**Self-assessment**

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**Summary**

Within educational contexts, self-assessment can be broadly defined as the process whereby a learner describes, evaluates, and/or provides feedback on his or her own work or learning efforts and processes. The ability to self-assess one’s own work products and process is not only a valuable life skill, but also a key aspect of self-regulated learning. Self-assessment has also been found to improve student self-efficacy towards tasks, foster ownership of learning, and improve their learning and performance.

There are varied definitions of self-assessment, with many being far narrower than the one drawn upon within this entry. For example, some suggest that the term self-assessment is best used only in conjunction with forms such as rubric-guided self-assessment or the use of scripts, as these are able to be used with more complex tasks and require learners to make and defend more sophisticated judgements. An alternative perspective is that that external criteria and standards do not necessarily need to be the basis of a student’s self-assessment; there is value simply in the student considering what he or she knows or has learned. While there are clear and legitimate rationales underpinning these narrower stances, when considering all educational contexts (including early child education and lower primary school), more complex forms involving rubric use may not always be appropriate. On the other hand, while it is valuable for learners to be able to decide for themselves what constitutes quality work, when learners enter professional life, there are standards which are used to judge the quality of their work outputs; hence developing realistic appraisal of one’s work against external standards is an important life skill to develop as part of the education process.

Current interest in self-assessment seems to come from its position within the self-regulation of learning literature and its promotion by the Assessment for Learning movement. Self-assessment is clearly implied within all phases of popular models of self-regulation. It has also been identified as a key formative strategy within the global Assessment for Learning movement; however, as just one of many endorsed strategies, it very possible to enact formative assessment without drawing on student self-assessment.

While there are many diverse strategies which can be categorised under the broad term self-assessment, they are not equally valuable in relation to student self-regulation and metacognition. While some practices such as judgement of learning, self-marking, self-grading, and self-testing may be a good starting point for young or novice learners and may help develop accuracy and realism within self-assessments, clearly these work best with simple, concrete tasks. There are also myriad strategies and templates designed to support students to self-assess. Again, they have varying levels of value; clearly ones which support students to make and defend complex judgements will be more valuable to learning and self-regulation than those which ask students to make simple, unjustified judgement about competence. Self-assessment scripts and rubric-guided self-assessment tasks are most compatible with complex tasks and learning objectives and help students engage most deeply in the criteria and processes which underpin quality work. Ideally, self-assessment is best used during the learning process so that students can use the feedback they have generated to improve both their learning processes and products.

While self-assessment can be used to improve student learning and self-regulation, when implementing self-assessment, there are many challenges which might undermine its effectiveness. Education professionals must be aware of and mitigate these during implementation to maximise the positive effects of self-assessment. Students may resist or devalue self-assessment processes, seeing assessment as the role of the teacher. It may be difficult to make complex learning objectives transparent in ways which allow students to accurately self-assess their work. Psychological safety is paramount, as without trust in teachers and peers, students are unlikely to be willing to admit to their own mistakes. Likewise, a supportive environment is vital to helping students move beyond their egos. Students also require substantial support to self-assess in accurate and valid ways, with feedback being essential whether in the form of worked examples, answer sheets, or feedback from teachers or peers. Finally, self-assessment is unlikely to positively impact on learning unless teachers create the time and space for students to act upon the feedback they generate via self-assessment.

While self-assessment is an educationally valuable process, it is complex to implement effectively within compulsory and tertiary learning environments. Educators must carefully consider which techniques are most appropriate to use within their context, making sure they are fit-for-purpose and align well with the task demands and student capabilities. Implementation must also be carefully monitored to make sure that student psychological safety is maintained and that feedback is available which can help students monitor their self-assessment accuracy and act upon the results in ways which improve their learning and enhance their motivation.

**Introduction**

Within educational contexts, the term self-assessment can be used broadly to describe the process whereby a learner describes, evaluates, and/or provides feedback on his or her own work or learning efforts and processes. Self-assessment can facilitate positive outcomes for students. For example, it can help increase student learning and performance, improve student self-efficacy in relation to a task, foster ownership of learning, and, via training, increase student use of self-regulation strategies (Brown & Harris, 2013; Panadero, Brown, & Strijbos, 2016; Panadero, Andrade, & Brookhart, 2018). For example, Panadero Jonsson, & Botella’s (2017) recent meta-analysis found use of self-assessment had moderate effects on measures of self-regulated learning (*d*= 0.23, *d*= 0.65, and *d*= 0.43), along with large effects on student self-efficacy (*d*= 0.71). Brown and Harris’ (2013) meta-analysis of studies examining the relationship between school students’ use of self-assessment and their academic achievement identified a moderate mean effect of between *d*= 0.40 and *d*= 0.45. Dochy, Segers, and Sluijsman’s (1999) review of self-assessment use in higher education led them to conclude that it “… leads to more reflection on one’s own work, a higher standard of outcomes, responsibility for one’s own learning, and increasing understanding of problem solving” (p. 337). Fundamentally, the ability to describe and evaluate one’s own work is an important work and life-skill beyond its application in schooling contexts. People need the ability to make judgements about their own work products and processes that align well with the relevant norms of a work-place, profession, or discipline.

Because of its many potential benefits, self-assessment is encouraged within all education contexts. While it can be teacher facilitated and prompted, it can also be naturally occurring and unprompted; it seems to be an action the self-regulating student initiates independently in order to better gauge progress towards learning or task related goals. The extent to which teachers can and should be involved in structuring and prompting self-assessment may differ by educational context. In higher education, it may be expected that learners exercise greater autonomy in assessing their performance against standards. However, children and adolescents within compulsory school contexts may require substantially more teacher prompting, scaffolding, direction, and support to complete self-assessment practices given that self-assessment is a learned skill (Harris & Brown, 2018).

**Multiple perspectives on what counts as self-assessment**

Within the literature, many terms including *self-grading*, *self-testing, judgement of learning*, *self-evaluation*, *self-reflection*, *self-monitoring*, *evaluative judgment*, and more generally, *reflection*, are used apparently synonymously with the term self-assessment. All terms indicate that learners judge, grade, test, monitor, evaluate, or reflect on the quality of their own work and possibly their work processes. However, these terms may have differing theoretical underpinnings and nuances and refer to different types of processes. For example, independently scoring or marking one’s own work against official correct answers does not require reflection or evaluation; it involves matching honestly the student’s answers with the official answers. Judgement of learning, on the other hand, makes participants estimate, either before an assessment is undertaken (i.e., prospective) or immediately upon completion of an assessment (i.e., retrospective), the number of items answered correctly or the score likely to be obtained. This kind of task requires an assessment or evaluation of how many questions, tasks, or activities would be completed correctly.

In contrast, the remaining terms all suggest that the learner needs to consider the quality of the work or work-processes relative to standards, criteria, or objectives. This reflective evaluation process requires consideration of multiple criteria alongside diagnostic appraisal of strengths and weaknesses within the work or processes used to achieve it. This evaluative approach to self-assessment may lead to the self-attribution of a grade or score, but the emphasis is upon improvement-oriented consideration of the qualities of the work. Fundamentally, an approach based on judgment is argued to involve a more sophisticated and complex way of thinking about one’s own work. As Panadero, Brown, & Strijbos (2016) identify, some experts argue that the term *self-assessment* should be used only when qualitative judgments are made in relation to criteria and standards as opposed to scoring or marking one’s own work. These scholars argue that quantitative self-evaluations of performance (e.g., students’ predictions of how many questions they will answer correctly or marking their own test papers) do not require students to undertake much, if any, reflection about the quality of their work. Additionally, they put forward that such exercises do not necessarily lead students to generate feedback, which Andrade (in press) argues is the ultimate point of self-assessment.

There are also experts who posit that a student’s personally devised criteria are a valid basis for self-assessment (e.g., Bourke, 2016). Here, it is argued that the point of self-assessment is not to judge one’s own work against external standards or criteria, but rather to involve the learner in discovering for him or herself what he or she has learned. Bourke (2016) argues that many assessment tasks (including self-assessment tasks) unnecessarily narrow for the learner what is important to learn and what are viewed as appropriate processes and response. Her study of primary and secondary students found that students adopted wider and more sophisticated conceptions of self-assessment when discussing it in the context of their out of school learning, which she suggests is because these out of school experiences allowed the learners to have more genuine input into what constituted success within the domain (as opposed to being constrained by relatively rigid external standards).

Hence, there is debate as to what the real point of self-assessment is: scoring one’s work versus reflecting on the quality of one’s work versus developing some new, possibly serendipitous, self-awareness. These debates have seemingly created some confusion for the field given similar words have different meanings, while different terms have similar meanings. Hence, it seems practical to adopt a broad definition of self-assessment that encompasses a wide range of practices. All of the practices identified in this entry seem to be those which learners can use to consider the quality of their work. Quality can involve number of items or tasks completed correctly, as well as considered evaluations, supported by a rationale, about the quality of the learner’s piece of work.

**Theories underpinning self-assessment**

While it can be argued that learners have been engaging in informal self-assessment since the beginning of time, interest in more formal implementations appeared to grow in the 1980s and 1990s with a number of reviews focusing on self-assessment’s use in higher education (e.g., Falchikov & Boud, 1989), as well as Black and Wiliam’s (1998) review which identified self-assessment as a key formative assessment practice within compulsory schooling. There has been continued and sustained interest in self-assessment, with recent reviews exploring its impacts within K-12 education (Brown & Harris, 2013), its effects on self-regulation and self-efficacy (Panadero, Jonsson, & Botella, 2017), the individual and social influences on self-assessment (Andrade & Brown, 2016), and, more broadly, the big questions which remain in relation to self-assessment (Panadero, Brown, & Strijbos, 2016).

The sustained interest in self-assessment is likely due, in part, to its strong alignment with theories and principles of self-regulated learning. Self-regulated learning is a proactive process where learners activate self-beliefs and self-directed processes, using goal setting, strategy deployment, and self-monitoring to help them achieve their learning goals (Zimmerman, 2008). A student’s ability to accurately identify current levels of understanding and progress is vital to informing subsequent actions (e.g., How much effort do I need to put in? What strategies might be useful to improve this work?).

Consider how self-assessment actions are implied in Zimmerman’s (2008) cyclical model of self-regulated learning. Zimmerman’s model includes three major phases: that is, forethought, performance, and self-reflection. In the forethought or planning phase, students identify their own strengths and weaknesses in relation to the task, consider their level of motivation, and create and prioritise their goals. From this self-assessment, students select appropriate strategies and areas of focus. As they are completing the task during the performance phase, the self-regulating student monitors progress against expectations and/or standards and criteria, allowing problems to be identified and strategies to be adjusted along the way. Such meta-cognitive monitoring is clearly a self-assessment of processes and interim products. Finally, once the task or cycle of learning is complete, the self-regulating student reflects on the qualities of the completed product and identifies lessons learned about their next learning steps, which feed into the next forethought phase. Such reflection is obviously equivalent to self-assessment of products and processes. Clearly, developing autonomous, self-regulated learners is a major goal of education, and self-assessment is a key part of this process.

Due in part to these links with self-regulated learning, self-assessment has been identified as a key formative strategy within the global Assessment for Learning movement (Black & Wiliam, 1998; Panadero, Andrade, & Brookhart, 2018), which argues that assessment should drive the improvement of learning rather than simply judging the quality of learning for certification purposes. Here, it is put forward that students will learn more if they actively engage with curricular targets and monitor their progress toward these goals. Having a grasp of the criteria and standards used in a discipline can also empower students as learners, demystifying the assessment process. However, while self-assessment is consistently endorsed as a key formative assessment strategy, it is promoted as one of many seemingly interchangeable strategies. Hence, while the formative assessment movement has done much to promote the practice of self-assessment, self-assessment does not appear in all implementations of formative assessment.

**Common self-assessment practices**

Many quite diverse practices can be considered as self-assessment if a broad definition of the term is adopted. These include practices like estimating future performance, simple self-ratings, self-grading or marking, self-assessment templates, rubric-guided self-assessment, and the use of self-assessment scripts, just to name a few. It is important to note that while all of these may be potentially useful within compulsory education, learners within higher education and adult learning environments are likely to be able to immediately draw on the more complex and meta-cognitively demanding practices such as rubric-guided self-assessment and self-assessment scripts. When educators select self-assessment practices, it is vital that they carefully consider diverse factors in relation to their learners such as their maturity, previous experience with self-assessment, and curriculum competence; it is self-assessment’s implementation and complexity, more so than its type, which are critical in fostering improvement in self-regulation and academic achievement (Brown & Harris, 2013).

Some relatively simple self-assessment techniques which may be an appropriate starting place for younger or novice learners include estimates of future performance, simple self-ratings, and self-marking. For example, being asked to estimate their future performance on a relatively simple and regular task (e.g., a spelling or vocabulary test) is actually more technically sophisticated than simply plucking a number out of the air. This practice, also sometimes referred to as judgement of learning, requires students to make a prediction based on multiple factors including their own sense of how hard they have studied and their perceptions of the task difficulty, leading to an evaluative judgment of their current competence. After the task is completed, learners can privately check their predictions against their actual performance, giving them feedback on the accuracy of the prediction. Through a considered analysis of the discrepancy (i.e., over or under-estimation of actual performance), it is possible that students may become more realistic in their future self-assessments.

Self-marking or grading allows students to check and score their responses against a set of correct answers or model responses. Effective implementation encourages students to not only identify, but engage with their errors; the learning comes from understanding why errors occurred and how to prevent the same errors from happening in the future. It is important for teachers using this strategy to help students identify error patterns and how to overcome them as the feedback received through this practice is limited (i.e., whether an answer is right or wrong). Additionally, this process requires students to exercise honesty and integrity because there may be a temptation to change their answers or inflate their scores, especially in a context where the teacher or peer does not cross-check the marking. In addition to the obvious problem of dishonesty, cheating on self-marking can also obscure from the teacher, the student, and the family knowledge that there is a learning need and what its nature is. Hence, for this practice to have maximum positive effect on learning, students have to have both the psychological safety to admit inadequacy (whether real or perceived) and the psychological maturity to be honest in their self-marking.

Unsurprisingly, students may have a sense of learning without actual verification of that fact. Self-testing or self-questioning (i.e., self-administering a test from a book, test bank, or computer), as opposed to scoring a test administered by the teacher, can also support greater realism in self-assessment and self-appraisal. Here, the learner decides when or if she/he is ready to take the test, can set the environment and conditions to maximise full effort, and conducts the test without the external scrutiny of an authority figure. The privacy of self-testing means that errors are not made public (meaning there is no incentive for dishonesty) and, if learners can identify patterns of errors, this information can potentially direct them to revise particular topics.

There is also a wide range of self-assessment activities designed primarily for K-12 students, many in the form of templates. One example is the well-known traffic lights rating system where students identify if they have green (full), yellow (partial), or red (limited) understanding of what is being taught, either by holding up coloured cards for their teacher (and the class) to see or by drawing an icon of the appropriate colour on their work. This rating can help students reflect on their current level of competency, but because it takes place in public, there are significant threats to its validity, with students in some studies admitting to lying to avoid the risk of classmates or the teacher thinking they are stupid (Harris & Brown, 2018). Self-assessment templates come in many forms, ranging from those which ask students to use a simple rating scale in relation to their work (e.g., mark a smiley face, a neutral face, or a sad face when considering how your work meets particular objectives) to more complex forms requiring goal setting, monitoring, and evaluation (Harris & Brown, 2018). When selecting a previously developed activity or template, whether from commercial publishing companies or teacher resource sites, it is vital to consider its fitness-for-purpose. What is the goal of the self-assessment activity and which template may help students focus on the competencies being developed?

Finally, there are more complex practices like rubric-guided self-assessment and the use of self-assessment scripts. While more commonly researched with secondary and adult learners, studies have shown that elementary students can be supported to co-construct a rubric and use it to self-assess drafts of their own work (Andrade, in press). Within rubric-guided self-assessment, the learner evaluates his or her work against a rubric, which describes the criteria valued within the task and provides a descriptor for each at varying levels of quality. Hence, learners are encouraged to consider their work in light of each specific criterion, identifying their current level of proficiency by matching it to descriptors provided. It is also very valuable here to get learners to justify their judgements (i.e., In relation to criterion 1, my work is at Level 4 because…) as this encourages deeper critical reflection on their judgement.

Self-assessment scripts are another form of self-assessment designed to allow students to engage deeply in the processes required for quality work (Panadero et al., 2016). The script, a set of questions designed to scaffold students to engage in the same thoughts and processes that experts would when engaging in the task, can guide students to reflect on their own processes and strategies without directly relating work quality to grades or scores. As it is centred on the processes the student is using, it offers a way to self-assess without focusing on how the work in progress or final product would be evaluated or graded.

There are clearly a range of practices which align with a broad definition of self-assessment and these cannot be expected to be equally relevant across contexts, nor to hold equal value in relation to learning and self-regulation. Clearly, the simpler approaches outlined here may be a good starting place to help students develop awareness of external criteria and the importance of realism around their work assessments. However, there is limited complexity in what the learner has to do to create such self-assessments. Modern societies expect students to develop complex cognitive skills that can be applied to difficult, multi-faceted problems for which they have not been explicitly prepared. Thus, in the teaching and learning of complex educational objectives (e.g., composition, experimentation, analysis, synthesis, critical evaluation, creativity, etc.), many of these simple approaches are insufficient.

Within educational contexts, self-assessment can help students learn to justify their judgments with reference to evidence and standards (or at least socially accepted conventions), important to both their learning and self-regulation. As self-assessment is a learned skill (Brown & Harris, 2018), students have to be introduced to self-assessments that enable them to evaluate their work on complex and non-objective tasks. Clearly, practices enabling complex judgments (e.g., rubric-based self-assessment, use of scripts) are able to work with a wider range of curriculum objectives and help students engage in sophisticated metacognitive processes. Likewise, these processes are more likely to generate useful feedback (Andrade, in press). Self-assessment is unlikely to be helpful unless students clearly understand the criteria and standards used to judge their work. How much students will gain from the self-assessment process appears highly contingent on how it is implemented; processes which encourage students to revisit and address problems identified and which support student justification of judgements are most likely to improve student academic achievement and self-regulation (Harris & Brown, 2018).

**Common challenges around enacting self-assessment**

While self-assessment holds substantial promise, there are many known factors which can undermine implementation. These should not discourage teachers from implementing self-assessment, given the strong evidence that it benefits student learning and self-regulation. Instead, these are variables which teachers need to be aware of and manage during implementation to maximise self-assessment’s positive effects. Potential challenges include:

* Getting students to take responsibility for self-assessment processes,
* Making complex learning objectives transparent,
* Creating a psychologically safe environment for self- assessment,
* Moving beyond the ego and minimizing negative student conceptions,
* Improving the accuracy and validity of student self-assessments, and
* Getting students to act on their own self-assessment data by revising their work or their approaches to it.

Within formal learning situations, learners may question why they have to undertake the role of assessor (which, in their minds, should rightfully be the teacher’s job). Effective self-assessment may require teachers to partially dismantle the teacher/ student power hierarchy common in most classrooms. Students must be empowered to see themselves as potentially insightful assessors and feedback providers. Ultimately, learners become employees, entrepreneurs, or managers who have to be able to self-evaluate their contribution; hence, taking responsibility for assessing one’s own work is a valuable life skill.

Another challenge exists around making the criteria used for self-assessment explicit. While it may be simple to provide students with correct responses to a spelling quiz, creating a rubric which helps students evaluate their own creativity, problem solving, or collaboration is far more challenging. Self-assessment in more complex cognitive domains is extremely difficult; there are many variables to consider simultaneously, impacting on the quality of self-assessment. Thus, notwithstanding the complexity of learning objectives, instructors must work towards making transparent the criteria and standards used within a profession, discipline, or vocation to evaluate such learning. Students, as learners, can only assess their progress against criteria and standards that they can understand. Tools like rubrics, annotated exemplars, and/or checklists can potentially help students better understand the end product of their learning and what quality performance looks like. Additionally, when used formatively, self-assessment using such tools can provide learners with valuable feedback about the current strengths and weaknesses of their work that can be drawn upon as they revise.

Psychological safety is also a necessary requirement for effective self-assessment, particularly if self-assessments are not private. Research demonstrates that if students do not trust their teachers and/or their peers, they will be unlikely to admit to misunderstandings or faults within their work (Andrade & Brown, 2016). Therefore, self-assessment is more likely to achieve its aims in a learning environment where mistakes are considered to be an important part of the learning process and where all feel respected. If the classroom climate looks down upon mistakes, then honest self-assessment becomes an extremely high-risk psychological process.

Student mindsets may also potentially undermine self-assessment. The learner must be supported in moving beyond ego-protective styles of self-assessment to adopt growth-oriented approaches. The separation of identity and self-worth from work is emotionally challenging, especially as teachers want learners to take pride in their achievements. Students must learn not to view their work as an extension of themselves; otherwise, when they conduct self-assessments, they will also be judging themselves as people, making any negative appraisal potentially damaging to their self-esteem. Inevitably, self-assessment requires facing the truth that sometimes work does not meet expectations or standards. This requires great internal strength, especially if personality traits or cultural values encourage false humility/modesty or inflated self-esteem. Hence, rewarding realism and progress in self-assessment (e.g., *I’ve gone from x to y in my mathematics*) seems to be more important than rewarding high achievement (i.e., *I’m top of the class*).

The importance of self-assessment realism, verifiability, accuracy, and validity cannot be ignored. While privacy may be appropriate when students first begin self-assessing their work, teachers need to offer resources (e.g., worked examples, task exemplars, checklists, clear criteria) to help students calibrate their own judgments, making sure they align with curriculum expectations. Indeed, low-stakes, formative testing may help provide a basis against which students can calibrate their own judgments. External feedback on the accuracy of the self-assessment from peers and/or instructors can also potentially help align judgements with expectations and be used to identify when students do not understand a task’s criteria and standards.

Finally, like any other form of feedback, self-assessment holds little value if it is not drawn on in a strategic way to help the student self-regulate and improve learning. Self-assessment should occur within the learning cycle so that students can act immediately on the feedback they have generated to improve their progress on the task, with time provided to implement the proposed changes. For example, in subject areas where multiple drafts of work are a normal part of the instructional environment, it would be entirely legitimate to ask the student to self-assess a first draft before submitting it. A dialogue with the instructor might simply conclude “*You have generated some good ideas for revisions. Go make those revisions and I’ll read the next draft*”. Such conversations can help students see that self-assessment is valuable and valid and encourage them to act on their own feedback.

**Conclusion**

When considering diverse educational sectors which have differing curriculum demands and student needs, adopting a broad definition of self-assessment seems appropriate. However, not all practices falling under this banner are equally beneficial or equivalent, nor can they be evenly applied across domains and educational contexts. While simpler practices like self-rating or self-scoring may help develop assessment competence and accuracy, without justification, there is limited potential for feedback. While there is debate around if external standards and criteria should always be used as the basis of student self-assessments within educational contexts (Bourke, 2016), learning how to use these to make judgements about one’s own work is an important part of preparing students to succeed in their future professional and vocational endeavours. Ultimately, educational practices need to support the development of realism in students’ skills of evaluative judgement and self-assessment. Educators must carefully consider which techniques are most appropriate to use within their context, making sure they are fit-for-purpose and align well with the task demands and student capabilities. It is only with careful attention to planning and implementation, alongside the development of a supportive learning environment, that benefits to student self-regulation and learning will be maximised.

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