



Assessing Learning in a Flipped Classroom: Evaluation and Refinement of the Implementation Process



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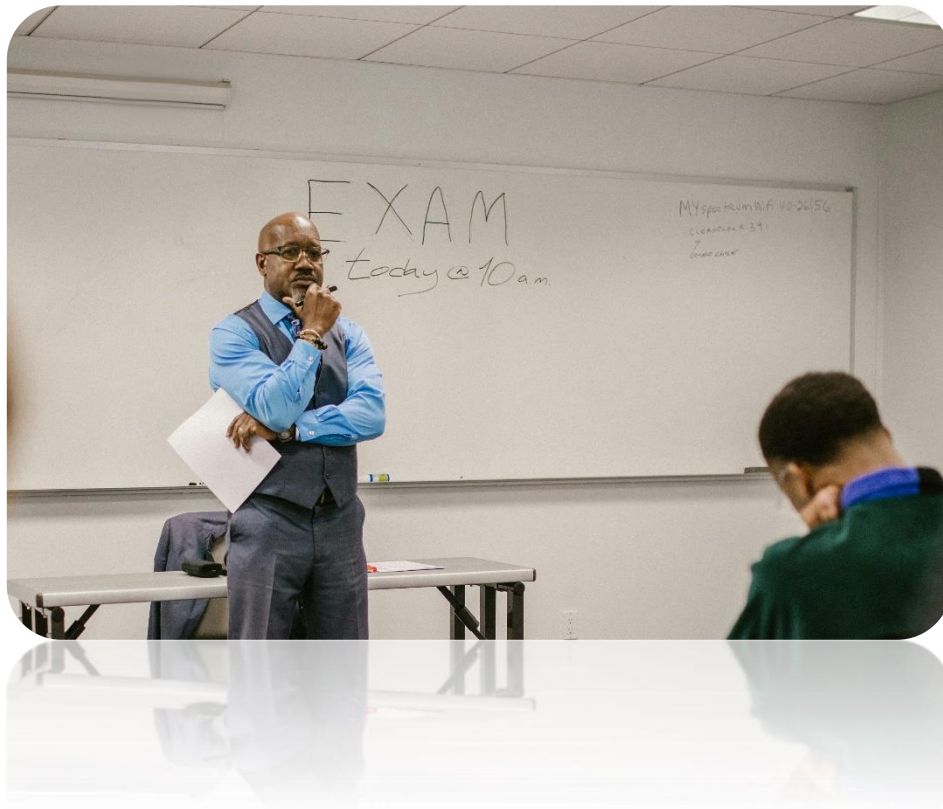
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6.1 Assessment in a Flipped Classroom



Introduction

How do your students react when you inform them regarding an upcoming assessment? What follows their immediate reaction? Do they adapt to the expectations appropriately?

When somebody hears the word assessment, usually there is a **mixed feeling** in the air, one of unease, challenge and competition. Many students would opt to skip them completely and simply **enjoy the learning process**. However, assessments are a must - they are unskippable, forming the necessary conditions to **advance one's learning** and measure it appropriately.

Even when not focusing on the psychology and impressions of the students, the same question remains: **how do you design effective assessments, regardless of learners' perceptions?**

The matter is complicated as it is, in the traditional classroom. It would be, thus, normal to assume that adding an **extra layer**, one of the **flipped classroom** complicates the situation even more. However, what if the creation and implementation of assessments is **a matter of compatibility**, rather than a matter of complexity?

The Flipped Classroom can be more nuanced but as you will find out, it serves well the processes and purposes of assessments!



Let's begin by taking a closer look at some concepts!

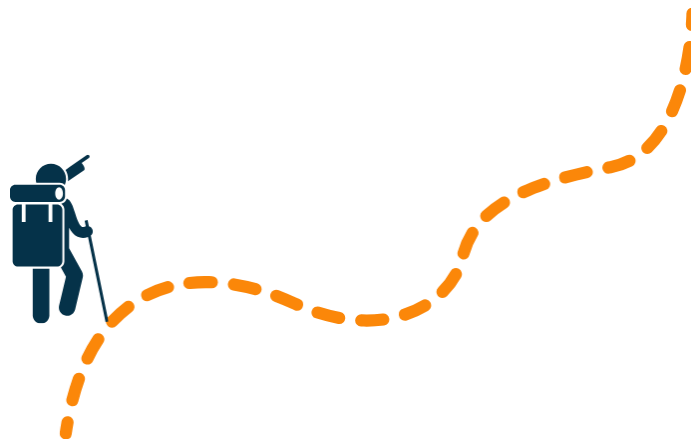
Assessment or Evaluation?

One of the more common mistakes is confusing assessment with evaluation. While **assessment** has to do with the **collection of evidence of student learning** with a view to adjust instruction, **evaluation** is the process of **collecting information for judging performance** (Burke, 2010 p. 37). Therefore, one should ask themselves **where should each take place** - at the VET classroom or at home?

How confident are you in evaluations of students' performance at home? Should a written assignment be evaluated as it has been, given the large availability of new technologies and AI?

Would you assess or evaluate VET students who are just beginning their learning journey?

It is impossible to measure the advancement of one's competence or proficiency at the beginning of a course, since it can only take place within **a period of time**. This is why assessments at the beginning should **not be graded** and, perhaps, **not even shared** with the students. So, let's take a closer look at what we call a diagnostic assessment!



Diagnostic Assessment – What are they?



What better way to meet your students than assessing their knowledge levels? Diagnostic Assessment can help you do just that. Essentially, they are assessments **conducted prior to the start of the course or the unit**, creating an understanding of where the level of a student is. This means that you can **adjust the level of your teaching** accordingly to generate interest right off the get go. This also ensures that you have a greater understanding of students' **Zone of Proximal Development**, while combating possible misconceptions they may have. Sometimes, before teaching, you need to know what the students may learn wrong (University at Buffalo, n.d.).



What is the Zone Of Proximal Development?

The Zone of Proximal Development refers to the **gap between what the learner can do without receiving assistance and what the learner can achieve with the help of a peer**, a more experienced peer/mentor or the educator (McLeod, 2024). As mentioned in a previous module, the **group sessions in-class address higher levels of thinking in Bloom's taxonomy**. Consequently, the gap between what the learner can achieve and what they have to is higher.

Suppose that you are conducting diagnostic tests. If you were to implement such a test right before a class, would you have enough time to adjust the level of your instruction of your first lesson?

Chances are, not every educator is **fast or efficient** enough, as mistakes may happen when one is in a hurry. This is why the online component of the flipped classroom can assist exactly with that. By **placing a test before the lesson**, you can make enough time to implement the necessary changes and adjustments.



Assessment of Collaboration

Imagine that in your classroom there are **four teams of students**.

1. The **first team displays great collaboration** and it is apparent that although the students **were not friends** before, now they appear more bonded. This means that the source of the positive relationships developed are based on the collected effort and ethic displayed.
2. The **second team** consists of students who were **already friends** but have **not collaborated before**. Their collaboration is smooth and the students are **enjoying** the process while learning.
3. The **third team** has **one top performer** student supported by the rest of the students in the team. They consult internally but the top performer is the **main speaker and representative** of the team.
4. The **fourth and last team** has one **top performer** who has assessed that the rest of the students **cannot contribute** to the task and decides to work **individually**. The rest of

the team agrees, as the grade is common. Against the odds, the **fourth team outperforms** the other teams.

Assess the collaboration as found in each team independently. What are the characteristics, strengths and weaknesses of each?



Now compare the collaboration between the teams. What criteria would you emphasize on, at first glance?

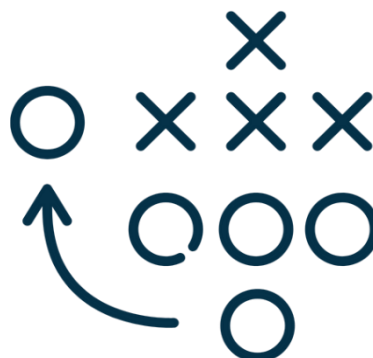
Instinctively one would say that the **first team is the most successful** – where the learning outcomes have been achieved, creating a **positive spillover effect**. Rather than the company of friends who were bonded by **existing positive sentiment**, the first team must **build social bonds and develop their degree of teamwork** on this ad hoc basis, potentially honing their **long term teamwork and communication skills**. This gives them an **advantage or greater acceleration** in the completion rate of their processes.

On the Flip Side

However, **can we truly say that the team collaborating well has succeeded**, if it was **outperformed by just one person** in the fourth team?

It depends on the **time frame**, as well as the **particular objectives** set by the instructor. Over short periods, individuals may outperform teams in certain tasks, particularly in something that has to do with **knowledge** rather than pure skills. However, teams can offer **scale and specialization**, as well as a **common pool of best practices and errors** to avoid. This means that over time a team can more consistently outperform individuals, consolidating their knowledge production.

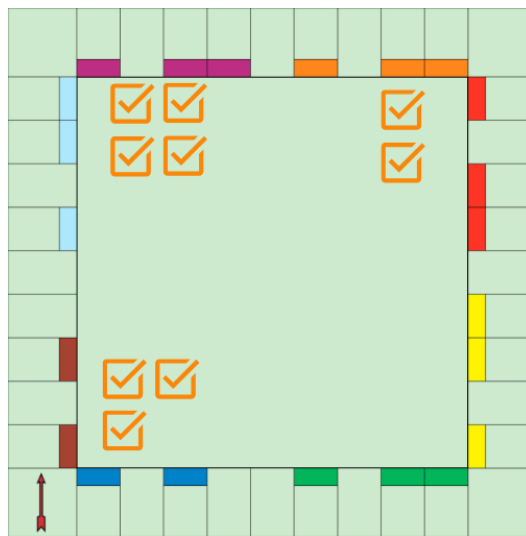
To rephrase this, If there is still doubt, consider that the teams collaborating are at the same time developing something that no individual can ever fully develop alone: **Teamwork**.



Generating Engagement in Flipped Classrooms

Already, the Flipped Classroom looks **great in theory** and holds man promise for **engagement**. However, what makes it actually great for students - offering more value than the conventional methods used in classes, particularly **when it comes to assessments**?

Firstly, the assessments themselves must be **interesting and thought provoking** (University of Waterloo's Centre for Teaching Excellence, n.d.). Rather than seeing it as a device for testing, students should view it as means for **an internal dialogue** or a chance to follow a certain **pathway for the exploration** of a subject.



Can you reimagine an assessment as a board game?

Assessments **should also be challenging**. They should require prior preparation but also rely on **critical thinking**, which **builds on the existing knowledge of the student**.

Creativity should not be overlooked either. The flexibility of flipped learning relies on solutions to various operational problems found by teachers. For this reason, the VET teacher should explain **how and why they use certain methods and technologies**, encouraging creativity from the side of the students as well, since **informal means** are also used for **assessment of learning**.

For example, as discussed in a previous module, **video lectures** are very commonly used for educational professionals implementing a Flipped Classroom approach. Mirroring this format, **students can be assessed based on their ability to create a compelling video**, where they answer to certain questions or develop a subject based on their view.

Feeling Unease

When instruction and teaching rely on the active effort of a student at home or at library, this results in a feeling of unease and loss of control over students' guidance. However, if there is a strategic use of assessments, it is possible to gauge engagement and knowledge during the pre-class and post-class segments, making it also possible to provide a guiding compass to the student.

Scaffolding in Assessment

Scaffolding refers to the *support provided by educators* to students that is **tailored to their learning needs**, with the ultimate goal of helping them achieve independence in the learning process.

In the context of assessments, scaffolding might involve **pre-assessment guidance**, offering students **outlines, study guides, syllabi or concept maps** before an assessment to help them prepare effectively. The formats can vary and it is recommended that **compact formats** are also used, such as an **infographic** to invite the student to learn.

The **difficulty** should also be **incrementally adjusted**, winning time for the educator to **learn more about the student**, as well as the timing they need for learning. Designing assessments that start with basic questions and progressively include more complex or challenging ones also allow students to build **confidence and knowledge** as they proceed.



Hint: Once you set the mood for genuine learning experience, feel free to throw in a question **you do not expect the learners to know the answer for**. However, do not reveal the correct answer. Have your students process it without any expectations from their side.

Once the students have answered, do not provide feedback. If the question is interestingly formed, the students will be **paying more attention** to the lesson in search for the answer to the question. This ties perfectly with the independent online component of the Flipped Classroom.

Feedback Loops are also great for providing detailed feedback on assessments that students can use to improve their understanding and performance in future assessments. The logic of loops is **highly integrable** with the flipped architecture, where multiple loops can take place **during alternative states** of the **Flipped Classroom**.

Peer Assessments in a Flipped Classroom

Peer assessment offers a valuable tool for both **student development and deeper learning** (Center for Teaching Innovation, n.d.). It empowers students to **take charge** of their own learning, equipping them with long lasting skills in self-assessment and constructive feedback. This exchange of **ideas and knowledge** fosters **deeper engagement** with course material, leading to a richer understanding for all.



As every component of the Flipped Classroom, successful implementation of peer assessments requires careful planning. **Clear expectations, anonymous submissions, and feedback guidance are crucial.** Involving students in crafting rubrics further boosts ownership and validity.

Check out the following video to learn more about Peer Assessments in a Digital Setting



Source: https://youtu.be/c08Xdo7IA9w?si=UhXQieKuo6h_jCb

Useful Resources

Flipped Classroom, Peer Assessment and Computer Exercises: [Flipped Classroom, Peer Assessment and Computer Exercises - YouTube](#)

Four Assessment Strategies for the Flipped Learning Environment:

<https://www.facultyfocus.com/articles/blended-flipped-learning/four-assessment-strategies-for-the-flipped-learning-environment/>

If you want to learn more about Peer Assessments:

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.912568/full>

References:

Burke, K. (2010). Balanced assessment: From formative to summative. Solution Tree Press. P. 37

Center for Teaching Innovation. (n.d.). Peer assessment. Retrieved from <https://teaching.cornell.edu/teaching-resources/assessment-evaluation/peer-assessment>

McLeod (2024, February 1). Vygotsky's Zone Of Proximal Development And Scaffolding Theory. Simply Psychology. Retrieved from: <https://www.simplypsychology.org/zone-of-proximal-development.html>

University at Buffalo (n.d.). Diagnostic Assessments. Retrieved from: <https://www.buffalo.edu/catt/develop/design/designing-assessments/diagnostic-assessments.html>

University of Waterloo Centre for Teaching Excellence (n.d.). In-Class Activities and Assessment for the Flipped Classroom. University of Waterloo. Retrieved from: <https://uwaterloo.ca/centre-for-teaching-excellence/catalogs/tip-sheets/class-activities-and-assessment-flipped-classroom>

6.2 Developing Effective Formative Assessment Strategies



Introduction

In the previous unit we reviewed the general setting that Flipped Classroom creates for the **adaptation of assessments**. Now, it is the time to delve deeper in the most compatible types of assessments for Flipped Classroom, the Formative Assessments and particularly the strategies that can be followed for the achievements. After all, it is **purpose that differentiates** Formative Assessments, making it synonymous with **strategic thought**. That being said, let us begin to explore the multitude of possibilities with Formative Assessments.

What are Formative Assessments?

Let's review what Formative Assessments are exactly to match up its characteristics with the capabilities offered by the Flipped Classroom.

Formative Assessments are Assessments **for Learning**. They are used as a **method of teaching** as well as a **method of providing feedback** and **making interventions**. Rather than simply being tests, it is a continuous formative process, which follows the student along the curve of their learning journey.

The continuous evolution of the process is powered by a **continuous loop of active feedback**, meaning that the feedback process must **guide students to act**, rather than passively sit.

Afterwards, **this action** of the student **is also assessed**, to ensure that indeed **progress** is being made based on the instruction provided. This is one of the bridges between the levels of **remembering & understanding** and the level of **applying** as per **Bloom's Taxonomy** (Bloom's Taxonomy, n.d.).

While the benefits of the formative assessment is usually viewed on the level of the **behavior, cognitive development**, literature supports the positive outcome of deep learning when implementing formative assessments (Higgins, Hartley, Skelton, 2002).



How are Formative Assessments Relevant to the Flipped Classroom?

The Flipped Classroom consists of an **online component** and a **face-to-face component**. Therefore, the assessment strategies that can be implemented in this context can be either **synchronous**, during face-to-face lessons, or **asynchronous** with the use of digital tools.

Where Vocational Education and Training Comes.

Vocational Education and Training is intensively **connected to the labor market** and the relevant skills required for it. Therefore, the practical aspects of it can create even more differentiated formats for assessment. In fact, **more stakeholders** can be part of a **common system of formative assessments** when a student is undergoing **Work-Based Learning and internships**.

Though this sounds like an activity that requires specialized software, **common communication and file sharing systems can be used smartly** to accommodate any of those needs. Even a project management tool such as [Asana](#) or [Jira](#) can be an efficient way to keep track, provided that all the relevant privacy protocols are respected. If anything, this is a great example of how the formative process itself offers opportunities to teach daily skills including **project management** and **digital communication skills**, including netiquette.



Understanding Strategy

As formative assessments are **highly flexible**, they can also become quite **vague** without a concrete direction from the instructor. Hence, you should be able to shape this approach based on the available resources and the outcomes you want to achieve. To make this tangible, **let us view the following case!**



Assume that you are planning to use a **3D design tool for fashion**, which requires some operation of it **after class**. While **most of your students** have sufficiently strong devices at home, a **very small percentage** of the class **does not**. Should you dismiss your strategy?

The correct way to face this situation is to **adapt to it**. With the **digital divide** in mind (American University, 2020), the best solution would be to **provide the relevant hardware** for the student to use. If it is not portable, in our case, perhaps there is a library where the student can use it after class.

Beginning Early

Timing directly affects the efficiency and feasibility of a strategy. While choosing the timing to implement the Flipped Classroom is another variable, **using formative assessments individually**, early on, starting during the first weeks has a potential to benefit students (McCallum & Milner, 2020).

When the formative assessments kick in since the starting phase, they enhance **students' self-monitoring skills**, improving the quality of their overall guidance. This logic also holds water due to the fact that the earlier the teacher or trainer can detect a weakness, the earlier they can intervene and help the student solve the issue, either directly or indirectly.

Active Learning



Continuum



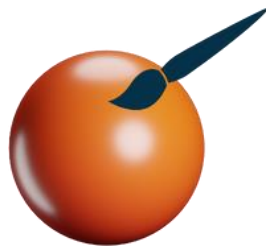
Formative assessments can create an **active learning continuum**, allowing the transition from **low level simple tasks** to **high level ones**, the prerequisite of which is **tackling individual needs** and **special demands** (Khalil, Fahim, 2016).

This is combined with the fact that **assessments take place at different times of a process**. **Depending on the timing, the format of the content or input assessed is different** (Khalil, Fahim, 2016).

To take it a step further, depending on the **format the assessment**, the assessment can also be automated. This further enhances the logic of **keeping track of one's resources** since automation can help with their **economy of time and energy**, allowing the VET teacher to concentrate on more intensive and crucial areas.

For example, at the beginning, when the idea is **being formed**, the assessment can be in the form of an **oral presentation**, having mostly **informal characteristics** and being blended into a dialogue with the instructor.

Subject-specific formats



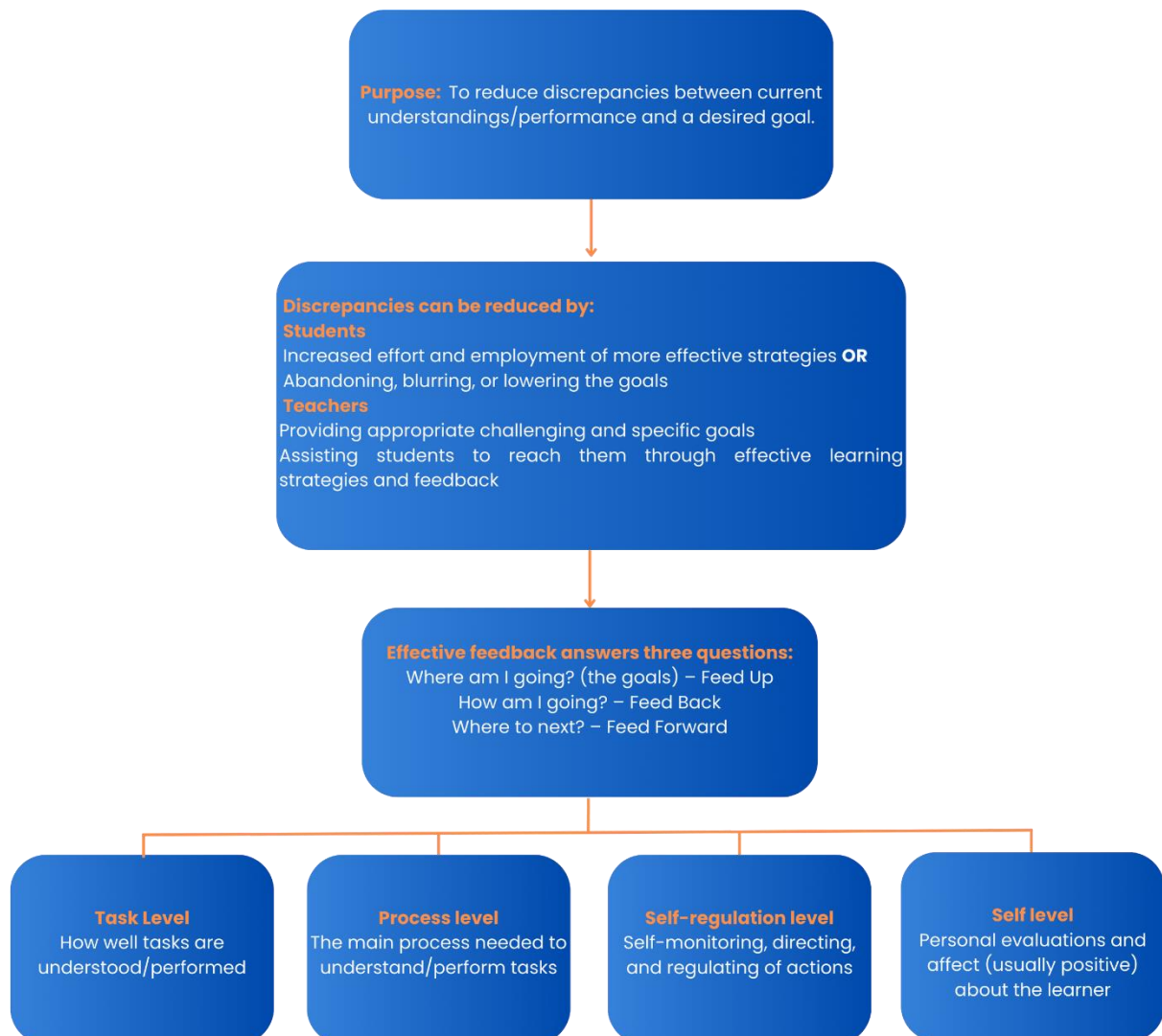
Moving forward, depending on the **subject** the **format can drastically change**. For example, a **graphic designer will have access 3D Modelling tools, sharing similarities with the fashion design class but having vast differences with others**. From that moment, the assessment can be applied to any aspect of the relevant software use or output.

The same can be said and applied in the aforementioned context of **Work-Based Learning and Internships**. Each **sector** or **occupation** has their own **competences**, the **skills** and **knowledge** of which are better expressed in some formats than others.

Providing Feedback

Another category of means used in formative assessments is of course the type of feedback. Providing feedback in general is an **integral part of formative assessments** as we have analyzed before. However, feedback itself can **differ in type** and can be used under a variety of circumstances for different **objectives**.

Feedback can be focus on the following distinct characteristics (Hattie, Timperley 2007).



Adapted from Hattie and Timperley (2007)

Which level do you believe is the most crucial in your case and why? Can you combine two different levels to create a feedback strategy?



Self-Regulation is the key to success

Outside the classroom formative assessments help with self-regulation. Focusing specifically on the **outside-the-classroom** part of the flipped classroom, formative assessments play a particularly pivotal role in fostering self-regulation among students. This segment of learning is crucial because it's where students **first encounter new material**, and **effective self-regulation** during this phase is essential for the **success of the entire flipped classroom model**.

Guided Learning Pathways through assigned readings, video lectures, or interactive modules are essential. **Formative assessments integrated** into these materials can guide students through the learning process, **providing checkpoints** that help them gauge their understanding as they go. This structure supports self-regulated learning by offering students **clear markers of progress** and areas that need more attention, **without overwhelming** them with information. Even if it is something simple of an approach, a student may face the **obstacle of analysis paralysis** (The Decision Lab, n.d.).

Self Reflection

Draft a plan for self-assessment. What kind of questions would you choose to guide your students? How would you gauge whether you have provided enough or too many questions?

Receiving Qualitative Input

Most of the time the data received by students is of **quantitative nature**. However, there is much value contained in **qualitative data** as well. In particular, the qualitative data can reveal aspects of skills gaps in Vocational Education and Training that **cannot be described by numbers**. Many actually rely on **psychomotor learning** and the key may be in accurate descriptions.

Moreover, qualitative descriptions can offer **insights of emotional states**. For example, you may be facing a straight-A student whose state, **performance-wise**, seems perfect. However, they may be facing emotional difficulties, which could potentially affect their future

performance in the long run. By **assessing their emotional worries**, you may decide what is the best way to assist the student, if of course, possible and appropriate.

Some digital tools do an amazing job **gathering opinions and expressions** and one of them is Miro. Miro is a whiteboard app, where users can log in and share their thoughts, while collaborating. It allows you **interact with elements** on screen and **create a visual map** of a small, ad hoc team. For example, you can upload photos, files, stickers and widgets and move them in the space, rearranging objects in meaningful ways and essentially creating flowcharts.

Check the Following Video to become more inspired in the many ways you may use whiteboards!



Source:

https://www.youtube.com/supported_browsers?next_url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D-6AacVZO37k

Lowering the Affective Filter

One important step to take when implementing formative assessments is to make sure that the **guarding mechanisms** of students are **lowered** (Vasquez, n.d.). This is achieved by creating a **safe space** for the learner, fostering openness. Through this method, communication with the learner is improved, while feedback is received as a **constructive element**, rather than a threat against their personality.



Time Management

Formative Assessments can be a lot of work, because the **density of possible interactions** with students and the **respective data** are only increasing. This is why proper time management is required, especially if the classroom is flipped.



What is your most time efficient strategy? Did you read about it first or was it something that you came up with experience?

Moreover, time management is also required for **rapid corrective interventions**. Some methods (particularly with the use of tools) of formative assessments even **encourage interventions** during tests. This requires a clear mind and clear plan through a **range of responses**, along with **thinking on the go**, as you would be tracking a whole classroom for the duration of the assessment.

Useful Resources

Asana Project Management Tool: <https://asana.com/>

Jira Project Management Tool:
https://www.atlassian.com/software/jira/?aceid=&adposition=&adgroup=140479881486&campaign=18442480203&creative=663390759269&device=c&keyword=jira&matchtype=e&network=g&placement=&ds_kids=p73335832032&ds_e=GOOGLE&ds_eid=700000001558501&ds_e1=GOOGLE&gad_source=1&gclid=CjwKCAiA_tuuBhAUEiwAvxkgTgZnC6_JqakMwBg_b0g_GRMOYerTH9WwwphKWI2hyBwGengfNjgfolBoCpDIQAvD_BwE&gclsrc=aw.ds

Miro Tutorial: 6 Essential Feature For Remote Workshops:
<https://www.youtube.com/watch?v=-6AacVZO37k>

WATA (Web-based Assessment and Test Analysis) - is a system developed for an engine for teachers to administer and manage testing, an engine for students to apply tests, and an

engine for generating test results and analyses for teachers. If you are interested in learning more, check the resource in this link: https://www.researchgate.net/publication/227605342_Web-based_Assessment_and_Test_Analyses_WATA_system

References

American University (2020, December 15). Understanding the Digital Divide in Education. Retrieved from: <https://soeonline.american.edu/blog/digital-divide-in-education/>

Bloom's Taxonomy (n.d.). What is Bloom's Taxonomy? Retrieved from: <https://bloomstaxonomy.net/#:~:text=Bloom's%20Taxonomy%20is%20a%20hierarchical,th e%20end%20of%20the%20course>

Khalil, R. M. R., & Fahim, S. S. (2016). Assessment as a Learning Tool in a Flipped English Language Classroom in Higher Education. Arab World English Journal, December 2016, ASELS Annual Conference Proceedings, 4-19. Mohammed V University of Rabat, Morocco.

Hattie J., Timperley H. (2007, March) The Power of Feedback. Review of Educational Research, 77:1, pp. 81-112, Retrieved from: <https://www.columbia.edu/~mvp19/ETF/Feedback.pdf>

Higgins, R., Hartley, P., & Skelton, A. (2002). The conscientious consumer: Reconsidering the role of assessment feedback in student learning. Studies in higher education, 27(1), 53-64

Shields P. (2020, May 21). The Psychology of Grinding in Video Games. Seasoned Gaming. Retrieved from: <https://seasonedgaming.com/2020/05/21/the-psychology-of-grinding-in-video-games/>

McCallum, S., & Milner, M. M. (2020). The effectiveness of formative assessment: student views and staff reflections. Assessment & Evaluation in Higher Education, DOI: 10.1080/02602938.2020.1754761

The Decision Lab, (n.d.). Why do we have a harder time choosing when we have more options? Retrieved from: <https://thedecisionlab.com/biases/choice-overload-bias>

Vasquez V. (n.d.). Lowering the Affective Filter for English Language Learners Facilitates Successful Language Acquisition. Collaborative Classroom. Retrieved from <https://www.collaborativeclassroom.org/blog/lowering-affective-filter-facilitates-language-acq/>

6.3 Summative Assessment Design and Implementation



Introduction

Summative assessments hint by their own name that they **focus on the sum** – what comes at the end of a learning or teaching process. Contrary to Formative Assessments, which are assessments for learning, Summative Assessments are **assessments of learning** – they **measure achieved learning outcomes**, resulting into a **summary judgement**, which defines **promotion** to the next class or certification (ETF, 2020).

Summative assessments are **not as easily associated** with the Flipped Classroom as Formative Assessments. In fact, if you were to browse the internet and search for the available literature, chances are you would find much **more material on formative assessments nowadays**. This can be explained by the plain fact that because formative assessments can have a much **more informal character**, they easily **serve flexibility** in flipped learning. However, believing that summative assessments have no place in today's Flipped Classroom constitutes a fallacy. By carefully considering its elements, it is apparent that summative assessments are relevant both in general and in relation to the Flipped Classroom.

What are the Characteristics of Summative Assessments?

Both Formative and Summative Assessments have common characteristics that set them in one category or the other. However, some look more similar within their own category. Which do you think it is?



Before analyzing the elements of summative design and implementation, let's further analyze what we have further stated about some **general characteristics** of Summative Assessments

Summative Assessments **can measure and evaluate achievement** based on the material they have studied and the teaching processed pointed at them. The Flipped Classroom often offers **additional material** as an incentive for completing individual learning at home. While this supplementary material is **not necessary to get the perfect score**, they help with **deeper learning**, and are indirectly part of measuring achievement.

Summative Assessments are also **common for everyone**, or at least draw from a **pool of material of the same level and scope**. This is the result of objective criteria being set, based on the desired learning outcomes to achieve. The result is **agreement on the final grade** among diverse individuals as well as a common scale to measure one's performance against the population of learners.

To increase the degree of agreement, summative assessments also **correspond to a standard**, creating the category of **standardized tests**. If we reverse-engineer the process, however, it must be mentioned that **summative assessments aggregately form these standards** in the long run.

They **provide data on the performance of teaching processes**, tracking progress in priorities and targets. Because the student is evaluated at the same time, essentially **both sides are being held accountable but in different time frames**. In the case of teachers, they are responsible for improving the quality of their methods and material and guiding their institutions. In the case of students, they are responsible to be adequately prepared, representing their long-term efforts.

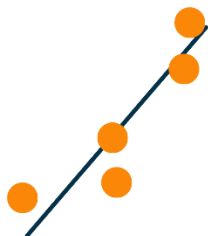
It must be noted, however, that the result is final and only is a **snapshot of learning** despite the increased preparation from the side of the student. This snapshot may not be representative of a student's profile, for example in the event that the student is facing an

unexpected setback. This is exacerbated by a general **feeling of anxiety** and **noise** in the atmosphere, **before and during the process of the exam.** To go further down this route, because it is placed at the end, any corrections coming from the VET teacher based on that timing are ineffective.



How to Design a Summative Assessment

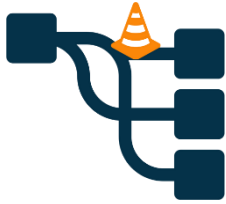
To design a successful Summative Assessment a good understanding of its **design elements** is required (Great Schools Partnership, n.d.). Because flexibility is associated with formative assessments, **design is often overlooked** in summative ones. This makes for an important point to take a very close look at them.



Alignment

The assessment tasks should be closely **aligned with the graduation competencies** and/or **performance indicators** set. This means that the skills and knowledge that students are expected to demonstrate are clearly outlined, along with the expected attitudes and autonomy.

Accessibility



The tasks of the summative assessments, must be **accessible to all students**. This involves clear communication of what is expected in the tasks, along with providing **accommodations and arrangements for students with special needs**, ensuring that every student has the opportunity to achieve proficiency. The tasks should permit **student choice** and be designed with **cultural sensitivities** in mind. Keep in mind here that the **formative assessments** leading to that final moment **have been building the competences** of students. Hence, if there is **digital divide** present throughout the **period of study**, it will create **unequal results** at the summative assessment as well, even if there is a last-minute attempt to make the summative assessment equal.



Transfer

The relevance of the assessment tasks to students' professional lives is emphasized, with a focus on the **applicability of knowledge**. Students should be encouraged to apply what they have learned or to create something new, reflecting a **real-world context** and the **labor market**. Additionally, tasks may be complex, requiring interdisciplinary approaches, the use of multiple or novel sources, and may even allow for engagement with the school community or outside experts, culminating in the creation of an authentic product or performance.



Rigor

Rigor is about challenging students to **engage in higher levels of thinking**. As the Flipped Classroom generally aims to **train the student on those higher levels**, the learners are better equipped for a corresponding, **challenging summative assessment**.



Scoring

Finally, scoring should be **transparent** and **structured**. This is in contrast with formative assessments, where you may experiment with scoring and students' reactions. Success criteria ought to be well-defined, possibly through a **rubric** that describes **different levels of performance**. Additionally, habits of work are assessed distinctly from VET knowledge.

Additional factors can include...



Size and Modality

Size of the Class and Modality, the latter meaning in what ways the instruction is delivered, should also be taken into account (Messier, 2022). In the Flipped Classroom, students are tested on **knowledge and skills** they have acquired on the levels of remembering and comprehending **during individual learning** at home.



Incentives and Further Development

Despite not being centered on feedback, summative assessments should still be designed to support learning, based on a wide range of inferences about learning (Black and William, 2018).

Now let us apply and implement these design parameters in the Vocational Education and Training setting!

Alignment - The assessment has students wiring a scaled-down model of a residential building, which aligns well with the **competencies required for an electrician**, such as understanding electrical circuits and installation procedures. The performance indicators might include creating wiring diagrams, correctly installing different types of circuits, and adhering to safety codes.

Accessibility - It is ensured that all students have **access to the tools and materials** needed for the task. **Accommodations are provided**, such as magnifying equipment for visually impaired students or allowing extra time for those who require it. Instructions are available in **multiple formats** (e.g., written, video tutorials) to cater to different learning preferences. Moreover, accessibility to the above was granted throughout their learning.

Transfer - The task **reflects real-world scenarios** that an electrician might encounter. Students must demonstrate not just theoretical knowledge but practical application by physically wiring the model house.



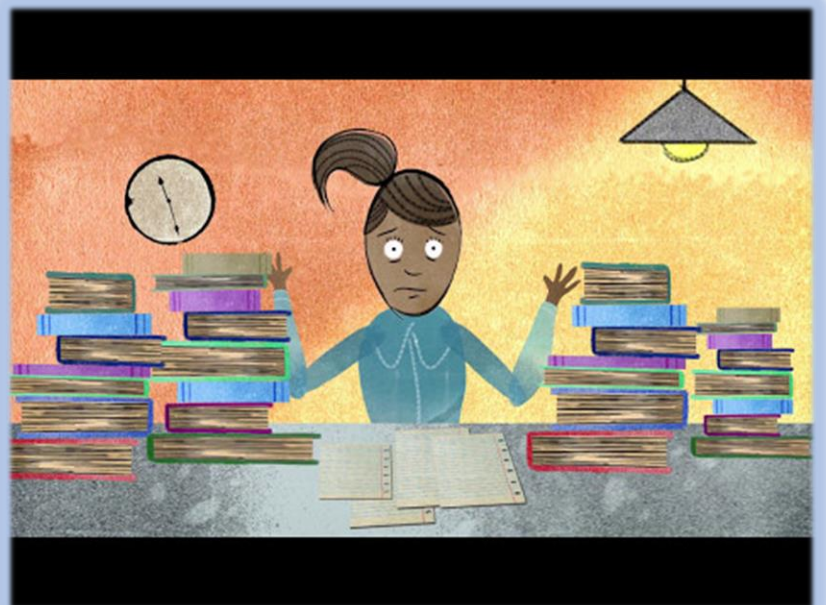
Rigor: The wiring project requires the application of **critical thinking and problem-solving skills**. For example, they might have to troubleshoot when a circuit doesn't work as expected.

Scoring: The assessment criteria are **clearly defined in a rubric**, assessing technical skills like the accuracy of the wiring.

Self Reflection

How would you mentally prepare your students for stressful situations, such as the one surrounding the exams?

Watch this video to see what tips you can give to your students to manage their stress!



Source: <https://www.youtube.com/watch?v=-RZ86OB9hw4>



Being careful with group work.

When designing Groupwork Tasks for Summative Assessments, keep always in mind that the evaluation concerns one individual (Brunel University, 2018), even if teamwork is required. Under this lens, the summative assessment must focus even more on the **particular learning outcomes, assessment criteria, tasks and methods**. This is especially important to keep in mind due to the fact that **collaborative learning** is a very strong element of the Flipped Classroom.

Did you know?

Formative assessments may also have an **inherent summative element**? The skills knowledge and attitudes developed through formative assessments are also evaluated in summative assessments (Perera, Nguyen, and Watty 2014)

Understanding Formative and Summative Assessments as a Games of Stakes

Formative assessments are viewed as **low stake processes**, whereas summative ones are **high stake** ones. Games are inherently low stake, **unless something external depends on it**. For example, you may offer the prize, raising competition for the prize and thus increasing stakes. However, results from summative assessments are often related directly or indirectly to the labor market, making consequences far more serious.

Could we say that competition through gamification can make formative assessments more balanced with light summative elements?



Useful Resources

Balanced Assessment Systems: <https://www.michigan.gov/mde/services/academic-standards/instruction/balanced-assessment-systems>

Conquering exam stress: lessons from our bodies - <https://www.youtube.com/watch?v=-RZ86OB9hw4>

Low + High-stakes Assessments: <https://id.ucsb.edu/teaching/teaching-resources/assessing-learning/low-stakes-assessment>

Planning Template for Summative Assessment: <https://www.greatschoolspartnership.org/wp-content/uploads/2021/07/Planning-Template-Summative-Assessment-July-2021.pdf>

References

Black, P. and Wiliam, D. (2018). "Classroom assessment and pedagogy". Assessment in Education: Principles, Policy & Practice, Vol. 25, No. 6, 551-575, DOI: 10.1080/0969594X.2018.1441807

Brunel University (2018). Guidance on Summative Assessment in Groupwork. Retrieved from: <https://students.brunel.ac.uk/documents/Policies/Guidance-on-Summative-Assessment-in-Groupwork.pdf>

Great Schools Partnership (n.d.). Design Guide – Summative Assessment. Retrieved from: <https://www.greatschoolspartnership.org/resources/summative-assessment/design-guide-assessment/>

Looney J. (2020). Assessment for Learning in Vocational Education and Training (VET). European Training Foundation. <https://openspace.etf.europa.eu/sites/default/files/2021-02/Literature%20review%20Assessment.pdf>

Messier N. (2022, February 7). Summative Assessments. University of Illinois Chicago. Retrieved from: <https://teaching.uic.edu/cate-teaching-guides/assessment-grading-practices/summative-assessments/>

Perera, L., H. Nguyen, and K. Watty. 2014. "Formative Feedback through Summative Tutorial-Based Assessments: The Relationship to Student Performance." Accounting Education 23 (5): 424–442. doi:10.1080/09639284.2014.947093.

6.4 Evaluation and Continuous Improvement of Flipped Classroom Practices



Introduction

The Flipped Classroom is a new approach from a methodological perspective. Even if educators have been using elements of Flipped Learning in the past, it has only been recently in **meta-pedagogy** that educators started consciously using this approach as we know it today.

Moreover, despite meta-pedagogy **being transferable** from other educational fields, such as Adult Education and Higher Education, as well as Secondary Education, the **limits of this transferability** to the Vocational Education and Training are yet to be fully comprehended. To rephrase it in a different way, Vocational Education and Training has unique characteristics, which **must be meticulously studied** in isolation, potentially offering benefits to other sectors and types of education as well.

Moreover, technology is rapidly changing, at this rate faster than our methodological frameworks. However, as technological elements are incorporated in **Blended Learning**, they are inevitably **part of this current methodology**. The situation above describes the need to actually continuously evaluate and improve Flipped Classroom Practices.

The Increased Need in the Labor Market

It must be noted, additionally, that technology has a dual role as well. Not only is it important for both the educator and the student to **possess digital and technical competences for teaching and learning**. They are also important for the job market, requiring more and more digital skills.

Is More Better?



One fallacy, which could potentially hinder the improvement of learning and development of educators' competences, is the idea that **more formats and more density of technology use has absolute benefits**. So is it a fallacy?

More is certainly better in the sense that VET educators can often be reluctant to explore new technologies and approaches. The mentality itself is beneficial for exploration and genuine **cultivation of curiosity** and **critical thinking**. This is the prerequisite for any improvement in the first place.

It has already been mentioned that the Flipped Classroom approach inherently gathers a myriad of formats, if one tries to explore its depth even a little bit. What is counterproductive is **using technologies for the sake of using them**. While certainly a good starting point for adaptability, when **overextending with a large amount of content types, the quality could inevitably lower down**.

Hence, to properly adapt a format, the following must be answered.

- a) Whether a certain format is **inherently better** regardless of the subject, e.g. interactive SCORM
- b) Whether a certain type of content or modality is a **better fit** for a particular subject or level of thinking, e.g. self guided interactive tutorials with interpreters may be better for a programmer than videos
- c) Whether there is a **variation of content**, which boosts engagement and thus the quality of the learning experience. For example, using only the video format could

potentially prove weaker to combining it with reading material, as reading is slower and fit for difficult subjects.

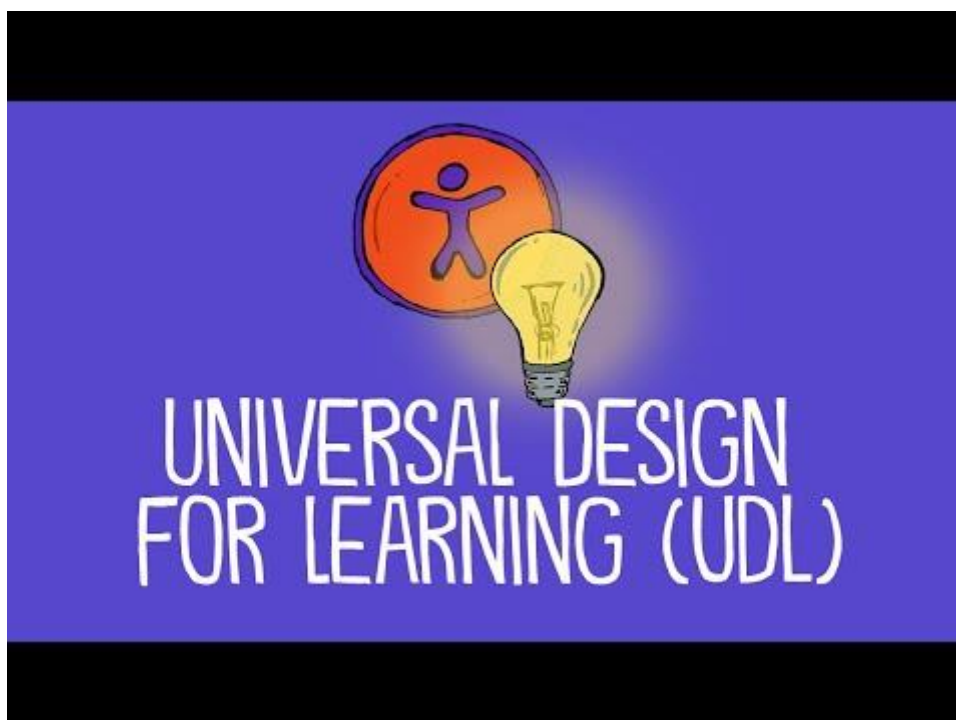
- d) Whether the **assessment is compatible** with the way the content has been delivered and studied and whether the assessment can be completed in a different format.



Inclusion and Diversity

Universal Design for Learning or UDL (Center for Teacher Innovation, n.d.), is an **effective and inclusive process** in design greatly benefiting populations of learners coming from vulnerable groups. It also teaches **non-vulnerable groups** two important lessons. On the one hand, it teaches to always **consider options for greater accessibility**, an important part of assessment design as well as mentioned above. On the other hand, it creates a mindset that **what is considered common design should be accessible by default**, if it is possible, instead of making a different version.

Check this video below if you want to find out more about Universal Design for Learning!



Source: <https://www.youtube.com/watch?v=NL2xPwDrGqQ>

Self Reflection

One of the main points of UDL is to allow multiple formats of instruction and assessment, as some formats may be more accessible to certain individuals. Based on the segment before, would you view the multitude of formats differently for the purposes of accessibility?

The Perception of Inclusion and Diversity can change

Technology is not the only thing that is changing. It is important to note that the perception and meaning of **Diversity and Inclusion also changes** (In Diverse Company, n.d.), meaning that the Flipped Classroom may also need to adapt to it. The reason why it is easy to believe that diversity and inclusion stay the same is because **knowledge and perception of identities change at a slower pace** than technology, the most rapid component of change in education.



Assessments as a Tools for Overall Improvement

As we have already mentioned before, summative assessments provide feedback to the teacher; specifically if their **teaching methods** correspond to learning outcomes. Because the Flipped Classroom is such a versatile tool, it differs depending on the **trainer**, the **subject** and the main participants – the dynamics of the **students**.

This situation also highlights why the VET teacher should **keep track of the methods they have used during the year**, since the multitude of formats and content produced can make it hard to map out without cohesive, incremental recording and mapping. This goes along with

collecting large amount of beneficial **student data**, which is the other side of the coin of the **teaching effectiveness data**.

Let's view the following diagram to see exactly how formative assessments can cooperate summative to generate improvement of the Flipped Classroom!

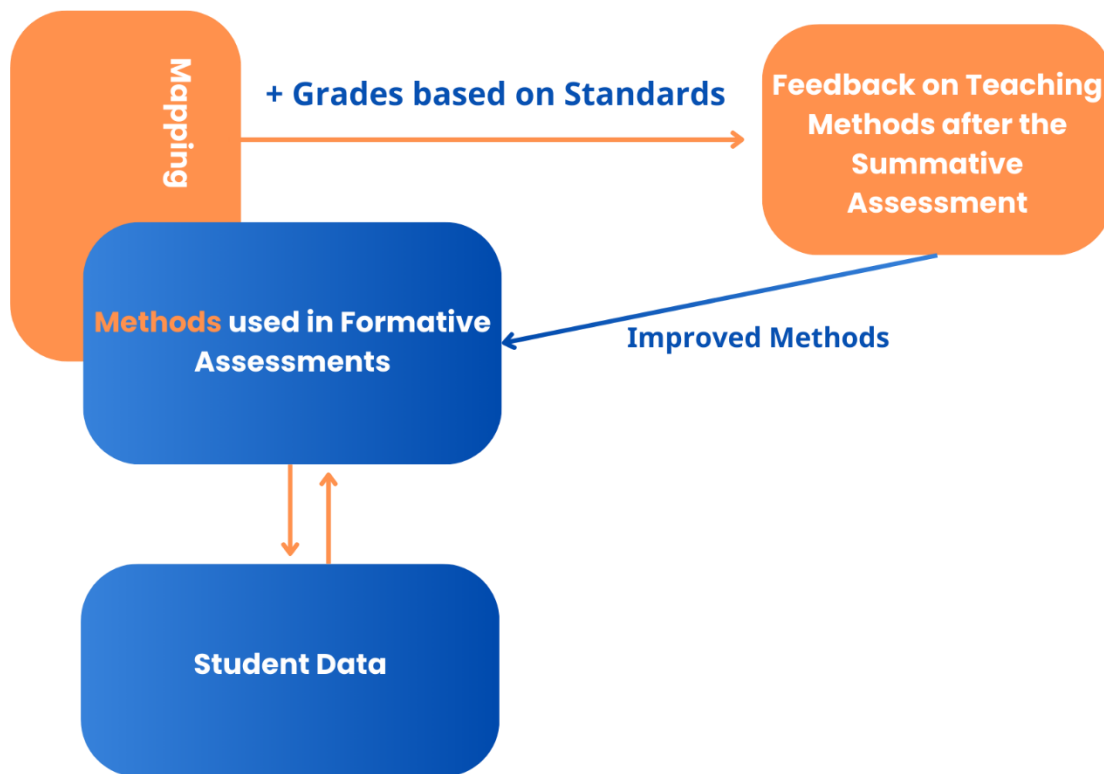


Chart created by the author*

Firstly, we are beginning with the **smaller loops** of feedback generated by the **formative assessments**. The VET trainer implements certain techniques, which have proved themselves best practices. This collects them the **student performance data** used to validate the efficiency of their teaching methods during that period.

As time passes, **the methods and performance is mapped**, creating variables displaying the relationship between format and performance, while other **factors are being isolated too**.

Then a **summative assessment** is set at the **end of the learning journey**. Whether students succeed at the standardized exams will determine **the success of the methods implemented in formative assessments as teaching methods**.

Depending on the outcome, you as an educator may either **keep using the same recipe** or **adjust and improve** it next year to **address some mistakes**. Keep a note that while the student is not expected to receive feedback and learn from the process of the summative assessment itself (meaning during the test), it should still **inspire further learning and development**.

Afterwards, the big loop of the summative assessment repeats itself next year, with the educator reflecting on the results. The expected result is for the educator **to improve their methods** used in **formative assessments**, leading up to the next **success in summative assessments**.

This relationship between formative and summative assessments for reflective practice and improvement is a splendid example of what one would call a **balanced assessment** (Burke, 2010). A thorough view equips the VET teacher with the methodological tools to truly improve themselves.

Improving with Digital Technologies and Competences



Consulting DigCompEdu

One of the greatest resources you may use to further improve your **understanding of assessment related competences** is the DigCompEdu framework. It is a learning outcome-based classification system, which identifies digital and soft and pedagogical skills. Check the DigCompEdu competence framework in the link [here!](#)

In particular, the assessment competence area contains three competences:

1. **Assessment Strategies**, which includes the use of digital technologies for formative and summative assessments as well as enhancing diversity and suitability of format
2. **Analyzing evidence**, which includes generation, analysis and interpretation of data and
3. **Feedback and Planning**, concerning the use of digital technologies, providing targeted and timely feedback to learners and adapting teaching strategies.

AI use in Digital Tools

One of the trends in the space of EdTech is the use of **Artificial Intelligence**. Assessments are not an exception to this rule. **AI adapts to the logic of formative assessments** and particularly to the aspect of flexibility. Some digital tools, such as Formative, offer the ability **create questions** and make **interventions with AI**, saving the educator's time and even exploring potential blind spots left in the design of assessments.

Check [this resource](#) to learn more about AI in Formative!

While AI is far from perfect, both its help and the reflection on its mistakes and weaknesses can help you build a stronger basis for future assessments.

Useful Resources

Accessibility options, principles and features in the Moodle Platform:
<https://docs.moodle.org/403/en/Accessibility>

Digital Competence Framework for Educators (DigCompEdu): https://joint-research-centre.ec.europa.eu/digcompedu_en#:~:text=The%20European%20Framework%20for%20the,specific%20digital%20competences%20in%20Europe

In case you are using your website to provide material and see what your students spend most of their time with, you may use [Hotjar for heatmaps](#).

Formative digital tool for assessments: <https://www.formative.com/>

What is Universal Design for Learning (UDL)? -
<https://www.youtube.com/watch?v=NL2xPwDrGqQ>

References

Burke, K. (2010). Balanced assessment: From formative to summative. Solution Tree Press.

Center for Teaching Innovation (n.d). Universal Design for Learning. Cornell University. Retrieved from: <https://teaching.cornell.edu/teaching-resources/designing-your-course/universal-design-learning>

In Diverse Company (n.d.). The Definition of Diversity is Changing. So what should we be doing? Retrieved from: <https://www.indiversecompany.com/the-definition-of-diversity-is-evolving-so-what-should-we-be-doing/>