9. Methods and tools for assessing transversal skills

Mar Carrió

The role of evaluation in the learning process

Assessment is a central element of teaching and the curriculum. It powerfully frames how students learn and what they achieve. It is one of the most significant influences on students' experience of higher education and on everything they get out of it. Therefore, if we want to promote the development of transversal skills, it is very important to highlight the need to assess them and to design quality assessment practices that support their development.

During the learning and teaching process, assessment has three fundamental purposes (1,2):

1) To judge and certify what students have learned. That is, to validate that students have met the course requirements. This is often referred to as summative assessment.

2) Helping students learn to meet course requirements. This often occurs through the use of various feedback processes and is called formative assessment.

3) To develop students' ability to assess their own work beyond the time frame of the course. This involves the progressive development of their own evaluative judgement and is called sustainable assessment.

Although the university has traditionally focused more on the responsibility of certifying the knowledge acquired by students through grades, the use of assessment for learning has a much more significant effect on learners, so in this chapter we will focus mainly on how to use assessment to facilitate the development of transversal skills.

If we want to use assessment to engage students in developing transversal skills, it is necessary that assessment tasks are designed to direct student attention to what needs to be learned and to the activities that best lead to this. Assessment tasks should be significant learning activities in themselves, and not only enable judgements to be made about what has been learned. For this, the feedback received from the assessments has to be used to actively improve student learning. Marks and grades provide little information to students about specific qualities of their work and do not indicate how it might be improved. So, specific and detailed information is needed to show students what has been done well, what has not, and how their work could be better.

For students to become self-directed learners, they need to be supported in the acquisition of the skills they need for learning, including those of assessment. It must be recognised that one of the aims of higher education is the development of students' critical thinking skills, which includes self-criticism, independent judgement and other skills for lifelong learning. Therefore, the responsibility for assessing performance and responding to feedback is a desired outcome of graduates. So, Assessment tasks should therefore help learners to develop

and demonstrate the ability to judge their own performance and that of others and to use feedback.

Assessment methods and tools for transversal skills

Assessment is a process that involves 1) collecting data or evidence about students' learning, 2) analysing it to understand their difficulties and 3) providing pedagogical decisions to guide students. The data we can use for the assessment of transversal skills can be very diverse, ranging from students' productions such as written essays, projects, reflective journals, concept or mind maps, videos, posters, etc. to student performances in different situations (real-life or learning activities), such as oral presentations, participation in debates, role-plays, simulations, practicals, internships, etc. These methods of data collection can be summarised in the analysis of documents, productions and/or artifacts, observations or interviews. The first step will therefore be to determine the most appropriate evidence to assess transversal skills. In order to address the diversity of learners, it is recommended to use different types of evidence of assessment so that they can show their learning in different ways.

In order to analyse evidence of learning, different instruments can be used to help teachers define assessment criteria and share them in a clear and transparent way with the students so that they can use them for self and peer-assessment. This requires creating spaces in the classroom to review students' work and performances and discuss them, creating a learning environment in which mistakes, difficulties and obstacles are understood as the starting point for learning. These instruments include rubrics, checklists, scales, lists of criteria, evaluative argumentation, among others.

Rubrics

A rubric is a tool, usually presented in the form of a matrix, that describes varying levels of quality, from excellent to poor, for a specific assignment. It is usually used for a relatively complex assignment, such as a project, an essay, an oral presentation or a research paper. Its purposes are to give students informative feedback about their works in progress and to give detailed evaluations of their final products. Although the format of a rubric can vary, all rubrics have two features in common: (1) a list of criteria, or "what counts" in a assignment; and (2) gradations of quality, depending on the relevance, complexity, precision, accuracy, coherence, autonomy, creativity or degree of transferability in the performance of each criteria (Figure 1).

	Lowest performance level	Mid-low performance level	High-mid performance level	Highest performance level	Grade
Criteria 1					
Criteria 2		Performance descriptors			
Criteria 3					
Comments	*Feedback narrative*				overall grade

Figure 1. Common components of a rubric

In recent years, the use of rubrics in higher education has increased considerably. They are used to assist teachers in the grading process and provide students with more informative feedback about their strengths and areas in need of improvement, but also have the potential to be useful tools for improving student performance (3). As rubrics clearly present the expected results and how they are to be graded, they can support students' self-regulation, by promoting reflection, planning assignments, checking progress and reviewing work. It is therefore important to share the rubric with students at the beginning of the learning process and to promote its use to guide the development of the assignments and to recognise where they can make progress in order to improve their level of competence. Therefore, engaging them in the evaluation process, through peer and self-assessment, is a very effective strategy (4,5).

They can also be further involved and create the rubric together with the students (6). This process facilitates a deeper understanding of the intended outcomes and the associated assessment criteria, which is a way not only to enhance their learning, but also to increase students' capacities to operate as judges of their own learning (7).

Although rubrics offer many advantages in the evaluation process, it should be kept in mind that constructing a good rubric is difficult and time-consuming, so it should be considered what they are most useful for. Hence, it is especially recommended to use them to agree on the assessment criteria among the teaching staff of a School in relation to the competences developed in all courses and areas, such as the transversal skills. There are several examples of well designed rubrics for transvresal skills, such as teamwork, oral communication, written communication, critical and creative thinking, etc (VALUE Rubrics, WEIMPACT-Rubrics, oral communication rubric-CORL, critical thinking).

A new rubric format, known as single-point rubrics, can also be used, which provides students with personalised feedback and aims to focus students not only on their grade, but on constructive feedback.

Single-point rubrics

Unlike standard rubrics, the one-point rubric only includes descriptions and indicators of what constitutes successful work; it does not define levels, nor does it define the grade for each level. It includes a space for comments on the strengths of the work done and a space for comments on areas for improvement (Fig. 2) (8). Although it has the disadvantage that it requires more work for teachers to write comments, there are numerous benefits:

1. Provides a space for reflection on the strengths and weaknesses of the students' work. It helps teachers to meaningfully share with students what they have done really well and what they could improve.

2. It does not constrain the work of the students. It does not try to cover all aspects of a project that could go right or wrong, but to give some guidance, which encourages more creativity.

3. It helps take students' attention off the grade and to compare themselves with each other. Each student receives unique feedback that is specific to them and their work, but cannot be easily quantified.

4. Offers more flexibility in grading. Students still receive clear explanations of the grades they have achieved, but there is much more room to consider the student's work holistically.

5. It's simple! The single-point rubric has much less text than other rubric styles. The chances that our students will actually read the whole rubric, reflect on the comments given and remember both are much higher.

Concerns Areas for improvement	**Criteria** Standards for this performance	**Strenghts** Evidence of exceeding standards
	Descriptors of achievement	

Figure 2. Basic structure of a single point rubric

Checklists and Scales

Checklists and scales are very useful tools for assessing student performance through observation, as they are specific and easy to use and record what is monitored.

Checklists usually offer a yes/no format in relation to student demonstration of specific criteria. They may be used to record observations of an individual, a group or a whole class.

Scales allow teachers to indicate the degree or frequency of the behaviours, skills and strategies displayed by the learner. Rating scales state the criteria and provide three or four response selections to describe the quality or frequency of student work. Teachers can use rating scales to record observations and students can use them as peer- and self-assessment tools. Teaching students to use descriptive words, such as always, usually, sometimes and never helps them pinpoint specific strengths and needs. Rating scales also give students information for setting goals and improving performance. In a rating scale, the descriptive word is more important than the related number. The more precise and descriptive the words for each scale point, the more reliable the tool. Effective rating scales use descriptors with clearly understood measures, such as frequency. Scales that rely on subjective descriptors of quality, such as fair, good or excellent, are less effective because the single adjective does not contain enough information on what criteria are indicated at each of these points on the scale.

Checklists and scales are very useful for assessing transversal skills, as they are easy and quick to use and this allows data to be recorded at different times and from different people. They are very useful to enable self- and co-assessments. Recently, a mobile app called pentabilities has been developed that allows you to do this. It is a system designed to develop the five major social and emotional skills, called the "Pentabilities": Responsibility, Cooperation, Autonomy and initiative, Emotional management and Thinking abilities. It offers the possibility to collect data on a scale in real time, analyse it and provide effective feedback to students (Fig. 3).

Skills	Indicators	Rate
Responsibility: Performs assigned tasks, trying to reach commitments	• Works in a consistent manner. • Stays connected to the group's activity. • Makes comments or engages in activities related to the task at hand. • Performs tasks efficiently. • Performs tasks carefully. • Perseveres in the face of difficulties. • Respects the rules.	☆ ☆ ☆ ☆ ☆
Cooperation: Listens and participates in order to make consensual decisions and resolve conflicts	• Listens to others. • Incorporates what others say. • Encourages peers' participation. • Engages in group decision-making. • Facilitates conflict resolution. • Recognizes personal responsibilities and those of others. • Helps peers selflessly.	☆ ☆ ☆ ☆ ☆
Autonomy and initiative: Works without supervision and asks for help when needed. Proposes ideas and solutions to the tasks and needs that arise	• Brings up ideas. • Asks questions when stuck. • Plays an active role in group decision-making. • Is able to convince others of his/her approaches. • Works with determination. • Believes that he/she can initiate changes.	☆ ☆ ☆ ☆ ☆
Emotional management: is aware of his/her emotions and those of others and makes good management	• Transmits cheerfulness. • Remains calm under pressure. • Controls emotions when conflict arises. • Accepts the possibility of making mistakes. • Accepts that his/her approaches do not prosper. • Adapts behavior to the circumstances.	☆ ☆ ☆ ☆ ☆
Thinking skills: refers to the tendency to be interested in intellectual, cultural and/or aesthetic stimuli. From this derives interest in ideas and intellectual exploration, generation of ideas, capacity for reflection	• Relates new content with previous knowledge. • Makes good reflections on the content. • Makes good reflections on internal personal processes. • Asks good questions (to improve understanding or to move forward). • Has creative ideas (explores alternative paths). • Proposes good strategies for problem-solving. • Willing to discover different perspectives. • Expresses ideas effectively (correction, precision, and structure).	☆ ☆ ☆ ☆ ☆

Figure 3. Observable indicators used by the Pentabilities app for the assessment of socio-emotional skills (https://pentabilities.com).

Evaluative argumentation

It is a qualitative evaluation instrument in which the evaluator writes or describes his/her assessment, based on a list of pre-defined criteria. It does not require as much prior work on the design of the instrument as the previous ones. The aim is to provide the learner with clear and constructive feedback. It can also be accompanied by a conversation with the learner.

Evaluative argumentation for an essay	
Criteria	Comments
Clarity in argumentation	
Coherence within different parts	
Relevance of the conclusions	
Bibliography used	

Figure 4. An example of an evaluative argumentation instrument to assess an essay.

Portfolio, an holistic assessment instrument

The portfolio is an assessment instrument that has proven to be an effective tool for assessing and promoting the develpment of competences, and it has been extensively used in medical education (9). Portfolios that are used in education contain evidence of how trainees fulfil tasks and how their competence is progressing. So, it is a tool that allows any person to reflect on a given activity in order to improve it and to demonstrate its mastery. The central dynamic of the portfolio is the reflection on the practice carried out with the intention of improving it, with the support of a mentor. Despite variations in content and format, portfolios basically report on work done, feedback received, progress made, and plans for improving competence. Additionally, portfolios may stimulate reflection, because collecting evidence for inclusion in a portfolio requires looking back and analysing what one has accomplished.

Research on what makes a portfolio effective in supporting and assessing competence development shows that robust integration into the curriculum and mentor support are essential. So, it is advisable to consider a portfolio not as a separate instrument but as an activity that can be integrated with other educational activities. On the other hand, without good mentoring, portfolios are not effective and can become a mere bureaucratic hurdle.

Therefore, when implementing it, it should be considered that mentoring requires a significant investment of time and that it can also be complemented by other forms of mentoring, such as peer mentoring. The format of the portfolio has also been found to be important, it should have clear guidelines and well defined goals, but a flexible structure, allowing learners opportunities to personalise it and giving them some freedom to decide on its content (10,11).

Therefore, a good portfolio design should include:

1. Definition of the competences to be assessed.
2. Tools for their development, such as reflective questions, rubrics or competence analysis templates.
3. List of the learning activities where they can develop these competences.
4. Examples of evidence students can provide to show the achievement of competences.

Planning and designing evaluation activities

In order to plan and design formative and empowering assessment tasks, we must start by asking ourselves what students should be able to do; the answer is learning outcomes. That is, to describe precisely what we expect the learner to acquire and know how to do in relation to the transversal skills. If the learning outcomes are described precisely, it will be easy to determine an activity to put them into practice. For their assessment, we must determine what evidence provides us with information on the development of such skills, what techniques we have to collect this evidence (observations, interviews, student productions) and what instruments can help us to analyse them and provide constructive feedback to the students. It will therefore be important to determine at what point in the learning process the assessment task and feedback will be carried out, considering that the more immediate it is, the greater the impact it will have on learning and the more opportunities the student will have to improve. On the other hand, it will be necessary to decide how to involve the learners in the assessment process through self- and co-assessments. Figure 5 shows how to plan a learning and assessment task to develop the competence of critical thinking and creativity.

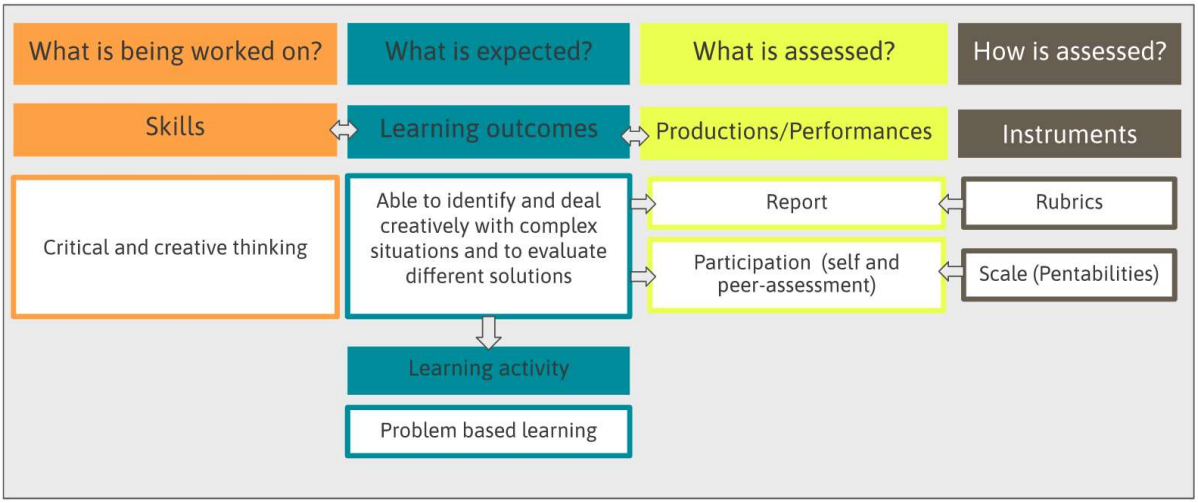

Figure 5. Elements for planning learning and assessment tasks

Evaluating teaching practice

In the same way that assessment of students is key to their learning, it is also crucial for teachers. For this reason, it is highly recommended not only to plan how to assess students but also to plan the assessment of the teaching-learning process carried out. This will allow teachers to learn from teaching practice, reflect on it and continuously improve their teaching.

One of the most widely used models for evaluating educational programmes is the Kirkaptrick model. The model is an established and recognised approach which provides a structure and does not require an excessive amount of time to administer. The characteristics of this model include the simplicity of the process, measurement of a limited number of variables, ease of evaluation criteria, and lack of need to collect the basic data and learners' previous performance, and independence of individual and environmental variables. It assesses the effectiveness of training programs at four levels: (1) response of the trainee to the training experience (including training experience); (2) the learner's learning outcomes and increases in knowledge, skill, and attitude towards the attendance experience (how much attendees learned the content after training). This level is usually measured through using a pretest and posttest; (3) the students' change in behavior and improvement (whether the learning is transferred into practice in the workplace); and (4) results (the ultimate impact of training). Table 1 describes in more detail what is assessed at each level.

	Level	Description
1	Reaction	Sometimes referred to as happy or smile sheets, this level of evaluation considers whether the participants reacted favourably to the training or intervention.
2	Learning	Related to learning outcomes of the training or intervention, this level considers whether the participants acquired the intended knowledge, skills or attitudes based on their participation in the training or intervention.
3	Behaviour	Sometimes referred to as 'transfer', this level considers the degree to which the participants altered their subsequent behaviour in other contexts (e.g. in the workplace) after participating in the training or intervention.
4	Results	Sometimes referred to as organisational level evaluation, and related to the longer term outcomes anticipated, this level considers whether the overall aims have been achieved as a result of the interventions, and of subsequent reinforcement. Rather than return on investment (ROI), the fourth level refers to return on expectations (ROE).

Conclusions

Assessment is a key process in the learning process, and it is what most determines what students learn and how they learn it. If we want to promote students' autonomy in their future learning, formative, participatory and empowering assessment must be promoted. We must move away from the idea that assessment is only grading and understand it as an integral part of learning, which consists of identifying what has been learned, what has not been learned and what steps need to be taken to achieve the intended objectives. When our aim is to develop transversal skills, it is not enough to plan activities in which they are put into practice, but it is also necessary to provide tools for their evaluation, reflection and improvement. This is what will make it possible to train reflective professionals who are aware of the relevance of these skills and who have the resources to be able to improve and adapt to the different situations that arise.

References

1. Boud, D. (2020). Retos en la reforma de la evaluación en educación superior: una mirada desde la lejanía. RELIEVE, 26(1), art. M3. http://doi.org/10.7203/relieve.26.1.17088
2. Boud, D., & Soler, R. (2016). Sustainable assessment revisited. Assessment & Evaluation

in Higher Education, 41(3), 400–413. https://doi.org/10.1080/02602938.2015.1018133
3. Francis, J. E. (2018). Linking Rubrics and Academic Performance: An Engagement Theory Perspective. Journal of University Teaching & Learning Practice, 15(1). https://doi.org/10.53761/1.15.1.3.
4. Hafner, J. and Hafner, P. (2003) Quantitative analysis of the rubric as an assessment tool: an empirical study of student peer-group rating, International Journal of Science Education, 25:12, 1509-1528, DOI: 10.1080/0950069022000038268.
5. Panadero, E., Jonsson, A., & Botella, J. (2017). Effects of self-assessment on self-regulated learning and selfefficacy: four meta-analyses. Educational Research Review, 22, 74–98. https://doi.org/10.1016/j.edurev.2017.08.004.
6. Morton, J. K., Northcote, M.; Kilgour, P., and Jackson, W. A. (2021). Sharing the construction of assessment rubrics with students: A Model for collaborative rubric construction, Journal of University Teaching & Learning Practice, 18(4). Available at: https://ro.uow.edu.au/jutlp/vol18/iss4/9.
7. Boud, D., & Molloy, E. (Eds.). (2013). Feedback in higher and professional education. London: Routledge.
8. Fluckiger, Jarene. (2010). "Single Point Rubric: A Tool for Responsible Student Self-Assessment". Teacher Education Faculty Publications. 5. https://digitalcommons.unomaha.edu/tedfacpub/5
9. Driessen, E., van Tartwijk, J., van der Vleuten, C., & Wass, V. (2007). Portfolios in medical education: Why do they meet with mixed success? A systematic review. Medical Education, 41, 1224-1233. doi:10.1111/j.1365-2923.2007.02944.x
10. Driessen EW, van Tartwijk J, Overeem K, Vermunt JD, van der Vleuten CPM. (2005). Conditions for successful reflective use of portfolios in undergraduate medical education. Med Educ.; 39: 1230-1235.
11. Driessen, E. (2017). Do portfolios have a future?. Adv in Health Sci Educ 22, 221–228. https://doi.org/10.1007/s10459-016-9679-4