-solving performance level (1, 2 or 3) is achieved only when demonstrated in two different assessments.

Benefits: This tool is seen as practical and workable as the assessment is integrated with existing authentic tasks. Students show an enhanced understanding of what it means to be an effective problem-solver and talk more confidently about their ability, an important aspect in convincing potential employers of their capabilities. In addition, the problem-solving construct has been thoughtfully designed and informed

by evidence.

Challenges: The framework has been developed within the VET sector. Adoption at other levels of the education system would support measurement of change over time. Younger students (secondary education) would require an approach involving more active teaching. The voluntary nature of assessments and the inclusion of information from sources other than school-based activities are also two important challenges. Inter-tutor reliability has not been evaluated either.

Relevance for entrepreneurial teaching: The approach of requiring key competencies assessments on a selection of existing tasks may overcome the perceived assessment load barrier and problems associated with the assessment of EE competence in non-entrepreneurial subjects. Greater coherence is also expected if the approach is adopted at school level, not just by a single teacher. However, the question remains: Is problem-solving a good proxy for EE competence in non-business subjects?

Applied assessment methods: Performance assessment, self-assessment, formative assessment, feedback assessment.

Examples from practice: Validated self-assessment of problem-solving has been implemented as part of the Electronics and Information Technology Program at Torrens Valley TAFE (Australia). A comprehensive validation study of the problem-solving assessment was completed by Curtis and Denton (2003).

Curtis, D & Denton, R. (2003). The authentic performance-based assessment of problem-solving. Adelaide: Australian National Training Authority. Retrieved from https://www.ncver.edu.au/publications/publications/all-publications/the-authentic-performance-based-assessment-of-problem-solving

LoopMe

What it is: LoopMe is a formative e-assessment tool consisting of a digital and mobile communication platform that allows for simple and relevant one-to-one dialogues between teachers and learners. The teacher defines mandatory action-oriented tasks that learners perform and then reflect upon.
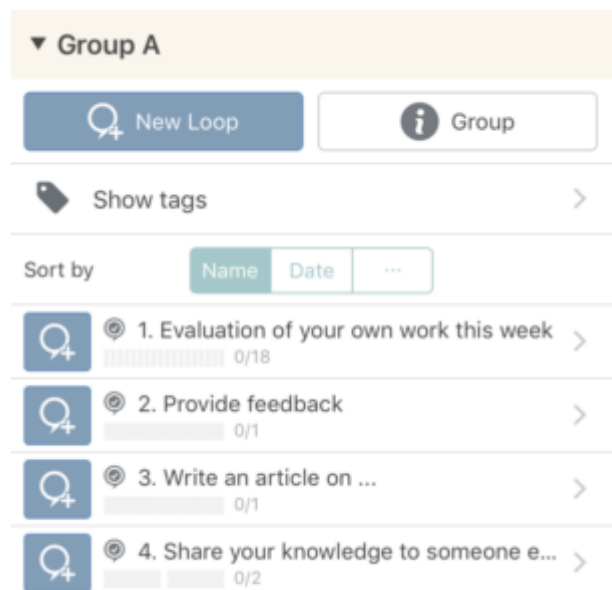
How it works: Teachers can use LoopMe to design an action-based learning experience by breaking it down into manageable tasks. This clarifies goals and prompts learners to take action and reflect upon each action. Each task that learners are required to do is specified in the LoopMe. Tasks are constructed by employing constructive alignment principles1, i.e. by letting learners do those tasks they need to do in order to learn what teachers want them to learn. Once the tasks are distributed to all learners and they are instructed to get started doing them, the progress for the entire cohort of learners can be followed in real-time.

Benefits: Through the real-time feedback from student reflections on each completed task, teachers get an overview of how their teaching works in practice. Students getting stuck can be identified through their negative reflections on tasks, and be given support. Teachers can also use information from students for fact based discussions among colleagues on how their teaching works. For students LoopMe represents an appreciated digital channel for feedback to and from their teachers and for sensitive discussions with their teachers when necessary. LoopMe thus leads to a better relationship

between teachers and students without causing information overload for the teacher.

Challenges: One challenge is that LoopMe requires each student to have access to a smartphone or computer in the learning environment. Being a new kind of assessment tool, it also requires teacher training in order to get started. It is furthermore difficult for teachers used to more traditional pedagogy to design action-oriented and authentic tasks that are appropriate for social learning.

Relevance for entrepreneurial teaching: LoopMe was built as part of a research program on entrepreneurial education. The tool is therefore designed specifically to support entrepreneurial teaching, such as experiential and action-oriented assignments. On the website www.LoopMe.io there are a number of ready-made task packages tailored for use in entrepreneurial education.

Applied assessment methods: LoopMe is an example of an e-assessment tool that emphasizes feedback assessment. It is also based on performance assessment through its reliance on authentic tasks to perform, and on reflective assessment through the mandatory reflections on completed tasks. Other theoretical foundations of LoopMe include experience sampling and learning analytics.

Examples from practice: LoopMe has been used on all levels of education since 2014. In the Erasmus Plus project 'ELAN – Entrepreneuria Learning Assessment Network' LoopMe was used to facilitate entrepreneurial education in lower secondary schools in Sweden, Norway and Turkey. Teachers found LoopMe to be useful for formative assessment and dialogue around critical learning events triggered by entrepreneurial pedagogy. Another example is from higher education, where a teacher professional development course at Linnaeus University, where 80 teachers were assigned action-oriented tasks requiring them to apply novel pedagogical theories in

their own classrooms.