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Assessment *as* learning: blurring the boundaries of assessment and learning for theory, policy and practice

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This paper explores assessment and learning in a way that blurs their boundaries. The notion of assessment *as* learning (AaL) is offered as an aspect of formative assessment (assessment for learning). It considers how pupils self-regulate their own learning, and in so doing make complex decisions about how they use feedback and engage with the learning priorities of the classroom. Discussion is framed from a sociocultural stance, yet challenges some of the perspectives that have widely become accepted. It offers three new views to help explore the concept of AaL: understanding feedback; understanding the learning gap; and exploring vocabularies of assessment. Pragmatically, the ideas examined suggest that teachers may need to consider less about focused and directive feedback, but more about how learners interpret and understand feedback from their self-regulatory and self-productive identities and how vocabularies for assessment can be more collaboratively shared in learning contexts.

Keywords: assessment *as* learning; pupil self-assessment; learning gap; communicative action

Introduction

Black and Wiliam's (1998) comprehensive review of formative assessment highlighted that 'in *general*' (p. 7, original emphasis) formative assessment is mainly effective. However, they claim, 'Formative assessment is not well understood by teachers and is weak in practice' (p. 20). Sadler (1998) in contextualising Black and Wiliam's review claims, 'contrary to what might be expected after several decades of research, there remains much that is unresolved and problematic, and much still to be done' (p. 78). More than a decade later, the same statements in Black and Wiliam's review seem valid despite many more research studies. Hence, this paper seeks to explore further the interrelation of assessment, teaching and learning in ways that promote learning and are therefore, in one sense, about formative assessment. Yet, it tries to develop, what seem to be rather fragmented attempts to conceptualise 'assessment *as* learning (AaL)'. The aim is to contextualise the research on 'AaL', and offers some further insights in order to understand how assessment and learning might interplay in school learning contexts. What lies at the heart of this article is a further exploration of processes that seem to be central to formative assessment (more recently termed assessment for learning). Those processes that influence learning, but seem hitherto under-explored and under-conceptualised,

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receive particular attention. Furthermore, their centrality within formative assessment and their complexity are so integrated with processes of learning that they call for the notion of AaL to be re-clarified. This article prioritises three key themes: feedback, understanding the ‘learning gap’, and vocabularies of assessment. Prior to these themes, a brief consideration of the significance of ‘AaL’ is offered.

Distinguishing ‘assessment of learning’ (formative assessment) and ‘AaL’

Sadler (1989) claims that recognising the gap between what a learner currently knows and what s/he needs to know forms the focus of formative assessment. Sadler states that ensuring that each pupil understands his/her own learning gap is crucial for learning. Furthermore, he suggests, this would include some use of self-assessment. Black and Wiliam are far less specific about what formative assessment entails, claiming in their review article, that it is interpreted as encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged (pp. 7–8).

Assessment for learning (AfL) has been the focus of considerable research and exploration but analysis of this is not the purpose of this paper. Nevertheless, recognition is given to the warnings of both Marshall and Drummond (2006) and Torrance (2007). Marshall and Drummond highlight that AfL, within some teaching and learning contexts, embodies the ‘spirit’ of AfL whereas in other contexts it conforms only to the ‘letter’. They make clear that there is a distinction between AfL as a tool for looking at past performance or helping prepare for future learning (p. 140). Hence, they acknowledge that in some cases the emphasis on AfL is so formulaic that it does little to move us from looking back at the past. Torrance (2007) states that assessment for learning has become so technical in some institutions that, ‘in a very real sense we have moved from “assessment of learning” through “assessment for learning” to “assessment *as* learning”, for both learners and tutors alike, with assessment procedures and process completely dominating the teaching and learning experience’ (p. 291). Indeed, it is in recognition that the impact of the processes of formative assessment may in fact be ‘deformative’ (Torrance, 2012) and reduced to a mechanistic approach to AfL, in which assessments become very limited, constraining the focus of learning, that this article is offered. Already concepts such as ‘AaL’ are being reinterpreted to explain dominant discourses (Torrance, 2012) in which the performativity and accountability agendas triumph.

It is not overtly clear in current literature where AaL sits in our understandings of either assessment or learning. Dann (2002) promotes the concept of ‘AaL’, stating that ‘assessment is not merely an adjunct to teaching and learning but offers a process through which pupil involvement in assessment can feature as part of learning – that is assessment *as* learning’ (p. 153). A substantial part of Dann’s argument relates to developing pupils’ engagement in and response to pupil self-assessment with a focus on exploring processes such as self-regulation, self-efficacy, metacognition and feedback as dimensions of both assessment and learning. Earl (2003) suggests a re-configuration of our understanding of assessment practices and locates ‘AaL’ as an essential foundation for both assessment for learning (traditionally and formative assessment) and assessment of learning (traditionally and summative assessment). The essence of what is taken forward in this paper is the view that ‘AaL’ is the complex interplay of assessment, teaching and learning which holds at

its core the notion that pupils must understand their own learning progress and goals through a range of processes which are in themselves cognitive events. Implicit, is the need for pupils to be active in both learning and assessment. This has particular connotations for how pupils are involved in assessment. Following Dann (2002), it seems clear that pupil self-assessment lies at the heart of 'AaL'. Moreover, there is a particular emphasis on social constructivism as a theoretical underpinning in this paper. Discussion on how this provides a theoretical framework for the arguments presented will be developed later, but at this stage the assertion is made that the emphasis is on how learning is co-constructed in classrooms so that it is not so much a matter of instruction and transmission by the teacher but an interactive interplay of minds in real contexts. The understanding of learning and achievement afforded in this paper highlights how difficult it is to define the relationship of teaching, learning and assessment in any predefined sense. Furthermore, social constructivism falls short in offering sufficient explanation. Part of the argument developed extends theoretical insights into Cultural Historical Activity Theory (CHAT). Without a clearly articulated theoretical stance, the concepts being explored will become the victim of whatever dominant discourse might hijack the terminology. Torrance (2012) already states, 'despite several decades of debate about the appropriate theoretical underpinnings of formative assessment, and how these might in turn influence its development, it is basically a behaviourist, objectives-based model which emerges in practice' (p. 329). There is a vision in this paper, hopefully not naïve, that the realities of classroom practice and the powerful mediating roles of teachers will continue to create authentic experiences for assessment and for learning.

The remainder of this article seeks to bring together three key themes, which will help to (re)conceptualise and contextualise 'AaL'.

Understanding feedback as a dimension of AaL

One of the key features in assessment for learning (formative assessment) and AaL is feedback (Hattie & Jaeger, 1998; Nicol & Macfarlane-Dick, 2006; Sadler, 1998). Black and Wiliam (1998) claim that feedback is as fundamental in the learning process as having a teacher. Yet their review study shows that at times it led to either no improvement or in the worst cases worsening performance. Sadler (1998) following Black and Wiliam's review paper stated that feedback, although important, was inadequately conceptualised and documented in research, requiring further analytical and empirical work (p. 77). He suggests that the problems with feedback practices may well occur when 'the reference "point" is not concrete' (p. 80, original emphasis). Moreover, he identifies the nature of the teacher's evaluative act as comprising reflection on and identification of strengths and weaknesses (as distinct from liking or disliking), offering a judgement whether with a grade, classification or mark, providing verbal or written statements offering ways in which shortcomings may be remedied. To develop this further, he teases out the intellectual and experiential resources that teachers bring to the feedback process (pp. 80–82). These include: superior knowledge; an understanding and empathy of how learners learn; knowledge of constructing tests which will reveal responses from students' knowledge of criteria and standards; evaluative skills in their abilities to make judgements about student efforts; and the ability to frame feedback statements.

If these 'basic elements' do reflect and encompass teachers' skills in the feedback process, Sadler argues that they display a one-way process dominated by the teacher.

Those who advocate self-assessment as an important dimension of AfL might argue that pupils need to learn some of these skills and need to be ‘specifically inducted’ into the processes outlined (e.g. Cowie, 2005; Kostons, van Gog, & Paas, 2012; Read & Hurford, 2010). Sadler (1998), however, seems less concerned with this aspect of development. He is concerned with the way in which standards and success are interpreted by the pupils. He claims that the negative impact of negative feedback that emerges from Black and Wiliam’s review (feedback related to the things that are incorrect or need to be developed) ‘can be traced to inadequately specified standards’ (p. 83). His argument continues to explain that pupils are quick to recognise when feedback is not about the absolute standard of their work but used to enhance motivation and self-esteem, being based on ego-related factors. Furthermore, he calls for attempts to more clearly define standards so that they can be divorced from cohort-dependent contexts (e.g. an implicit cohort median) along with the consideration of accessibility of the feedback to the learner. The problem for Sadler is, ‘the extent that a teacher tries to work without clearly defined standards, and defaults to an existential determined baseline from how other students perform, the teacher is unable to provide task-related, standards orientated feedback’ (p. 83).

This call for precision and clarity may not lead us further forward. It considers the importance of interpretation, but only in so far as pupils recognise the goals or learning outcomes, which are evident in learning events. Hattie and Jaeger (1998) consider the notion of interpretation of feedback in a slightly different way. They state:

students can bias feedback and select information that provides affirmation of their prior beliefs. The importance of these findings is that providing feedback to students is not enough – since the ways and manner in which individuals interpret feedback is the key to developing meaningful learning gains. Excellent teaching involves being aware of individual students’ dispositions to receiving feedback information. (p. 117)

However, along with Sadler, they warn that emphasising feedback that draws attention away from the task and to personal attributes can have a negative effect. Dweck (2006), in contrast, emphasises the importance of feedback being focused on effort rather than intelligence or personality. From her perspective, the absolute standard of the work must be related to recognition of the effort put into achieving it. The difficulty with most of the research here is summarised by Hargreaves (2013) who recognises that much of the research on feedback in AfL misses the pupils’ perspective. She advocates that central to AfL is the pupils’ autonomy in learning. Hence feedback (and research on feedback) which does explore pupil interpretation for their own learning seems limited.

Far from challenging the centrality of feedback, this paper seeks to stress its approach and purpose. In recognising the importance of learner autonomy, Perrenoud (1998) acknowledges the dilemma that feedback is not necessarily received by pupils in the way that is desired (p. 87). His explanation for this is located around the idea that the learners’ processes of self-regulation influence the effect of feedback. This idea is further promoted by Nicol and Macfarlane-Dick (2006). The limitations of Sadler’s considerations and the review from Black and Wiliam, they claim, seem to focus on the view that they rely too heavily on feedback being a control theory concerned with closing gaps. What Nicol and Macfarlane-Dick offer is an understanding of why feedback may not always be effective.

In promoting the role of the student's own self-regulation of learning, additional considerations are brought into scrutiny which may shape interaction between feedback and learning. If we are to understand self-regulation as a factor in the way in which students use (or do not use) feedback, some further understanding is of relevance.

Although rooted originally in a biological sphere in which processes of feedback and adaptation feature, as the organism and the environment interact, the concept has developed to embrace the self-regulation of learning. Zimmerman and Schunk (1989) have particularly developed the concept into a learning framework. They claim that principally it is 'an organising concept' in which learners 'cognitively, motivationally and behaviourally promote their own academic achievement' (ix). Pintrich further explores this notion (2000, pp. 452–453) by suggesting four assumptions that underpin self-regulated learning:

- (1) The active construction assumption – implying that learners are viewed as active constructors in their own learning.
- (2) The possibility for control assumption – that all learners can potentially control, monitor and regulate aspects of their own cognition, motivation and behaviour as well as aspects of their environment.
- (3) Goal, criterion or standard assumption – a focus for comparisons and decisions to be made upon which processes can be continued or changed.
- (4) Mediation between personal and contextual characteristics and actual achievement or performance.

The extent to which learners may engage with self-regulation may be related partly to their developing capacities, cognitively, socially and behaviourally. As an aspect of learning, potentially self-regulation may be perceived as a simplistic egocentric responsive action or it may be regarded as a more complex interaction using communication interaction and metacognition. Thus, pupils' engagement with self-regulation will vary with regard to many factors. Fox and Riconscente (2008) give further insights into the processes of self-regulation (and metacognition) by recognising that different models of learning offer varying perspectives on how this might be achieved, particularly with reference to the role of self. Learning theorist, William James, promotes a notion of self-regulation that is rather introspective where the individual seeks to control and influence 'self' through considering his/her own will and volition. 'Self-regulation is essentially the inwardly directed activity of the Self in controlling attention and behaviours. This activity is either automated in the form of Habit, or requires effort in terms of Will' (in Fox & Riconscente, 2008, p. 389). From a Piagetian perspective, self-regulation moves from the egocentric to the social and is increasingly 'other-cognition ... knowledge of others and objects' (pp. 374–375). Here, there is recognition that intellect and emotions are different for children than for adults. For the purposes of this paper, feedback contributes to the learning environment which others provide yet is designated to shape learning. Yet to assume that feedback will offer the direct link to altering and informing learning in the way that assessment for learning often promotes may be naïve. To add to this debate, is the Vygotskian perspective that the role of language and social interactions influence self-regulation, so shifting the focus and meaning of 'self' to how self is part of interrelations with others. This is further developed in the next two themes on vocabularies of assessment and understanding the learning gap.

Returning to the focus on feedback as part of AaL, and to self-regulation as a process in which feedback may be used to affect learning, there is no easy answer as to how feedback makes a difference to learning. What becomes clearer is that feedback is an aspect of the learning environment which students may use with varying degrees of sophistication. It may not be so much the feedback itself which is most important but the ways in which students are invited to engage with it and how sensitive it is to the other motivational and emotional states which the student brings to the learning experience. Dweck (2006) offers some insight here. She identifies a ‘fixed mindset’ or a ‘growth mindset’. A fixed mindset focuses on judgement and the learner labels him/herself as better than ... worse than Feedback, even when given constructively, is likely to be interpreted in a way that will confirm or refute fixed views of their learning. When challenges in learning are presented the learner is less likely to take a risk and may choose to avoid engaging with something that might result in failure. A ‘growth mindset’, Dweck argues, is less about judging themselves. From this mindset, learners are more able to see feedback as a means of seeing a direction for their efforts. Learners are able to appreciate that if they work hard they will be able to learn. They are, therefore, more willing to take on the challenges of learning and are more resilient to setbacks (p. 12). Thus, what emerges here is that the complexity of understanding the learner and his/her learning cannot be ignored in trying to grasp the effectiveness of the feedback process in relation to assessment and AaL.

Whether feedback can influence the development of learning requires a more in-depth understanding of learning and the learner rather than merely recognising a communicative feedback loop within assessment. The whole dynamic of giving and receiving feedback for learning seems far more complex than much of the literature seems to acknowledge. Furthermore, understanding the gap which feedback seeks to bridge requires more sustained exploration, which the following section offers.

Understanding the ‘learning-gap’ in AaL

The argument developing in this paper seeks to offer insights into how we can better understand assessment and learning. There is a recognition that the interrelation between teaching and learning is symbiotic and perhaps more blurred than much of the literature may hitherto present. The notion of a learning gap features in discussions on formative assessment (Sadler, 1989; Torrance, 2012) and seems to feature enormously in discussions about learning, teaching and assessment. An important part of Sadler’s exposition relates to the role of feedback: ‘information about the gap between actual and reference levels is considered as feedback only when it is used to alter the gap’ (p. 121). Recognising the learning gap becomes all-important for bridging it. Yet the limitations for using feedback are all too clear, particularly when used in a way which is part of a feedback loop or merely as a means to help move the learner from his/her current learning to a set of fixed goals and objectives. Such mechanistic approaches seem to fail to locate the pupil and his/her self-regulatory process into the learning and assessment processes. Part of the argument related to a concept of AaL is that the learner may use assessment as part of his/her learning process. Feedback may be one source of information that may help in the processes. However, understanding next steps in learning seems crucial. Torrance (2012) recognises that the notion of a gap, which is identified and closed, may be an overly simplistic linear model (p. 333). He states, ‘the issue is not so much to close this “gap”

in any straightforward sense, but to explore and exploit the gaps between teacher and student, and between students' present and developing understanding and pedagogic action, so that learners come to understand what are the issues at stake, and what learning means for them' (pp. 333–334). Understanding the learning gap requires closer scrutiny and a recognition that the interplay of assessment and learning is far more complex for both the teacher and the learner.

In England, the National Curriculum maps out what should be learnt right through a child's formal compulsory schooling. Learning goals are explicit in curriculum and assessment frameworks. It is all too easy for the direction of learning to be mapped out for children and teachers, to be so focused on results and evidence for progression that the ways in which children understand their own learning are marginalised. The power dynamic is all too evident in our classrooms. The results of inspections and league tables cast a rigid shadow over what teachers are expected to do in classrooms and the priorities that are often made explicit. So great is the need for children to demonstrate their achievement in particular ways that 'floor targets' are set nationally, in which threshold levels must be reached by 85% of pupils so that they are considered 'secondary ready' (Department for Education [DfE], 2013a, para 2.4). Such targets are likely to drive classroom practice into ever more goal-orientated trajectories. The National Curriculum in its new form (DfE, 2013b) offers 'core knowledge', which is required in all prescribed subjects and sets out the minimum that children must be taught and learn (DfE, 2013b). The way in which this is taught is not prescribed. It may be all too easy to locate the power for the curriculum with the government and indeed at one level there is no escape from this. Yet power distributions in teaching and learning may need to be re-explored if there is any regard for pupils' ownership of their own learning. The control of learning in classrooms through that which is prescribed and tested has come to dominate education. Torrance's (2007) discussion of 'AaL' in which assessment dominates teaching and learning in a way that is 'deformative' (Torrance, 2012) illustrates that the construction of the learning gap, in a particularly narrow and mechanistic way, gives a completely different way of looking at the relationship between assessment and learning. Of course, there is little point in advocating that the goals, standards and achievements mapped out in the National Curriculum are meaningless and to be avoided. Rather, we need to better understand the space in which children learn, the space in which teaching, learning and assessment (feedback) come together for the learner.

In understanding the learning gap, the role of the pupil in understanding and regulating learning is crucial. A growing body of research has tried to locate the pupils' role in assessment as central through self-assessment (e.g. Dann, 2002; Earl, 2003; Poehner, 2012). Yet, when viewed in learning contexts, it is often the case that even these practices can be mechanistic, following only the 'letter' of possible practices (Marshall & Drummond, 2006). Tan (2009) states that self-assessment can be 'teacher-driven', 'programme-driven' or 'future-driven'. Each of these locates and distributes power in learning and pupils' contributions very differently. Dann (2002) suggests, 'pupils need to understand something of the gap between where they are in their learning and where they might be. Although the next step of learning may be teacher constructed or nationally prescribed, if it is not grasped by the pupil, as an aspiration, next step, target or goal, then it is unlikely to be realised' (p. 111). Part of the argument promoted here is that the learner must have an active stake in his or her own learning, recognising that learning can be done only by the learner

and no amount of teaching or curriculum prescription can make learning happen without the learner's willingness to learn. Trying to understand further the theoretical position that underpins this view is briefly explored next, as part of unravelling the notion of a learning gap.

Constructivism and social constructivism

Constructivism recognises that the learner is an active participant in the learning process. Implicit in this view is that the learner does not learn merely in an automatic way triggered by a stimulus (behaviourism) but actually develops ways of learning ... learning how to learn (Black, McCormick, James, & Pedder, 2006). Already this paper has constructed an argument around ways in which learners self-regulate their learning which is partly an internal regulatory process. Assessment information, it is argued, forms part of the regulatory framework for the learner. Theoretically, we can draw from Piagetian notions of constructivism, in which the learner interacts with the environment in ways which will enhance his/her own cognitive schema. Such interactions, Piaget contends, would be controlled by the environment but also through a developing sense of 'readiness' for new learning. Learning, from this perspective, is focused on self. In helping to advance learning, an emphasis would be placed on creating an environment which would stimulate cognitive challenge within a 'zone of readiness' and learning structured into steps which were manageable, yet challenging for the child to individually internalise. The problem for education is to break down and order the curriculum (through the learning environment) in sufficient manageable steps for the child. There is acknowledgment that the biological and the environmental interact. The concept of 'readiness' has been much attacked (e.g. the Cambridge Primary Review: Alexander, 2010). Silcock (2013) argues that it became its own limiter and ultimately, it would seem its own stumbling block. However, the notion of 'readiness' seems to have a strong association with self-regulatory processes and features in the way that the learning gap is shaped and altered in new learning environments. In accord with Silcock, the criticism of the concept of readiness as limiting teaching and learning is not promoted here. 'There is no more reason to see development as shackling teaching than to see teaching skill limiting pupil learning since both are engaged' (p. 318). Thus, the notion of readiness seems to feature as part of the individual pupil's self-regulatory processes. This is located in constructivism but less so in social constructivism.

Development of formative assessment has been dominated by sociocultural theory which has tended to sideline Piaget, advocating a Vygotskian perspective. Self-assessment has particularly been seen as part of a sociocultural gaze, as recognition is given to the teachers' role in mediating (through language) the curriculum and learners engaging in an interactive learning and assessment process. Emphasis is given to social interaction, mediation, language, as well as to a recognition that learner identities are being formed and fashioned in real social contexts. The dominant concept in the process of learning within sociocultural models is through the Zone of Proximal Development (ZPD). In Vygotsky's (1978) terms this is the:

Distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers. (p. 85)

For Vygotsky (1981), all learning starts on the social level before it can be internalised. First learning appears between people (interpsychologically) and then inside the learner (intrapsychologically) (p. 163). The learning gap which the ZPD promotes is very much externally framed, being managed and regulated by others. In its most simplistic terms, teaching is about how much the learner can learn from another (usually the teacher). For the teacher, learning is about always being just ahead of the child's actual learning/development. Yet the ZPD must have limits which differ for different children. Hence, for the teacher there must be some way in which individual starting points and limits must be identified, or teaching would be a far more straightforward process. Assessment for learning sits neatly in this conundrum and provides a vehicle for helping to regulate the ZPD. Silcock (2013) offers a more cautionary note about the current emphasis on sociocultural theory. He suggests that without recognition of the biological and environmental (found in Piaget's work), the limits of ZPD are externally constructed and then mediated through teaching. This would make teaching fairly easy to manage, as long as it was within ZPD limits. Indeed, Vygotsky himself recognised that, 'cultural development does not create anything over and above that which potentially exists in the natural development in the child's behaviour' (in Silcock, 2013, p. 318), which contradicts his own basic assumptions about the supremacy of the social context.

Thus, the learning gap, as conceived by ZPD, is far more complex, and teachers (or others) cannot be the only solution to learning. Nor can it exclusively define our learning gap. The ZPD does not require the learner to understand the learning gap in any specific way. Yet the limits of ZPD and the pace at which the zone can be altered and shifted seem to lie beyond the sole reach of 'others'. Individual differences seem to have much more of a bearing on learning than is immediately obvious through the ways we understand teaching, learning and assessment. Fine-tuning teaching through assessment for learning information, even if it is communicated to the learner, is not enough. Even if the learner is 'ready' and has self-regulatory skills, s/he may not choose to learn. Unless the learner has a willingness to learn and accepts that there are things currently beyond his/herself to learn, will s/he learn? For very young children we could probably answer 'yes' to this question; something drives learning forward from their earliest moments, but there seems to come a point when for some individuals the answer is more uncertain. Thus, constructivism and social constructivism do not lead us quite far enough in attempting to understand learning within AaL. Two further areas are considered in the next sections. Firstly, how can we better explain what drives the pupil to learn and alter their learning gap? Secondly, how do we account for the multiple layers of activity and experience in which pupils operate? To help explore these questions a little further we look at the Zone of Curiosity followed by CHAT.

The 'zone of curiosity'

In further understanding the learning gap and the ways in which assessment and learning interact, there remains the issue of what drives learning for the learner. Day's (1982) work on curiosity, which is developed from Berlyne's seminal work (1960), offers a potentially useful perspective. Day identifies a 'zone of curiosity' in which 'children, of their own volition, are motivated to put themselves into conditions of uncertainty, novelty and difficulty because the process of learning is pleasurable and rewarding' (p. 20). Exploration and learning occur in the zone of curiosity.

Either side of the ‘zone of curiosity’ lie the ‘zone of relaxation’ and the ‘zone of anxiety’. For very different reasons, in both these zones, learning is not optimised. What Day’s notion offers is a very different way of looking at the learning gap. Rather than being constructed by the teacher and altered by teaching and feedback, the curiosity zone is determined largely by the individual’s response to the environment. Day argues that the teacher’s role is to set an environment which will stimulate curiosity (recognising curiosity as a ‘state’), but also recognising that learners will respond differently to the environment (a ‘trait’), thus the environment will need to differ for children’s varying needs. Assessment in this context may not so much need to focus on understanding what children know but understand learners’ disposition and willingness to learn. Formative assessment, which seeks to inform the learning process so that learning can develop, must give some acknowledgement to drivers for learning. Dewey (1910) offers a view that curiosity can be understood in three ways. Firstly, physical curiosity: ‘In its first manifestations, curiosity is a vital overflow, an expression of an abundant organic energy. A physiological uneasiness leads a child to be “into everything,” – to be reaching, poking, pounding, prying’ (p. 31). Clearly, this links to a child’s early life experiences. Secondly, Dewey identifies social curiosity:

[a] higher stage of curiosity develops under the influence of social stimuli. When the child learns that he can appeal to others to eke out his store of experiences, so that, if objects fail to respond interestingly to his experiments, he may call upon persons to provide interesting material, a new epoch sets in. ‘What is that?’ ... ‘Why?’ become the unfailing signs of a child’s presence ... the search is not for a law or principle, but only for a bigger fact. (p. 32)

As the child gains more knowledge, there becomes a greater need to make sense of it, to derive laws and principles. This is the basis for his third type of curiosity: intellectual curiosity, ‘rising above curiosity’ that is physical or social. He states:

It is transformed into interest in *problems* provoked by the observation of things and the accumulation of material. When the question is not discharged by being asked of another, when the child continues to entertain it in his own mind and to be alert for whatever will help answer it, curiosity has become a positive intellectual force. (p. 33, emphasis original)

Clearly, the argument in this paper, that curiosity forms part of the learning gap, is suggestive. It adds to notions about self-regulation, pupil autonomy, readiness, use of feedback and self-assessment within a framework seeking to further understand AaL. Furthermore, and not accidentally, it links with the English government’s view that teachers should ‘promote a love of learning and intellectual curiosity’ with the children they teach (DfE, 2012, standard 4b). If this is to be a genuine aspiration for teachers perhaps there needs to be greater understanding of what this means in practice (see Dann, 2013). Locating curiosity within the learning gap may help us to gain further understanding of how pupils utilise information within their environment for learning and give further insight into the influences on AaL, in action. However, if curiosity offers some insight into how pupils regulate the impact of assessment on their learning, there is another pressing consideration that is also of concern.

Vocabularies to promote AaL

The final area for consideration in this paper, which seeks to help conceptualise AaL, relates to vocabularies of assessment. The step that is taken here moves the discussion from the learner and the teacher to their interaction within the community of practice (the classroom) and to the constructions of meaning in the ‘gap’ in which learning and assessment intersect. Pupil voice has increasingly found a space in contemporary educational research, discussion and practice (such as Cowie, 2005; Dann, 2002; Hargreaves, 2013; McCallum, Hargreaves, & Gipps, 2000). Yet giving a pupil a voice does not necessarily mean that anyone is listening, understanding and responding appropriately to it. Furthermore, from a sociocultural perspective, language is the very foundation of learning and in its own right provides a network through which learners will filter and engage with social contents. So in one sense it is the very essence of learning, yet in another, vocabularies are socially, culturally and conceptually loaded. Alexander (2010) in the final report of the Cambridge Review states concisely, ‘dialogue is the antithesis of a state theory of learning, and its antidote’ (p. 307). Although talk is well philosophically justified (Alexander, 2008; Littleton & Howe, 2010; Mercer & Littleton, 2007), how we understand its role in learning and assessment is more difficult to fathom. Both Cowie (2005) and Dann (2002), in exploring the pupils’ role in self-assessment, indicate that although pupils were keen to participate and express their thinking, they often simultaneously pursued intellectual, social and emotional goals which were not clearly articulated and would sometimes limit their self-assessment disclosures for a variety of complex reasons. Thus, any attempt to promote AaL must recognise that for the learner, there may be conflicts and resistance to the learning which s/he may regard as peripheral, non-legitimate or uninteresting. There needs to be a dimension of the learning gap which can account for the ways in which mediation and dialogue can develop which accepts and embraces rather than ignores such tensions.

There has been growing interest in exploring practice in education, including assessment, through CHAT (e.g. Bourke, Mentis, & O’Neill, 2013; Crossouard, 2009). The sociocultural foundations for learning remain central but are extended. Basic tenets of learning, as being social and mediated by language, are the focus. What activity theory offers is the recognition that individuals occupy multiple activity systems. Individuals bring different identities with them as they engage in different practices. They inhabit a range of ‘worlds’ with different rule systems and power structures. Thus, any one encounter or activity cannot be bound by the particular set of circumstances and physical community that it inhabits. Crossouard (2009) warns that sociocultural theorists have, ‘been critiqued for neglecting power relations, where the concept of a “community of practice” (Wenger, 1998) can be romanticised, then used in coercive ways’ (p. 79). She promotes the potential for CHAT to offer a model which embraces identities, tensions, discourse and conflict.

Key to the understanding of CHAT is understanding the ‘activity’ (the focus activity), which is often complex to define. The motive for the activity is also crucial and may differ for the different ‘subjects’ (people) participating. The ‘object’ is the problem which the activity is directed towards which will eventually have particular ‘outcomes’. However, the object may be viewed differently according to an individual’s role and his/her motive. Engeström (2001) describes it as a ‘moving target’. A variety of ‘artefacts’ or tools will be utilised in order for the ‘object’ to be changed into the ‘outcome’. These are the means of communication utilised, through which

the outcomes become realised (Engeström [2001] offers further insight and explanation). The concern here is to recognise the ways in which CHAT enables communication to be located in a different way. More particularly, it enables a recognition that different subjects (of concern in this paper, teachers and pupils) function within areas of activity, such as assessment, in complex ways. It takes us beyond sociocultural theory recognising the lived-in world and the social situatedness of learning (Lave & Wenger, 1999), to a dynamic world in which the outcomes and object (objectives) for which we strive lie in many layers of activity for those who participate. Hence, the means of communication that are used for teaching, learning and assessment must recognise the different activity systems to which participants belong. Furthermore, the assumptions made about the focus for assessment and the outcomes for learning need to be explored in ways that recognise and include the meanings and motives that are brought by all the subjects involved. All too often, the power resides with the teacher to determine the pace and outcomes in a way that does not always recognise and respond to the motives of other participants. Of course, the teacher, under the current and changing national curriculum and testing requirements in England, must steer teaching, learning and assessment. Yet they need to be ever cognisant of how pupils participate. Crossouard (2009) identifies that the teacher's role may need to switch so that the, 'discursive construction of different subject positions (e.g. using different pedagogical repertoires to move between subject positions as assessor, teacher disciplinary expert or learner) invoke[s] different rules and divisions of labour, which have different possibilities for supporting students' learning' (p. 80). Although this may be something that teachers understand and utilise, implicit in CHAT is that all participants will inhabit different identities and need to understand their role and responsibilities within and between each. This may require more explicit discussion and understanding of power shifts and areas of responsibilities within the classroom communities that are often under-acknowledged in the pressurised, performance-led classrooms of twenty-first-century English schools. Adopting a range of formative assessment techniques which frequently characterise 'assessment for learning' may overstate the importance of 'techniques', such as feedback or self-assessment without recognition of more complex understandings and identities. Crossouard (2011) explores how many teachers, who may be committed to formative assessment practices, seem to be bound by vocabularies of assessment which in fact limit their assessments to specific observable objectives. Thus, the claims made about high levels of objectivity, Crossouard states, are problematic and may be unhelpful. Teaching, in her study, was often characterised by clear learning objectives and precise observable outcomes, created by the teacher, and then shared with learners. Although there was an ascendance to sharing in assessment for learning there was, 'an understandable but rather paradoxical pedagogic mix ... where these teachers show commitment to the freedoms of an open ended experiential task, but have inherited languages of assessment that do not support them in dealing with their complexities' (p. 68).

Part of the answer may be an increase in dialogue within teaching, learning and assessment contexts, but this is not the whole story. Even though practices such as dialogic teaching, dialogic assessment and philosophy for children give status to critical thinking skills and thoughtful exchange in the classroom, they may not be at the interface of where learning happens. Key principles which underpin dialogic teaching, such as talk being: collective, reciprocal, supportive, cumulative and purposeful (Alexander, 2008, p. 28), may be useful in the process of sharing and

interpreting feedback and exploring the learning gap. This certainly needs further research. Furthermore, such processes may add to the pupils' repertoire of skills in being able to discuss and think critically, and offer significant possibilities in further promoting AaL in feedback interactions. These could be developed within CHAT (Alexander, 2008), but these still do not offer the scope for specifically accepting identities and understanding the learning gap that need to be carefully explored by both pupil and teacher.

Although CHAT offers us one dimension for making greater sense of the task before us, it does not equip us to proceed. It helps us to recognise that learners occupy multiple 'activities' as they face classroom curriculum contexts. Teachers need to not only understand the curriculum they teach, but 'understand how experiences produced in the various domains and layers of everyday life give rise to the different "voices" students use to give meaning to their own worlds' (Giroux, 1997, p. 110). Unless learners are able to give meaning to the complex ways in which they live and mediate between their own culture, learning and history, their school experiences may be limited. The students must be active in this process rather than merely being at the mercy of a dominant culture of schooling seeking to reproduce forms of knowledge for external validation. In Giroux's view, central to learning is the theory of 'self-production' (p. 140). Recognising that learning requires 'self-production' brings with it the importance of embracing student voice. This is not as an added technique or a momentary practice. Giroux reveals that the teacher must be ready for the 'polyphonic languages their students bring to schools' (p. 141). So often it is the 'teacher's voice' that is all too clear in defining, shaping and controlling the classroom by framing focused objectives that do not always recognise students' need for meaning and self-production. Perhaps the teacher's voice may even be at a point where it is 'destructive for students' (Giroux, 1997, p. 142) within the discourse of the classroom. For the learner, there needs to be a sense in which s/he identifies a 'language of possibility' where sense can be made of the challenges ahead as well as a space for his/her own mediation in the layers of activities which are brought into the classroom. Learners will make judgements related to the curriculum that is presented and mediate the ways in which they are prepared to 'learn' what is being suggested. The assessment judgements made in these encounters may be as much about the knowledge in a social, cultural and historical sense as they are in a conceptual sense. Failure to recognise this may not be enhancing learning opportunities in the classroom. This is more likely to be the case where there is less of a synergy between the dominant school, teacher and pupil cultures. So, how does the teacher engage with the 'polyphonic languages' of the classroom? If the thesis presented in this paper is to have any impact in how we make sense of teaching, learning and assessment in classrooms, there needs to be a link between what has been explored conceptually and philosophically with the political demands made of our schools and the possibilities for both teachers and pupils in classrooms.

Some pragmatics for AaL

AaL, as explored in this paper, recognises that the learner must be active in engaging in meaningful classroom interactions. The judgements that learners make, which enable them to advance their learning, are complex, and themselves are part of a repertoire of learning skills and understandings that are regulatory and mediating. The judgements that pupils are encouraged to make may be planned such as

self-assessment, peer assessment or discursive feedback, which all encourage visible forms of 'AaL' in action. Yet, even when teaching, learning and assessment are less acknowledging of the pupil's active role there seem to be powerful mediations that are likely to be occurring in which the learner is using assessment to regulate, monitor and steer his/her own learning. The research which indicates that feedback is not always beneficial for student learning, and that particular lesson ideas may not impact on all learners in the same way, highlights the very obvious fact that the learners make complex choices about their learning. Assessment information, which may be conventionally harnessed to further enhance learning (by the learner), needs to be understood in a broader sense within formative assessment. The focused view, which seems to typify our classrooms in our current climate of performativity, is that objectives must be tight and outcomes should be clear. What understanding 'AaL' offers is the recognition that assessment information which is legitimised by the teacher, and that which is not, are both used by pupils as part of the process of learning, 'for' learning. Such assessment information is therefore part of formative assessment, yet is controlled by the pupils' own dominant discourse in the process of learning.

If teachers are to further pupil learning, they need to recognise and explore the ways in which pupils control their own 'learning gaps' rather than make assumptions that they (teachers) control them. By considering some of the theoretical ideas posed in this paper, those engaged with teaching and learning may see the interconnections of teaching, assessment and learning in new ways. In advocating 'vocabularies' of assessment, there is an attempt to raise the profile of dialogue. Although this is not intended in a way that is dominated by the teacher or a prescribed curriculum. Lefstein (2010) warns, 'dialogue in school is driven and bounded by pre-determined curricular content and objectives, which at least in the current English context are typically cast as a set of answers to be grasped or skills to be mastered. As such, they appear inimical to dialogue, which thrives on epistemological openness and uncertainty' (p. 183). Although dialogic teaching and dialogic assessment seem to have experienced some resurgence (Alexander, 2008, 2010), their role and form, Lefstein claims, are perhaps still to be developed. He claims that, 'metacommunication and interpersonal concerns are in tension (i.e. rules vs. relationships), as are interpersonal and ideational concerns (i.e. care for participants vs. pursuit of truth, levity vs. gravity)' (p. 180). Further consideration of these tensions may play a part in helping to locate the ways in which learners construct and give meaning to their learning. Also of interest, is recognition of communication and vocabularies of assessment in which different identities, meanings and priorities are central to the purpose of the interaction. Habermas (1984, 1987) promotes the idea of 'communicative action'. Although this can be seen as rooted in sociocultural theory, his particular area of distinctiveness concerns the deliberate attempt to bring together different views and perspectives so that they can be discussed. Certainly, there are issues related to power and authority as this is applied in schools. (This is recognised, as Habermas has developed his thinking from his consideration of 'deliberative democracy' which was originally regarded as being among equals). However, communicative action recognises that differences and priorities in the classroom should be explored and discussed. This does not mean that anything goes and all ideas and priorities will be seen as equally 'valid'. Habermas (1984) gives considerable attention to what might be considered to be both valid and rational. He is aware of the problem of relativity, which offers little opportunity for consensus. The importance of

framing the sociocultural and political context for communication becomes important as part of communicative action. That one sociocultural system (e.g. school) will be viewed by its social actors differently is part of the process. Furthermore, each participant is uniquely influenced by his/her own viewpoint. With children as learners (within schools), there may need to be some consideration of their ability to decentre (from Piaget). Yet, as Habermas suggests, being able to decentre and be rational are not necessarily straightforward in the communicative process. This would over-emphasise cognitive processes within communicative action. Habermas, therefore, promotes the idea that communicative action involves participants who:

seek to reach an understanding about an action situation and their plans of action in order to coordinate their action by way of agreement. The central concept of *interpretation* refers in the first instance to negotiating definitions of the situation which admit consensus. (1984, p. 86, emphasis original)

The significance of communicative action for AaL is not so much offered as a technique but a way of understanding both assessment and learning. Englund (2006) takes forward Habermas' ideas promoting the notion of 'deliberative communication' as an important aspect of what schools should promote. He cites five characteristics of deliberative communication which offer a starting point for framing a practical approach within schools:

- (1) 'Different views are confronted with one another and arguments for these different views are given time and space to be articulated and presented'.
- (2) 'There is tolerance and respect for the concrete other and participants learn to listen to the other person's argument'.
- (3) 'Elements of collective will-formation are present, i.e. an endeavour to reach consensus or at least temporary agreements or to draw attention to differences.'
- (4) 'Authorities or traditional views ... can be questioned, and there are opportunities to challenge one's own tradition'; and
- (5) 'There is scope for students to communicate and deliberate without teacher control, i.e. for argumentative discussions between students with the aim of solving problems or shedding light on them from different points of view' (p. 512).

Perhaps further development of these characteristics in more practical contexts needs to be our next step forward.

Conclusion

For all involved as educators, but teachers in particular, the challenge is great. The drive for political compliance through national educational and curriculum priorities and pressures looms large. Yet without recognition of learner identities and the ways in which self-regulation, self-assessment, curiosity, cultural and social interpretations and priorities are understood and mediated in the classroom we may not be helping our children to learn. If assessment becomes ever more focused on objectives and feedback, tighter, sharper and punchier and tied to the explicit objectives of learning, are we enabling learning or adding another barrier to it? Could it be that the successful learners are those who are more able to set aside feedback and mediate it into

their own learner identities and regulatory practices? Those for whom feedback is less successful are the very pupils for whom feedback needs to open up into more discursive ways of understanding school learning in which challenging differences and tensions are embraced. Recognising that in 'AaL', assessment and learning become inextricably interlinked, so that their processes serve each other, is a complex argument.

What the preceding discussion has hopefully achieved is to re-state the importance of the centrality of understanding the learning gap and the role of assessment in helping teachers and pupils explore and regulate this gap. The article has deliberately steered through the more mechanistic approaches which have tended to dominate contemporary analysis, illuminating that feedback to pupils requires as much attention to be given to its interpretation by pupils as how and when it is given. Furthermore, the ways in which pupils control their own learning and decide how to make sense of assessment information through self-regulation, their curiosity, self-production and their abilities to understand multiple layers of their own activities have been explored. The range of processes and ideas explored bring assessment and learning together, blurring their boundaries and supporting the argument for assessment to be seen as an aspect of learning. This article attempts to bring together a number of theoretical positions which help further explore and explain AaL. Although grounded in constructivism and social constructivism the arguments push the boundaries, drawing on additional perspectives such as the Zone of Curiosity and CHAT in order to more fully provide a framework which can offer useful insights for further research. This article offers a small step further forward in our understanding, and perhaps offers some useful insights for future theory, policy and practice.

Notes on contributor

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References

- Alexander, R. (2008). *Towards dialogic teaching* (4th ed.). London: Dialogos.
- Alexander, R. (Ed.). (2010). *Children, their world, their education: Final report and recommendations of the Cambridge primary review*. London: Routledge.
- Berlyne, D. E. (1960). *Conflict, arousal, and curiosity*. New York, NY: McGraw-Hill.
- Black, P., McCormick, R., James, M., & Pedder, D. (2006). Learning how to learn and assessment for learning: A theoretical inquiry. *Research Papers in Education*, 21, 119–132.
- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, 5, 7–74.
- Bourke, R., Mentis, M., & O'Neill, J. (2013). Using activity theory to evaluate a professional learning and development initiative in the use of narrative assessment. *Cambridge Journal of Education*, 43, 35–50.
- Cowie, B. (2005). Pupil commentary on assessment for learning. *Curriculum Journal*, 16, 137–151.
- Crossouard, B. (2009). A sociocultural reflection on formative assessment and collaborative challenges in the states of Jersey. *Research Papers in Education*, 24, 77–93.
- Crossouard, B. (2011). Using formative assessment to support complex learning in conditions of social adversity. *Assessment in Education: Principles, Policy & Practice*, 18, 59–72.

- Dann, R. (2002). *Promoting assessment as learning: Improving the learning process*. London: Routledge/Falmer.
- Dann, R. (2013). Be curious: Understanding 'curiosity' in contemporary curriculum policy and practice. *Education 3–13*, 41, 557–561.
- Day, H. I. (1982). Curiosity and the interested explorer. *Performance & Instruction*, 21, 19–22.
- Department for Education. (2012). *Teachers' standards*. London: DfE.
- Department for Education. (2013a, July). *Primary assessment and accountability under the new national curriculum*. London: DfE.
- Department for Education (2013b, July). *National curriculum in England: Framework document*. London: DfE.
- Dewey, J. (1910). *How we think*. Lexington, MA: Heath.
- Dweck, C. S. (2006). *Mindset*. New York, NY: Random House Elliot.
- Earl, L. M. (2003). *Assessment as learning using classroom assessment to maximise student learning*. Thousand Oaks, CA: Corwin Press.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14, 133–156.
- Englund, T. (2006). Deliberative communication: A pragmatist proposal. *Journal of Curriculum Studies*, 38, 503–520.
- Fox, E., & Riconscente, M. (2008). Metacognition and self-regulation in James, Piaget, and Vygotsky. *Educational Psychology Review*, 20, 373–389.
- Giroux, H. (1997). *Pedagogy and politics of hope: Theory, culture and schooling*. Oxford: Westview Press.
- Habermas, J. (1984). *The theory of communicative action: Reason and the rationalization of society* (Vol. 1). Cambridge: Polity Press.
- Habermas, J. (1987). *The theory of communicative action: The critique of functionalist reason* (Vol. 2). Cambridge: Polity Press.
- Hargreaves, E. (2013). Inquiring into children's experiences of teacher feedback: Reconceptualising assessment for learning. *Oxford Review of Education*, 39, 229–246.
- Hattie, J., & Jaeger, R. (1998). Assessment and classroom learning: A deductive approach. *Assessment in Education: Principles, Policy & Practice*, 5, 111–122.
- Kostons, D., van Gog, T., & Paas, F. (2012). Training self-assessment and task-selection skills: A cognitive approach to improving self-regulated learning. *Learning and Instruction*, 22, 121–132.
- Lave, J., & Wenger, E. (1999). Legitimate peripheral participation. In R. McCormick & C. Paechter (Eds.), *Learning and knowledge* (pp. 21–35). London: Sage.
- Lefstein, A. (2010). More helpful as problem than solution: Some implications of situating dialogue in classrooms. In K. Littleton & C. Howe (Eds.), *Educational dialogues: Understanding and promoting productive interaction* (pp. 170–191). London: Routledge.
- Littleton, K., & Howe, C. (Eds.). (2010). *Educational dialogues: Understanding and promoting productive interaction*. London: Routledge.
- Marshall, B., & Drummond, M. J. (2006). How teachers engage with Assessment for Learning: Lessons from the classroom. *Research Papers in Education*, 21, 133–149.
- McCallum, B., Hargreaves, E., & Gipps, C. (2000). Learning: The pupils' voice. *Cambridge Journal of Education*, 30, 276–289.
- Mercer, N., & Littleton, K. (2007). *Dialogue and the development of the children's thinking: A socio-cultural approach*. London and New York: Routledge, Taylor and Francis.
- Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31, 199–218.
- Perrenoud, P. (1998). From formative evaluation to a controlled regulation of learning processes. Towards a wider conceptual field. *Assessment in Education: Principles, Policy & Practice*, 5, 85–102.
- Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekhaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451–502). San Diego, CA: Academic Press.
- Poehner, M. E. (2012). The zone of proximal development and the genesis of self-assessment. *Modern Languages Journal*, 96, 611–622.

- Read, A., & Hurford, D. (2010). 'I know how to read longer novels' – developing pupils' success criteria in the classroom. *Education 3–13*, 38, 87–100.
- Sadler, R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18, 119–144.
- Sadler, R. (1998). Formative assessment: Revisiting the territory. *Assessment in Education: Principles, Policy & Practice*, 5, 77–84.
- Silcock, P. (2013). Should the Cambridge primary review be wedded to Vygotsky? *Education 3–13*, 41, 316–329.
- Tan, K. H. K. (2009). Meanings and practices of power in academics' conceptions of student self-assessment. *Teaching in Higher Education*, 14, 361–373.
- Torrance, H. (2007). Assessment as learning? How the use of explicit learning objectives, assessment criteria and feedback in post-secondary education and training can come to dominate learning. *Assessment in Education: Principles, Policy & Practice*, 14, 281–294.
- Torrance, H. (2012). Formative assessment at the crossroads: Conformative, deformative and transformative assessment. *Oxford Review of Education*, 38, 323–342.
- Vygotsky, L. S. (1978). Interaction between learning and development. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in society: The development of higher psychological processes* (pp. 79–91). Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1981). The genesis of higher mental functions. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* (pp. 144–188). Armonk: Scharpe.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.
- Zimmerman, B. J., & Schunk, D. H. (Eds.). (1989). *Self-regulated learning and academic achievement*. New York, NY: Springer-Verlag.