



Making Connections: Some Initial Thoughts on Communication, Constructivism and Formative Assessment

Author: Philip Tonner

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Quite reasonably, it could be argued that at the heart of any philosophy of education lies the notion of communication; and further, at the heart of sensitive and engaging teaching practice, that philosophy will be put into action. Communication, in order to reach mutual understanding and comprehension, is the central concern of teaching. In this paper we shall suggest some ways in which a concern with communication as a central dimension in teaching connects to the constructivist paradigm of learning. From this, we will show how this constructivist paradigm is enacted by the recent turn towards formative methods of assessment in educational practice via a discussion of Black and William's work in *The Black Box* (1998 and 2002). We shall also discuss summative assessment in contrast to formative assessment placing the discussion of assessment practices in line with our concern with constructivism. It is hoped that this paper will initiate a concern to relate the notions of communication, constructivism and formative assessment in a more systematic and formal way.

There is nothing new in insisting on communication as central to the practice of teaching and the undertaking of

learning. At the very start of the tradition of Western thinking on education can be found the insistence on communication as the very conductor of good practice in the education of children. This is so since, for Socrates, as Rowe notes,

if it will do our children little good to be punished, neither will it do them much good even to be rewarded. There is just no substitute, except in the short term, for reasoning with them, and explaining why what we want them to do is good for them (if it is) ? and, Socrates would want to know, have we thought that through?¹

There can be no substitute to 'reasoning with' and 'explaining why' to children the rationale behind tasks set for them and the only way of doing this is through communicative action. Genuine communication is the very conductor and facilitator of the kind of learning that could lay claim to the term Socratic and it would seem reasonable to extend this notion to adult learners as well.

In this connection, it is centrally important that we note the connection to critical self-reflection or reflexivity insisted upon by the Socratic method: 'that "we" have thought it through'. The 'that' which "we" as educators must think through is nothing less than the very usefulness and general good of that which we are attempting to communicate to learners. Educators need to be reflective and aware of their own practices. Through reflexivity and a willingness to communicate a teacher can become a true facilitator of learning such as they aspire to be throughout their career.

There is one further condition for true communication to happen. This condition is centrally important since without it no communication that leads to genuine 'mutual' understanding and comprehension will take place. This condition is the willingness of the learner to engage in the practice of communicative learning. At its best communicative learning is hermeneutic. It involves both teacher and pupil in a self-aware and reflexive engagement where 'speaking' with each other aids both parties in their willingness to engage. As Hans Georg Gadamer has put the point:

(g)enuine speaking, which has something to say and hence does not give prearranged signals, but rather seeks words through which one reaches the other person, is the universal human task? ²

This kind of genuine speaking put to work as a teaching style should be contrasted with the programmatic style where a 'teacher talks' and 'students listen and do their homework'. For, as Cohen, Manion and Morrison have put it, in the programmatic style '(t)he negative effects?on student motivation and achievement are legion'.³ By contrast, and providing that willingness is present on both sides of the teaching-learning equation, genuine learning, on both sides of the conversation, will occur.

Constructivism

By engaging learners in communicative learning, by engaging them in educational 'conversations' in the class or tutorial room, educationists will necessarily engage the past learning and general life experience of learners and concern on the part of the teacher with engaging the past learning of students at all stages of education brings their practice squarely in line with the constructivist paradigm of education. For the constructivist, learning is conceived as an active process wherein learners 'construct' and 'internalise' novel concepts, ideas and bodies of knowledge based on their own past experience and current knowledge in conjunction with the active process of learning within the horizon of the present. Essentially, 'knowledge is constructed rather than received'.⁴ Broadly, there are two forms of constructivism, cognitive constructivism and social constructivism. The former is particularly associated with the thought of Piaget and the latter with Vygotsky.

For the cognitive constructivist learning involves the active construction of one's own knowledge of the world.

Learning is not construed as the passive retention of received wisdom. Rather, it is construed as an individual's active and self-directed search for meaning amidst the manifest phenomena of the world. Importantly, from the point of view of cognitive constructivism, the active process of creating knowledge is ongoing. Learners are continually appropriating, organizing and reorganizing the manifest structure of 'things' into determinable bodies of knowledge. Knowledge is located in and mediated by society and culture. Typically, the cognitive constructivist would regard successful learning to involve both higher order thinking, where the learner synthesizes, evaluates, interprets and critically engages with novel ideas and phenomena and metacognition.⁵ Metacognition is that process wherein learners think about their own thinking and learning. It involves reflective self-awareness with regards to one's own learning strategies and successful learning. A concern with metacognitive issues is a central plank underpinning both constructivism and formative assessment.

The social constructivist would agree with virtually everything we have said so far about the constructivist paradigm for learning. They would, however, place more emphasis on the social grounds of a great deal of learning⁶, particularly higher order cognition.⁷ Indeed, Vygotsky's qualified, in the sense that Piaget had already noted the 'social' dimension of learning, augmentation of Piaget's view was to place an emphasis on the 'social, collaborative and interactional'⁸ dimensions of learning. That Piaget regarded the social dimension of learning to be important is evidenced by the following remark on the nature of language:

Language is a group institution. Its rules are imposed on individuals. One generation coercively transmits it to the next, and this has been true for as long as there have been men. ⁹

From the point of view of the social constructivist the programmatic style of teaching is a non-starter. Rather, from this perspective the teacher becomes the true facilitator of learning in that they are charged with setting up the relevant conditions constitutive of the learning situation that will enable successful learning to occur. That is, to quote Cohen et al, '(t)eaching and learning have moved from instructivism to constructivism'.¹⁰

From the subject specialist's point of view, it is important to reflect on how their subject can be approached from the point of view of constructivism. Although it is the conviction of the constructivist that the teaching of all subjects must be approached from this vantage point, from the point of view of practice, the teaching of social subjects lends itself well to this. Particularly, by engaging them in conversations where learning takes place students at all levels and at all ages systematically reveal themselves to be the single greatest resource for the teacher. Significantly, the current turn towards formative assessment attempts to harness the conversational-constructivist paradigm of learning and put it to work in the service of that key aspect of educational practice, assessment. We shall now introduce the principles of formative assessment and connect them to the constructivist paradigm.

Formative assessment

In 'Working Inside the Black Box', the equally successful and provocative follow-up paper to 'Inside the Black Box', the authors are unequivocal regarding the aim of the class teacher (their focus is on schools). As a facilitator of learning, the overarching aim that all activities in a classroom are subordinate to is the 'teacher's core aim?enhancing pupil's learning.¹¹ They are equally unequivocal regarding their experience in carrying out their research: it demonstrated that widespread change in contemporary educational provision in schools is needed. The image of the classroom conjured up by the author's diagnosis of educational policy and some educational practice was a 'black box' wherein inputs from 'outside', such as policies, rules, pupils, teachers and 'tests' are fed in and certain 'outputs' generated. Amongst the outputs of the 'black box' are more 'knowledgeable' and 'competent' pupils and improved test results. Assessment in some form or other is central to the normal functioning of this black box called the classroom.

Black and William's paper is about the 'inside of the black box'¹² and it is focussed on a single aspect of teaching: formative assessment. Their claim is that far from being an afterthought to the successful facilitation of learning, formative assessment is firmly at the heart of effective teaching. As the authors use it, the term assessment

designates the totality of all the activities undertaken by teaching staff and by pupils 'in assessing themselves'¹³ that provides information that can be used as feedback in the service of modifying the teaching and learning practices with which pupils and teachers are engaged. It is their claim that:

(s)uch assessment becomes 'formative assessment' when the evidence is actually used to adapt the teaching work to meet the needs [of those engaged in teaching and learning].¹⁴

It is common among educationists when dealing with the complex subject of assessment to distinguish the primary and secondary functions it serves in the facilitation of learning. Amongst the primary functions are certification, diagnosis and improvement of learning and teaching.¹⁵ Of these three functions, arguably, diagnosis and improvement are central to formative assessment. Certification is part of summative assessment: assessment of learning rather than the formative assessment for learning.¹⁶ The current drive towards Assessment is for Learning recognises the central role that formative assessment should play in the facilitation of learning. In this approach assessment is at the heart of the learning process. Formative assessment is intended to be for learning rather than assessment of learning.

Before turning to the account of formative assessment presented in 'Working Inside the Black Box' and related work, it will be useful to augment our discussion and focus for a moment on the nature of questioning itself since questioning will be at the heart of formative assessment. It is useful to distinguish, as Cohen et al do, between lower order cognitive questions and higher order cognitive questions.¹⁷ Whereas lower order questions target student or pupil recall, comprehension and application of the material they have been presented with higher order questions involve analysis, synthesis and evaluation of the material. Both orders have a role to play in formative assessment within the classroom.

Lower order questions seek to establish whether or not pupils have remembered what they have been presented with, whether they have understood that material and whether they can employ the appropriate rules and strategies in solving such questions. Higher order questions seek to identify whether and to what extent pupils can identify motives, causes, inferences and premises in making their arguments and statements; whether they can predict, problem solve and produce relevant and interesting contrasts between phenomena and whether they can evaluate the quality of ideas, solutions to problems and works of art.¹⁸ As such, this order of questioning is bound up intrinsically with critical and evaluative thought.

One key suggestion made by the authors in their account of questioning in Working Inside the Black Box for teaching practice is to allow a longer 'wait time' for a response/answer to a question posed in or to the 'class'.¹⁹ This is a useful and instructive method to employ, particularly in the service of higher order questioning.

This is so since it is not obvious that there are any 'quick' answers to higher order questions in the first place. Consider the following example of questioning regarding the death penalty that could be posed in all manners of philosophical and/or social and religious studies. The common justifications offered by theorists of punishment for punishment are reform, retribution, deterrence and protection. Sometimes vindication is also put forward as a justification. Now, if an instructor posed the following question: 'would any of the justifications for punishment fail to justify the death penalty?' A pupil/student may say; 'the death penalty cannot be justified by any appeal to 'reform' since any prisoner cannot be reformed after they have been executed.'²⁰ This question and answer can feed directly into the asking of 'big questions'²¹ such as 'is killing ever justified?' Such higher order questions are 'open' in the sense that there is no obvious or quick answer to them. Any answer is a matter of reasoned argument rather than mere opinion and as such, these questions remain open to further argument.

In the class or tutorial the stimulus to further debate, although not limited to the teacher or tutor, can often fall to them and to their communicative skills in providing good feedback to pupils and students. Feedback is central in formative assessment and Black et al are unequivocal regarding this issue:

It is the nature, rather than the amount, that is critical when giving pupils feedback on both oral and written work.²²

Rather than overburdening learners with copious amounts of feedback, facilitators of learning should instead focus on the nature and quality of the feedback given. In service of this, Black et al point out that the central issue is that 'to be effective, feedback should cause thinking to take place'.²³ It is this causal function of feedback that is at the heart of its productivity.

Black *et al* summarize their ideas for improving feedback to school pupils as follows: they suggest that written tasks (such as rewriting pieces of work) should encourage individuals to progress and display their understanding of what they have taken on board.²⁴ They further suggest that 'comments' should pick out what has been done well in addition to what needs further improvement. Comments should give guidance to students on exactly how they are to achieve that suggested improvement. Black et al further suggest that pupils should be given the opportunity to follow up the teachers' comments and that such opportunities be timetabled and planned as part of the 'overall learning process'.²⁵ This is a particularly important aspect to the overall suggestions for improvement in practice Black et al make since it can be employed as part of the self-assessment and self-critical dimensions of formative assessment.

Since assessment is for learning, students who engage in such an active appropriation and exploration of the teachers' comments in seeking to improve their own work are engaging with the comments to such a degree that thinking has been caused to take place. Employing such reforms takes the critical force of teacher's comments away from the broadly summative use of marks and instead reterritorializes the pupils' focus onto the creative appropriation of comments in the service of genuine learning. By so doing, assessment becomes genuinely formative and here, the quality of feedback is crucially important since, as Cohen et al point out, 'formative assessment should lead to rich, formative feedback to students, i.e. feedback on which they can know how to act to improve their learning and achievements, something which a mark or a grade simply does not have the power to do'.²⁶

Summative assessment

In the current educational climate the use and effectiveness of summative methods in assessing student produced work is receiving considerable attention. Since the work of William et al, that suggests that pupils' work 'should be assessed but not graded' the use and effectiveness of summative assessment in engendering genuine learning has been put in question. The effect of the current climate has been to raise a question regarding the effectiveness of summative assessment. Nonetheless, the practice of summative assessment is widespread and firmly established as one of the key ways in which learners' achievement and/or attainment can be measured. The summative paradigm has formed the corner stone of much of the thinking hitherto regarding the practice of assessing achievement and as such achievement is measured quantitatively. Given that it is this culturally enshrined practice of using grades as the measure of educational achievement that has been put in question, the question about grades becomes: 'how and/or in what ways can summative assessment be implemented constructively in a way that promotes learning?'

In order to answer this question we must first understand more fully what is meant by summative assessment. Summative assessment is assessment of learning and as such it is usually contrasted with formative assessment.²⁷ Whereas formative assessment is qualitative in that it 'suggests and shapes the contents and processes of future plans for teaching and learning'²⁸ and in that it operates in line with a broadly constructivist approach to teaching and learning which holds that learners 'construct' their own knowledge of the world drawing on their past learning and appropriating their current course work and so on, summative assessment is quantitative: in summative assessment a discrete mark or grade is awarded and is then taken as the sole measure of achievement.²⁹

As Cohen et al draw the distinction, summative assessment contrasts with formative assessment in both purpose and timing. Summative assessment is terminal, it occurs at the end of a programme of study and it assesses a student's

overall achievement, knowledge acquisition and relevant practice for that programme of study. In essence, summative assessment is 'the stuff of the GCSE formal examination, the end of term test, the A level?[and]?the final examinations for a degree programme'.³⁰

In this regard, Cohen et al are right to point out that summative assessment is regularly concerned with certification and the attendant public recognition of achievement. In this sense, formative assessment differs sharply from summative assessment. The practice of summative assessment is deeply entrenched in our cultural practices regarding assessment. Compared to such public recognition of perceived achievement the entirely qualitative method of formative assessment can seem to be no alternative.

In this regard, critics of summative assessment point out that there is a major risk inherent in its structure. Summative assessment risks a 'negative backwash effect on the curriculum'³¹ to the extent that the curriculum itself can be narrowed to meet only that which the final exam will recognize and the activities of learning will narrow in line with this.

By virtue of this, so Cohen et al contend, such summative assessment tends towards a broadly behaviourist view where, it is held, if you apply a particular stimulus to a machinic like being, a particular response will follow. A behaviourist interpretation of teaching and learning stands in stark contrast to the constructivist paradigm. Behaviouristic accounts of teaching and learning are seductive when the evidence from the chalk face suggests that the expectations of pupils and students have been conditioned to be such that they believe that all there is to education is to provide the correct response/answer to the appropriate stimulus/question. Trying to counteract this effect in the service of promoting the practice of formative assessment can be an uphill struggle.

Nonetheless, it would be wrong to assume that summative assessment necessarily excludes formative assessment, for it does not. There can be, as Black et al argue, the 'formative use of summative assessment' and it is precisely here that summative assessment has a positive role to play in education.³² The key here is the suggestion made in *Working Inside the Black Box* that '[t]he aftermath of tests can?be an occasion for formative work'.³³ In this broad approach pupil involvement is central. Black et al suggest that 'peer marking' of test papers can be a useful strategy to employ, particularly if the class have been required to formulate in advance a marking scheme for the test. Such an exercise, it is argued, focuses the attention of learners onto the 'criteria of quality' employed in the assessment of their work. Such an approach draws on the student's past and present experience and engages the whole person in such a way as to operate in line with the formative-constructivist paradigm.

Two further examples warrant mention: they are first, a student produces a traffic light scheme highlighting curriculum areas on which the test will be set and second, that students are required to generate and then answer their own questions. Both of these examples further engage the whole person in reflection on the nature of 'success' both in terms of discrete marks, since these are the objective criteria that students will attach to their self-generated success criteria, but also in terms of their personal success in relation to these. In this, both summative and formative assessment are put to work with the aim of promoting reflective practice by all concerned in the facilitation of learning and it is precisely here that summative assessment can maintain a key role in educational practice. In essence, the key message regarding summative assessment is that it 'should be, and should be seen to be, a positive part of the learning process'.³⁴

Conclusion: metacognition, formative assessment and constructivism

What is essential in supporting learners in their studies and ultimately in improving their learning is that they, working in conjunction with support staff, are made aware of the metacognitive issues relating to their own learning. One way of doing this is by communication. By engaging learners in discussions about learning, learners can be 'caused' to reflect on their learning strategies. Further, squarely inline with this communicative drive in educational practice is the drive towards formative assessment practices and the formative use of summative assessment. One consequence of

implementing practices inline with the formative-constructivist paradigm is that everybody involved in teaching and learning will be talking about it with each other much more.

Metacognition, as a discrete theme in educational theory, is now at the forefront of the practice of helping students improve their learning. Inculcating an appreciation of metacognitive issues involves helping students understand their own learning, how best they learn and how best they can improve their studies to promote their own learning.³⁵ As we have said, such a concern with metacognitive issues in facilitating learning is in line with a constructivist approach to teaching and learning and this, as we have seen, is squarely in line with a formative approach to assessment. Underpinning the concern with formative assessment methodologies and with the constructivist approach is a concern with metacognition. Implementing the formative-constructivist paradigm in educational practice must improve the metacognitive understanding of learners if it is to be successful. Simply by communicating, in what Gadamer called the 'universal human task', educationists will be able to create metacognitively aware learners who can continue to actively engage in lifelong learning outside the classroom or lecture theatre. To this extent, formative-constructivist practice in education empowers learners.

Endnotes

- 1 Rowe, C.J, 'Socrates 469-399 BCE', in Palmer, J.A., (ed.), ***Fifty Major Thinkers on Education, From Confucius to Dewey*** (London: Routledge, 2001), p. 8.
- Gadamer, H.G, 'The Universality of the Hermeneutical Problem (1966)', in Linge, D. E., (trans. and ed.), ***Philosophical Hermeneutics*** (Berkeley, London: University of California Press, 1976), p. 17.
- Cohen, L., Manion, L. and Morrison, K., ***A Guide to Teaching Practice***, Fifth Edition (London, New York: Routledge Falmer, 2004), p. 229.
- Quoted in Cohen et al, (ibid.) p.167. For my characterization of constructivism see Cohen et al, chapter 10.
- This list ('synthesizes, evaluates' and so on) is not intended to be exhaustive. For a fuller account, see Cohen et al, (ibid.) p.172.
- See ibid., p. 168.
- For details of this, see Smith's entry 'Jean Piaget 1896-1980' in, Palmer, J.A., (ed.), ***Fifty Major Thinkers on Education, From Confucius to Dewey*** (London: Routledge, 2001), pp. 37-44.
- Cohen et al, p. 168.
- Piaget, J., ***Structuralism*** (trans. and ed. Maschler, C.,) (London: Routledge, 1971), p. 74.
- Cohen et al, p. 169.
- Black et al, ***Working Inside the Black Box, Assessment for Learning in the Classroom*** (London: King's College, Department of Education & Professional Studies, 2002), p. 19.
- Black, P and Wiliam, D., ***Inside the black box: Raising Standards through Classroom Assessment*** (London: King's College, c1998), p. 2.
- Ibid., p. 2.
- Ibid. , p. 2. Square brackets: my addition.
- Cohen et al, ibid., p. 327. The secondary functions of assessment include accountability, evaluation and motivating students and teachers. See Cohen et al, p. 327 for full accounts of these and of the primary functions of assessment.
- See ibid., p329. In addition to summative and formative assessment there are norm-referenced, criterion-referenced, domain-referenced, diagnostic, ipsative, authentic and performance assessment. For a full account of these see Cohen et al, pp. 328-331.

- See Cohen et al, p. 239.
- See *ibid.*, p. 239.
- See Black et al, *ibid.*, p. 5.
- The death penalty may or may not be justified by one or more of the other three justifications for punishment. Such issues were explored in the lesson openly.
- On the use of 'big questions', see Black et al, *ibid.*, p. 6.
- Black et al, *ibid.*, p. 8.
- *Ibid.*, p. 10.
- Here we follow Black et al's account, *ibid.*, pp. 9-10.
- Black et al, *ibid.*, p. 9.
- Cohen et al, *ibid.* p. 329.
- See *ibid.*, p. 329.
- *Ibid.*, p. 329.
- On constructivism, see Cohen et al, *ibid.*, p. 168.
- Cohen et al, *ibid.*, p. 329. Square bracket: my addition.
- Cohen et al, *ibid.*, p. 330.
- See Black et al, *ibid.*, pp.12-14.
- Black et al, *ibid.*, p. 13.
- Black et al, *ibid.*, p. 14. Black et al summarize the main possibilities for improving classroom practice as follows: 'Pupils should be engaged in a reflective review of the work they have done to enable them to plan their revision effectively. Pupils should be encouraged to set questions and mark answers to help them, both to understand the assessment process and to focus further efforts for improvement. Pupils should be encouraged through peer- and self-assessment to apply criteria to help them understand how their work might be improved'. By implementing the strategies suggested above such aims can be achieved.
- On metacognition, see Cohen et al, *ibid.*, p. 176.

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