**Abstract**
In a performance – and results – driven educational world the concept of formative assessment has inspired the educational community by its discourse and focus on learning and learners. However, a number of controversies have surfaced: primary among these are terminological opacities and disparities both within and across continents and sectors. (TARAS, 2007b, 2009). Among others, Perrenoud (1998) signals the importance of positioning theoretical and practical discourse on assessment within a wider pedagogic context and within theories of learning. Taras (2005) argues that concepts of assessment, including formative assessment, are best and more effectively understood firstly within the wider assessment framework and, secondly, within the relationships of summative, formative and self-assessment. This paper examines definitions of assessments. It begins with basic concepts of assessment, summative, formative, self-assessment and feedback and inter-relates these. The principles inherent in definitions set the parameters of both processes and practice as part of a logical sequence and framework.

**Keywords:** Assessment. Formative assessment. Summative assessment.

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**Introduction**

This paper explores the principles of the process of assessment within any context or function (whether pre-selected or chosen after the assessment). It supports and develops the discourse and rationale for the centrality of the understanding of the process over the functions of assessment within all types of assessments, and particularly formative assessment. (TARAS, 2005). It does not present a historical time-line of the development of definitions of formative and summative assessment. Nor is it an analysis of different aspects of assessment seen in the light of a broad theory of pedagogy (eg PERRENOUD, 1998; BLACK; WILIAM, 2005), although it does inevitably situate assessment as part of the triumvirate of assessing, learning and teaching. In fact, this paper supports the position that there can be no real development to “expert” without assessment (ATKINS et al., 1993).
Theories of learning

Within a social-constructivist theory of learning, the individual negotiates meaning with its surroundings and context and assimilates it by restructuring and reorganising individual knowledge and concepts. (JAMES, 2006; HAGER; HODKINSON, 2009). Therefore, the individual is both the product of the context and a direct challenge to it by bringing unique and specific interpretations. Similarly, assessment and learning will draw on the constant interaction between the individual and the collective experience and information base which has impacted on the individual and context. We are all constantly assessing our position, our position within the collective and the collective’s position.

Therefore, each individual although learning and assessing within a socially constructed context will necessarily differ from others in similar situations. This uniqueness will require a continual negotiation of meanings, concepts and ideas. Even when working within the same definitions, criteria and processes, it would not be an aberration for different outcomes of learning, assessment and understanding to occur. Accepting this endless diversity within education is an important first step when hoping to work towards a relative harmonising of concepts and definitions, ideas, ideals and understanding. This, however, does not preclude the need for coherence and logical associations within these personal experiences of individual and collective educational “realities”.

Language

Language is not neutral. Meanings associated with different words and terms are not neutral. Assessment and related terms are heavily value and emotionally laden; therefore within collective and personal interpretations moral and ethical factors are also involved. (LAKOFF; JOHNSON, 1980, 2002; FAIRCLOUGH, 1994; TARAS, 2007b). Socially and politically, “assessment” is potentially dynamite: the very word is used sparingly. Assessment of research papers for journal publication is referred to as “peer review”. In the UK in 2008, the RAE (Research Assessment Exercise)³ caused turmoil by its potential lack of transparency when the feedback from reviewers was destroyed to protect their “professional judgement”. There is an annual furore when national exam results are announced and dissected by the media. On an individual level, idiosyncratic and personal histories will inevitably result in different interpretations. (TARAS, 2007b; COFFIELD, EDWARDS, 2009; HAGER; HODKINSON, 2009).

Assessment or evaluation?

In education, with a globalisation of research, this distinction is becoming increasingly complex. In Francophone literature (for example, PERRENOUD, 1998), and languages of essentially Latin roots, where the distinction is generally not made, the use of ‘evaluation’ is often preferred.

In the UK and much of the Anglophone world, the distinction is generally that evaluation covers the macro spectrum e.g. university, course, documentation of programmes, whereas assessment covers the micro i.e. the assignment, and assessment of smaller units of student work. This distinction is essentially one of context.

Within the intentions of this paper, the distinction is perhaps artificial because it focuses on processes and principles and thus aims at englobing diverse and disparate contexts. Therefore, whether we are focusing on programme evaluation, as was Scriven (1967), or whether we are focusing on assessment product in complex, multi-criterion contexts, as was Sadler (1989), or on classroom interaction as does the work of Black and Wiliam, on Assessment for Learning, what this paper claims and wishes to argue for and demonstrate is that a single assessment process can be used to represent each of these three very different contexts: i.e. that the process and basic parameters of assessment can be considered universal and technically similar for all contexts.

Another distinction to consider is that of implicit versus explicit assessment. The implicit tends to cover areas of ad hoc, informal assessments, i.e. assessment of work in progress or classroom interaction, whilst the explicit tends to be of product assessment where criteria and standards are established and shared.

In the literature, evaluation and assessment are seen as overlapping and not discrete making the distinction difficult in theory and practice. (SCRIVEN, 1967; CULLINGFORD, 1997; BLACK, 1998). The

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1 In the UK, the RAE is a process where individual universities put forward their best researchers’ articles to be assessed. This usually occurs every 4 years and each researcher presents a maximum of four academic articles. It is on the basis of these results that government grants for research are allocated, so a great deal of money and prestige are at stake. The reviewers making the judgements of quality on these in the 2008 RAE, were so concerned that their assessment integrity would be questioned, that they destroyed their notes explaining their decision. Surely, what they must realise is that even the categorisation of the papers, without considering the notes, implicates their decision. The RAE is now going to be called REF (Research Excellence Framework): could this be linked to the phobia which surrounds the word assessment?

ubiquitous nature of assessment has long been recognised and the distinctions noted above are essentially a difference in scope and context and perhaps detract from the commonality of process.

In order to coordinate and understand the fundamental principles of assessment, it is helpful to incorporate all aspects of ‘evaluation’ and ‘assessment’ into a single and coherent argument: this would cover both process and product, informal and formal.

Definition of assessment

The term usually refers to a judgement and it is a process that permeates most of our lives. Within the educational context, this also takes place at all levels and contexts and many names have been assigned to this process. However, it is perhaps pertinent to remember that assessment is assessment and that everything can be and is judged.

The following definition of assessment or evaluation describes and refers to the process of assessment and it also explains how the judgement is reached: as noted, this judgement can be of both process and product, explicit or implicit, formal or informal or at any point along these continua.

Evaluation is itself a methodological activity which is essentially similar whether we are trying to evaluate coffee machines or teaching machines, plans for a house or plans for a curriculum. The activity consists simply in the gathering and combining of performance data with a weighted set of goal scales to yield either comparative or numerical ratings, and in the justification of (a) the data-gathering instruments, (b) the weightings, and (c) the selection of goals. (SCRIVEN, 1967, p. 40).

Scriven clarifies that these are universal principles and the paper illustrates with the specific example of programme evaluation.

Functions of summative and formative assessment

Summative and formative assessments, over the past 30 years have increasingly been defined and based on their functions. Functions or roles (used interchangeably in the paper) are the use or purpose the assessment will serve: this can be decided prior, during or after the assessment. In higher education, the distinction seems to have been dealt with pragmatically perhaps because all assessments are within institutional control and so not in direct conflict with external agencies.

There are many blends of purpose, reflecting the multiple assessment audiences and the large number of ways of assessing learning. 'Formative' and 'summative' are useful tags, but no more. (BROWN; KNIGHT, 1994, p. 15-16).

In the compulsory sector, where exams are controlled by external agencies, the conflict has been more evident (BLACK; WILIAM, 1998; SEBATANE, 1998). The work spearheaded by Black and William and much of the Assessment for Learning research in the compulsory sector is predicated on this distinction between summative and formative assessment, where summative assessment refers to externally accredited exams and formative assessment as being that which provides feedback within the classroom. The emphasis on the distinction and the separation of the two has been signalled as a weakness in their seminal paper of 1998 by Biggs (1998).

This focus on functions of assessment was set in motion in part by Bloom et al. (1971) who were examining the consequences of assessment and concluded that they are as important as the processes or intentions. Whilst acknowledging the critical importance of consequences, this paper does not focus on this aspect, but limits itself to the processes of assessment.

Summative assessment

Summative assessment is generally equated with final test or exams. In HE the practice of providing feedback from graded work has meant that summative and formative assessment have worked together and supported each other to the same end i.e. supporting learners and learning. This is reflected in the literature which generally does not put a negative focus on summative assessment. (BROWN; KNIGHT, 1994; BIGGS, 1998). In the Assessment for Learning discourse, it is generally vilified as being the promulgator of the negative and destructive aspects of education which deflects from the support of learning (TARAS, 2007b, 2008c). Broadfoot (2002, 2007, 2008) calls it a Frankenstein’s monster. The headings she uses in the 2008 paper leave no doubt as to Broadfoot’s scathing view on the “functions” of summative assessment and as to its effect on the lives of learners and the educational community. However, summative assessment and external exams are not all negative since exam successes for students have traditionally been a route to a better future. The problem has been
with all the corruption implications and practices that have lasted millennia. (BROADFOOT, 2007; STOBART, 2008).

Assessment functions and processes

An important question for this paper is: how do functions of assessment link to the process of assessment? Will a chosen function change or influence the process in any way? The answer is no. The process of assessment is not affected by the potential functions. Therefore, the two are separate.

However, with the focus on functions, the processes of assessment have been eclipsed and the critical aspect of understanding and ensuring the process is transparent and ethical is difficult to monitor. Scriven (1967) had warned against this happening. A second problem seems to have arisen - that of separating the summative and formative assessment processes to mirror the recommendations of the literature supporting working with functions of assessment (TARAS, 2008c, 2009). This state of affairs requires the duplication of summative and formative assessment to respect the different functions (BLACK, 2003; WILLIAM, 2000). Taras (2005, 2009) demonstrates that this duplication is unnecessary, time-consuming and confusing to tutors and learners alike.

Functions

Functions are considered a problem for this paper because they have, firstly, dominated the recent literature. Secondly, they are responsible for educationalists losing sight of both the processes of assessment and the essential neutrality of assessment itself.

The first point of dominating the literature is in itself not necessarily a bad thing because it can contribute to reminding us that throughout history assessment has been used unjustly and ruined lives (STOBART, 2008). So, can we control how assessment is used? The answer is no. Even if we are prioritising positive, ethical functions such as supporting learning, we cannot ensure that the results of the process of assessment will be used as we intended (TARAS, 2005, 2007c, papers In: GARDNER, 2006). Therefore, focusing on functions will not contribute to ensuring that assessment is used ethically.

For the second point, the consequences of losing sight of the process of assessment are very serious: if this is not monitored, it effectively means that we are not ensuring that how we assess and, subsequently, the results of the assessment are either carried out properly or transparently reported. This will contribute to making the essential neutrality of assessment (point three) even less neutral. It also has serious implications for the reliability and validity of assessment, but discussion of this area is beyond the scope of this paper.

It could be argued that this discourse is creating a storm in a teacup. However, if this teacup is an individual’s assessment, it can have serious implications for their future. Furthermore, it can be argued that focus on formative functions will not impinge on the integrity, validity or reliability of summative work. The problem is, as noted above, that often assessments have multiple functions and what begins as a learning exercise which is informal, implicit and likely not to be rigorous, may be used for critical decisions. Therefore, the result could be that final, important judgements are made on the strength of ad-hoc, informal assessments.

To avoid this, we need assessments to have the rigour and care attributed to summative work, but with the intentions to support learning and teaching, and have the positive attributes generally attributed to formative assessment. This aim is within our grasp if we focus on the processes as opposed to the functions of assessment.

The process of assessment

The process of assessment is inherent in the definition which will be repeated for expediency:

The activity consists simply in the gathering and combining of performance data with a weighted set of goal scales to yield either comparative or numerical ratings, and in the justification of (a) the data-gathering instruments, (b) the weightings, and (c) the selection of goals. (SCRIVEN, 1967, p. 40).

Therefore, the parameters are chosen i.e. (a) the data-gathering instruments, (b) the weightings, and (c) the selection of goals and these are justified. Assessment is a complex process with all the elements used to make the judgment in constant interplay. The result is the judgement that can be compared to a standard or a number on a standardised scale.

Summative assessment provides information which Sadler (1989) calls “Knowledge of Results”. This information can be in the form of a summary grade or it can be “comparative”. Comparative here means the short-fall between the perfect or ideal and the performance that is being judged. Therefore, Scriven’s definition pre-empt part of Ramaprasad’s definition of feedback which signals a “gap” to be bridged (1983).
Feedback and formative assessment

The definition of formative assessment is perhaps the most contentious and varied of all the definitions of assessment proffered as is its relationship to summative and self-assessment. Formative assessment as a concept, and its close companion feedback, is not new: it focuses on means, techniques and procedures to support learning through feedback. Therefore feedback is a crucial aspect of formative assessment. But, whereas summative assessment produces feedback, formative assessment must use feedback.

Sadler adopts Ramaprasad’s definition in his theory of formative assessment. This definition demonstrates that feedback as opposed to knowledge of results is a complex process which requires the active participation of learners in furthering their own development. It requires an understanding of the context of assessment, the parameters and for learners to understand their position and own knowledge base within this context “(feedback) requires knowledge of the standard or goal, skills in making multicriterion comparisons, and the development of ways and means for reducing the discrepancy between what is produced and what is aimed for” (SADLER, 1989, p. 142).

Since feedback according to this definition is a first necessary step to formative assessment, it could be called formative feedback. However, if we look at Ramaprasad’s definition, it is more than just potential for improving: “feedback is information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way.” (RAMAPRASAD, 1983, p. 4, emphasis added)

In fact, Sadler’s definition of formative assessment is not greatly different from Ramaprasad’s definition of feedback (or formative feedback).

Formative assessment is concerned with how judgements about the quality of student responses (performance, pieces, or works) can be used to shape and improve the students’ competence by short-circuiting the randomness and inefficiency of trial-and-error learning. (SADLER, 1989, p. 120, emphasis added)

As Taras (2005) notes, the modal verb “can” shows that when the judgements are used this is formative assessment. If the judgement is not used, we are left with the judgement which is summative assessment. This leads us logically to examine the relationship between summative and formative assessment.

Relationship between summative, formative assessment and feedback

From the above, it is clear that making a judgement according to specific parameters is assessment, or summative assessment at that point in time. This assessment will produce feedback. The feedback may remain as an implicit judgement within the person’s head, otherwise, any manifestation or communication of this judgement will provide information. According to the definitions of assessment proposed in this paper, the parameters for making the judgement - that is the criteria, the standards and the goals - will be used to make the judgement and measure the short-fall from the ideal. Information produced will provide feedback which is required to improve the work. The use of this formative feedback by the learner will result in formative assessment and bring the work closer to the ideal.

Taras (2005) represents this relationship in the equation:

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SA + \text{feedback} = \text{FA} \] (Summative assessment + feedback = formative assessment)

More precisely, and perhaps more accurately, a summative assessment will produce feedback which when used results in formative assessment:

\[
SA \rightarrow \text{feedback}
\]

Feedback use = formative assessment

Far from showing summative and formative assessment as discrete items the above shows that the two are inseparably linked and that summative assessment is a necessary starting point for all assessment (TARAS, 2009).

Therefore, summative assessment must come first: it is necessary to assess the quality of the work before feedback can be given for the learner to use. Feedback cannot come from thin air: examining the work with implicit or explicit criteria and standards will result in judgements. What differentiates summative and formative assessment is that the latter is used by the learner to update and improve the work (or, at the minimum, to understand what would need to be done and how). Summative assessment does not exclude feedback (or Knowledge of Results) and even a number grade or physical reaction will provide information no matter how minimal. Often, in higher education, graded work is the main source of feedback (TARAS, 2006).

Using feedback is formative assessment, summative assessment can also and often does produce feedback which could be used. With formative assessment its use is mandatory, with
summative assessment it is not. Because assessment is such a universal and constant process, with an infinite means of describing it, much of it is implicit, automatic and taken for granted. Perhaps we tend to forget the obvious and the basic premise of the process. Coffield and Edward (2009) illustrate how lack of engagement with the basic premises of ‘good’ assessment principles results in shoddy practice and research. I would add and “theory”.

Relationship between summative, formative assessment and self-assessment

We have examined the links between summative and formative assessment processes. This section will explore how self-assessment relates to them. The self-assessment literature considers it as being formative, indeed it is claimed to be the single most important aspect to support learning (BOUD, 1995; COWAN, 2006; BLACK et al., 2003). The literature discussed in this paper seems to make the same assumptions. However, both Scriven (1967) and Sadler (1989) implicitly demonstrate that self-assessment is in fact a summative process.

Unless entirely ignorant of one’s shortcomings as a judge of one’s own work, he (sic) is presumably engaged in field-testing the work while it is being developed, and in so doing he gets feedback on the basis of which he again produces revisions; this is of course formative evaluation. (SCRIVEN, 1967, p. 43).

From this citation, formative assessment is using feedback which summative assessment produces. However, since the same person is providing the feedback as is using it, it is self-assessment. Therefore, we can rationalise that producing feedback by the self is a summative process because it is not obligatory for the person to use this feedback: we can all admit to not updating to our best abilities due to time and logistical constraints (TARAS, 2003).

However, it could be argued that any production process involves ongoing and ad hoc feedback by the person concerned where this is integrated at a cognitive level in addition to the work. Indeed, Sadler’s mandatory use of self-assessment as an integral part of formative assessment envisages such a process. Taras (2009) argues that technically and theoretically, self-assessment is a summative process and that any feedback that learners provide themselves would also require utilisation for it to be considered formative. Whether this use should be demonstrable in an educational context would however overlook mental processing, which is where real learning and assessing take place.

Implications of assessment processes and functions

This paper has demonstrated that understanding and focusing on the assessment process is necessary to support and sustain good practice. Assessment is far too important and with huge consequences for participants for it to be dependent on ad-hoc, implicit processing. We are all aware of the inherently subjective aspects of all judgements; however, making the parameters, processes, and products explicit and transparent goes a long way towards producing ethical and equitable assessments which are acceptable to all concerned. Furthermore, as noted at the start of this paper, assessment is a necessary and integral part of learning. Since learning is dependent on, and a product of, the context, assessment too is context specific and an understanding of which needs to be negotiated among protagonists. Also, and critically, feedback is only such if it is understood, accepted and integrated by learners into future work.

Conclusion

The above concepts have significant implications for learning, teaching and assessing. Specifically, the three are interdependent and require cooperation between all concerned. In any context, be it peers in reviewing programmes or articles, or interviewing for jobs, tutors and learners assessing their own or others’ work or their own ideas and ideals in classroom interaction, the basic assessment process is the same. Sharing parameters, practices and contexts will go a long way towards an equitable understanding to reduce injustice which has long blighted assessment (BROADFOOT, 2008; STOBART, 2008). Given the high stakes of all assessment, whether summative or formative, we need the courage and knowledge to be explicit and transparent. This paper shows that a focus and separation of functions of summative and formative assessment is not necessarily the answer if the process is eclipsed and ignored.

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