Assessment *for* Learning and *for* Self-Regulation

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Drawing on a research study of formative assessment practices in Irish schools, this paper traces the design, development and pilot of the Assessment for Learning Audit instrument (AfLAi) - a research tool for measuring teachers' understanding and deployment of formative teaching, learning and assessment practices. Underpinning the paper is an extensive body of international research connecting assessment for learning pedagogy with student self-regulation, mental health and well-being. Reflecting on the potential of the AfLAi as a research tool, an activity systems framework is advanced as a mechanism to engage researchers and teachers in meaningful site-based continuous professional development that supports teachers' interrogation of aggregated school data derived from their responses to the AfLAi. It is argued that by de-privatising classroom practice in this way and challenging teachers to examine self-reports of their understanding and use of assessment for learning pedagogy, the extent to which students are afforded opportunities to develop as self-regulating learners is laid bare. In turn, the teaching, learning and assessment conditions that serve to create and sustain self-regulation by students emerge. The paper is premised on a commitment to a biopsychosocial approach to mental health and to an inter-disciplinary, multi-lens, research agenda that will yield comprehensive, dynamic insights and understandings to inform future practice.

Keywords: self-regulated learning, assessment for learning, mental health and well-being, audit instrument, continuous professional development

Introduction

Over the past decade in Ireland, the imperative to understand and promote young people's mental health and well-being has given rise to a period of strategic development (Hanafin, Brooks, Roche, &

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Meaney, 2012). This spearheaded the announcement in November 2011 of The National Strategy for Research and Data on Children's Lives (2011-2016) (Department of Children & Youth Affairs, 2011). Informed by a systematic review and the triangulation of insights from theory, policy and data-driven sources, five key objectives were identified in the National Strategy Action Plan one of which is the prioritisation of children's health - mental and physical - enabled through engagement in active learning.

The perspective is taken here that while recent advances in the development of assessment tools, such as the Assessment for Learning Audit Instrument (AfLAi), may legitimately be conceived of as supporting the realisation of this objective, the fact that engagement in school-based continuous professional development (CPD) with teachers who have completed the AfLAi uncovers inconsistencies between teachers' self-reports of their understanding and use of AfL and the realities of their classroom lives, warrants attention. In response, the paper proposes an activity systems research approach as a viable method for triangulating data from teacher self-reports on the AfLAi with emerging understandings that occur during CPD. This step, it is argued, is the linchpin that underscores the AfLAi as a viable research tool, challenging teachers to engage critically with their espoused theories of assessment and those in use and, ipso facto, the nature and extent of self-regulated learning that takes place in their classrooms.

Further, the paper assumes the premise that research, undertaken in accordance with a biopsychosocial model of student health writ large, necessitates inquiry into biological, psychological and social factors, albeit not always concurrently. Hence, the paper seeks to promote an important research agenda. Specifically, it is suggested that the manner in which quantitative data from the AfLAi were challenged and re-interpreted in the course of teacher CPD, resulting in the creation of more nuanced qualitative insights about the extent to which students enjoy opportunities to develop the capacity to self-regulate, provides a useful example of how key social factors that influence student development may be investigated to produce a tapestry of rich credible data.

Literature Review: Self-Regulation and Self-Regulated Learning

Self-regulation (SR) is a challenging concept to define. As an umbrella term, it subsumes a range of subordinate functions that are of interest to researchers across disciplines including psychology, education and neuropsychology. The breadth of interest in the concept reflects the promise SR offers for enhanced academic achievement (Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005), supported by the development of study skills (Wolters, 2011) to meet personal goals (Schunk,1990) against which progress can be monitored (Harris et al., 2005) and evaluated (de Bruin, Thiede, & Camp, 2011). Given the clarion call for 21 century skills, researchers, educators and policy-makers are keen to exploit the potential that SR offers to develop adaptive young people who can respond creatively and efficiently to novel contexts and challenges without incurring undue stress in other aspects of their lives.

In recent years, various models of SR have been developed based on an array of theoretical and empirical research and contrasting emphases. Corno (2001), for example foregrounds a volitional focus; McCaslin and Hickey (2001) adopt socio-cultural elements while Winne (1995) considers cognitive issues. In response, different programmes for teaching SR have emerged (e.g. Self-Determined Learning Model of

Instruction by Agran & Wehmeyer, 2000), some of which include consideration of social and emotional aspects of learning (e.g., Lendrum, Humphrey, & Wigelsworth, 2013).

Reflecting on the differences between these models, Boekaerts & Corno (2005) highlight the traditional tendency in educational psychology to promote the academic aspect of SR (hence the term self-regulated learning), and more particularly how 'traditional' learners adopt SR strategies. Self-regulated learning (SRL), defined as the application of "…general self-regulation (or the self-regulation used by persons in their daily life) to the specific conditions of learning situations…" (de la Fuente, Zapata, Martínez-Vicente, Sander & Putwain, 2015, p. 224) is of particular import in the literature given the extensive body of research correlating the achievement of students who learn to self-regulate with success in later life measured across multiple dimensions. As demonstrated by Mischel (2014), not only does the ability to SR lead to higher Scholastic Aptitude Test (SAT) scores, it also enhances social, cognitive, personal and interpersonal competencies. Further, although SR - and SRL specifically - does not necessarily develop in a predictable linear manner (Boekaerts & Corno, 2005), each constitutes a set of cognitive skills that are both malleable and amenable to modification and development over time (Mischel, 2014). This begs the question how best to do this?

Assessment for Learning and for Self-Regulation

In a presentation to the American Educational Research Association entitled 'Formative assessment and contingency in the regulation of learning', Wiliam (2014) defined the formative functions served by assessment as being determined by "…the extent to which they regulate learning" (p. 2). As such, AfL is differentiated from other forms of assessment by the extent to which teachers, students and their peers seek to create and exploit 'moments of contingency' (Black & Wiliam, 2009) by adapting instructional plans, resources and methodologies in real time in response to emerging student needs. Thompson and Goe (2006) detail the complex meta-cognitive and self-regulatory competences that this kind of adaptive response demands of a classroom teacher:

> An expert in assessment for learning is able to rapidly note essential details of the complex social and psychological situation of a lesson (especially the state of the students' learning), while disregarding distracting, yet non-essential details. She is then able to swiftly compare the situation with her intended goals for the lesson, her knowledge of the content being taught, her developmental knowledge of students in general and these students in particular, and other relevant schema. Guided by the results of these comparisons, she then selects her next instructional move from a wide array of options – most well-rehearsed, some less familiar, and some invented on the spot, such that these next steps address the student's immediate learning needs in real time. (p.4)

In turn, James' (2015) description of the anticipated role of the student in this process underscores the social-constructivist assumptions that drive AfL pedagogy. Developing Ramaprasad's (1983) concept of 'closing the gap' and Sadler's (1989) thesis on the 'reference level' of performance, she re-iterates that AfL pedagogy assumes the intimate involvement of students in "…the processes of self-monitoring and self-regulation…" alternatively described as "…learning how to learn" (James, 2015, p. 6).

Underpinning this kind of engagement are five AfL strategies linked to myriad AfL techniques that are intended to become "…part of everyday practice by students, teachers, and peers…" (Klenowski, 2009, p. 264). This 'seamless integration' (Lysaght & O'Leary, 2013) of AfL architecture assumes that, as teachers and students re-negotiate traditional roles and associated assumptions about 'how teachers teach and students learn', there is a discernible shift from attendance to the 'letter' of AfL to engagement with the 'spirit' of AfL (Marshall & Drummond, 2006).

As acknowledged in the literature, however, AfL - which some liken to a 'Trojan Horse' (Black, McCormick, James & Pedder, 2006) - is a concept that is "…more complex than it might appear at first sight" (Yorke, 2003, p. 478). Consequently, the promise of AfL continues to elude in many jurisdictions including the United Kingdom where the authors of the well-known Inside the Black Box publication (Black & Wiliam, 1998) have conceded publicly that 'AfL isn't happening'. Similar challenges have been identified in an Irish context (Lysaght, 2009) including:

a) The dearth of assessment instruments nationally and internationally to capture changes in students' learning arising from exposure to, and engagement with, AfL pedagogy

b) The need for research to investigate the nature and extent of the professional challenges that teachers face when trying to implement AfL with fidelity and

c) The urgent need for a programme of continuous professional development to be designed to support teachers, at scale, to learn about AfL and integrate it into their day-to-day practice.

In response to these challenges the Assessment for Learning Audit instrument (AfLAi) was developed.

Method

The AfLAi resulted from a two-stage iterative review process followed by an extensive pilot that involved three different cohorts of teachers: (1) five classroom teachers who had participated in an 18-month, action-research project on AfL with the author, (2) 50 teachers attending a post-graduate diploma in special education on which the author taught and (3) a convenience sample of 476 primary teachers nationally. Following the two-stage review process, the instrument was refined with items altered and/or rephrased in light of teachers' responses, comments and observations resulting in an audit instrument comprising 58 items across four scales.

It should be noted that although AfL is frequently presented as incorporating five key strategies, with peer- and self-assessment being two distinct elements, these strategies are combined within the items of one scale of the AfLAi. Hence, as detailed elsewhere (Lysaght & O'Leary, 2013; O'Leary, Lysaght, & Ludlow, 2013), the AfLAi that was trialed, consisted of 58 items or statements across four scales modelled on the original five AfL strategies identified by Black and Wiliam (1998), namely sharing learning intentions and success criteria, questioning and classroom discussion, feedback and self- and peer-assessment. Respondents were asked to use a 6-point scale to rate their current understanding and use of AfL. For quantitative analyses purposes, each of the scale points was given a numeric value from 6 – 1; a rating of 6 indicated that an AfL

practice was 'embedded', i.e., it happened approximately 90% of the time; a rating of 1 indicated that the respondent 'didn't understand' what was being asked.

Sample and Recruitment

The pilot phase of the development of the AfLAi extended over a sixteen-month period from January 2011 to June 2012 when the AfLAi was administered to a convenience sample of 476 teachers across 40 primary schools in the Republic of Ireland. Some respondents were known to the author; others responded to an invitation issued in an article (Lysaght, 2012) on AfL published in *InTouch,* the journal of the Irish National Teachers' Organisation. This phase of the research project was driven by the need to obtain data from a sufficiently large, indicative (rather than representative) sample of Irish primary teachers (see Pettit, 2010) that would permit the application of statistical analyses to judge the trustworthiness of the AfLAi as a research instrument and, in turn, the reliability of the baseline data regarding AfL practices provided by teachers.

Results

Descriptive statistics revealed that the majority of respondents to the audit were female teachers (89%), in mainstream classrooms (+70%) across a selection of different school types – advantaged and disadvantaged, rural and urban, English and Irish speaking, mixed and single gender. Respondents were fairly equally spread in terms of teaching experience (=/< 5 years: 37%; 6 – 20 years; 33%: >20 years: 30%), with approximately equal numbers of teachers at each class level. At 30%, the number of respondents who reported having teaching responsibilities for students with special educational needs (SEN) was slightly higher than the population parameter of 25% (National Council for Special Education, 2013, 2014), although subsequent statistical analysis revealed no significant difference in classroom assessment practices between teacher groups.

Psychometric Properties of the AfLAi

In order to examine some of the psychometric properties of the four subscales of the AfLAi, a factor analysis was run on the pilot data. Multivariate statistical analysis, in the form of factor analysis, was conducted to determine if scale items could be reduced to a smaller, more manageable, number. This analysis was supported by results from the Keiser-Meyer-Olkin measure of sampling adequacy (outcome: none statistically significant) and Bartlett's Test of Sphericity (outcome: all statistically significant). Using, SPSS, a statistical software programme, separate principal components factor analysis were run on each of the four scales of the instrument; for statistical purposes, each scale point was attributed a numerical value ranging from 1-6 as noted previously. Principal components analysis was conducted with the intention of identifying and computing composite scores for the factors underlying the final version of the AfLAi.

Outcomes for the reliability and factor analyses of the AfLAi scales

As reported in Table I, factor analysis of each of the four AfLAi scales and the inspection of scree plots indicated the presence of one large factor with Eigen values ranging from 4.4 to 7.2 in size. The proportion of variance explained by the first factor in each scale was large in each case (ranging 36.6 – 45.1) and the items across each of the four scales (LISC, QCD, FB and PSA) had factor loadings of .67, .62, .60 and .62 respectively. Cronbach's alpha reliabilities were satisfactory (ranging .83 - .92) and there was no evidence that the removal of an item from any of the four scales would result in improved overall reliability measures for the scale in question.

Table I. Outcomes for the Reliability and Factor Analyses of the AfLAi Scales

	LISC	QCD	FB	PSA
Number of items	16	16	12	14
Alpha Reliability	.92	.89	.83	.88
Factor 1				
Eigenvalue	7.2	6.1	4.4	5.5
Percent of variance explained	45.1	38.6	36.6	39.5
Range of factor loadings	.49 to .80	.56 to .69	.55 to .71	.49 to .73
Average of factor loading	.67	.62	.60	.62

Further analyses of these data undertaken as part of the development of the AfL measurement instrument (AfLMi) – a reduced form, 20 item, scale (O'Leary, Lysaght, & Ludlow, 2013) - in which Rasch measurement procedures and factor analysis were applied, indicated a strong psychometric link between the four component scales. Based on these analyses, it was determined that the structure of relationships between the items within each of the four scales of the AfLAi was coherent.

Results of the AfLAi Pilot

Synopses of the findings of the pilot are provided in Tables II through V which correspond to key findings from the four AfLAi scales, respectively. As structured, each table reports the three top (most embedded) and three bottom (least embedded) AfL practices reported by teachers followed by a brief commentary. For detailed exposition and comprehensive analysis of these data, the reader is referred to Lysaght and O'Leary (2013) and O'Leary, Lysaght and Ludlow (2013).

Average ratings for the sharing learning intentions and success criteria

Table II relates the findings for the learning intentions/success criteria scale. Teachers indicate that the use of child-friendly language to share learning intentions is something they do a lot of the time (mean = 5.26, somewhere between an 'established' and 'embedded' practice). However, teachers also report that their use of prompts to signal learning intentions and success criteria with students is a relatively uncommon feature of their practice (mean = 3.29). Moreover, they indicate that students' use of success criteria to check their learning is neither an established nor embedded practice.

Table II. Average ratings for the *Sharing Learning Intentions and Success Criteria* scale: Rank ordered to identify the three practices that are most and least embedded according to teachers.

Sharing Learning Intentions and Success Criteria (LISC)	N	Mean	Std. Dev.
Most Embedded			
5. Child-friendly language is used to share learning intentions with pupils (e.g., *"We are learning to make a good guess (prediction) about what is likely to happen next in the story"*).	472	5.26	.91
3. Pupils are reminded about the links between what they are learning and the *big learning picture* (e.g., *"We are learning to count money so that when we go shopping we can check our change"*).	471	4.78	1.03
9. Success criteria are differentiated according to pupils' needs (e.g., *the teacher might say, "Everyone must complete parts 1 and 2...; some pupils may complete part 3"*).	471	4.72	1.14
Least Embedded			
16. Pupils are given responsibility for checking their own learning against the success criteria of lessons.	474	3.44	1.16
15. Pupils demonstrate that they are using learning intentions and/or success criteria while they are working (e.g., *checking their progress against the learning intentions and success criteria for the lesson displayed on the blackboard or flipchart, for example*).	470	3.41	1.20
8. Prompts are used to signal learning intentions and success criteria with pupils (e.g., *using WALTS and WILFs in junior classes*).	459	3.29	1.52

Average ratings for the questioning and classroom discussion scale

Table III presents the data regarding teachers' use of questioning and classroom discussion. Teachers report using questioning to elicit prior knowledge of students' learning and assessment techniques to facilitate classroom discussion quite frequently in their classrooms (mean = 5.44). However, techniques to encourage student questioning is less common (mean = 3.37) signifying that this practice is approximately half way between 'emerging' and 'sporadic'.

Average ratings for the feedback scale

Findings in respect of teachers use of feedback (Table IV)) to guide teaching and learning suggest that the teachers believe that they make links between the feedback provided to students and identified learning intentions a good deal of the time (mean = 4.82). However, the data also indicate that practices, such as students giving information to their parents about their learning and/or teachers providing closing the-gap feedback, are not commonplace (mean = 2.96).

Table III. Average ratings for the Questioning and Classroom Discussion scale: Rank ordered to identify the three practices that are most and least embedded according to teachers.

Questioning and Classroom Discussion (QCD)	N	Mean	Std. Dev.
Most Embedded			
3. Questions are used to elicit pupils' prior knowledge on a topic.	463	5.44	.74
2. Assessment techniques are used to facilitate class discussion (e.g., b*rainstorming*).	471	5.03	.89
1. When planning lessons, key, open-ended questions are identified to ensure that pupils engage actively in lessons (e.g., *"If we put a coat on our snowman in the school yard, do you think the snowman last longer?"*).	467	4.94	.99
Least Embedded			
7. Pupils are encouraged to share the questioning role with the teacher during lessons (e.g., *the teacher routinely invites pupils to question their peers' contributions to discussions*).	472	3.83	1.18
12. Individual answers to questions are supplemented by pupils 'taking an answer round the class,' so that a selection of responses from the pupils is used to build a better answer.	469	3.81	1.35
8. Assessment techniques are used to encourage questioning of the teacher by pupils (e.g., *using hot-seating or a Post-Its challenge*).	473	3.37	1.15

Table IV. Average ratings for the *Feedback* scale: Rank ordered to identify the three practices that are most and least embedded according to teachers.

Feedback (FB)	N	Mean	Std. Dev.
Most Embedded			
1. Feedback to pupils is focused on the original learning intention(s) and success criteria (e.g., *"Today w e are learning to use punctuation correctly in our writing and you used capital letters and full stop correctly in your story, well done John"*).	473	4.82	.98
5. Teacher-made tests are used diagnostically to identify strengths and needs in teaching and learning (e.g., *identifying common mistakes in the addition of fractions*).	472	4.82	1.04
4. Teachers' praise of pupils' work (e.g., *"that's excellent; well done"*), is deliberately and consistently supplemented with feedback that specifies the nature of the progress made (e.g., *"Well done Kate, this paragraph helps me to visualise the characters in the story because of the adjectives you use"*).	473	4.70	1.08
Least Embedded			
11. In preparing to provide pupils with feedback on their learning, the teacher consults their records of achievement against key learning intentions from previous lessons (e.g., *the teacher reviews a checklist, rating scale, or anecdotal record that s/he has compiled*).	468	3.72	1.29
7. Pupils are involved formally in providing information about their learning to their parents/guardians (e.g., *portfolios or learning logs are taken home*).	471	3.64	1.32
9. *Closing-the-gap*-feedback is used to focus pupils' attention on the next step in their learning.	467	2.96	1.57

Average ratings for the peer- and self-assessment scale

Reports from the final scale (Table V) suggest that many techniques associated with student peer- and self-assessment are reported as being 'emerging' or 'sporadic' practices in the classrooms of the teachers in this study (mean = 2.48). Further, it is also clear from these data sets that, even in a context where students self-report, peer- and self- assessment is not a common-place classroom strategy - the means in many cases are less than 4.

Table V: Average ratings for the Peer-and Self-Assessment Scale: Rank ordered to identify the three practices that are most and least embedded according to teachers.

Peer- and Self-Assessment (PSA)	N	Mean	Std. Dev.
Most Embedded			
3. Lessons on new topics begin with pupils being invited to reflect on their prior learning (e.g., *pupils complete a mind map or concept map or brainstorm a topic*).	464	4.42	1.20
4. Pupils are provided with opportunities to reflect on, and talk about, their learning, progress and goals.	472	3.93	1.16
11. Pupils use each other as resources for learning (e.g., *response/talk partners who comment on eachothers' work and discuss how it can be improved*).	470	3.59	1.24
Least Embedded			
13. Pupils use differentiated success criteria to self- and/or peer-assess (e.g., *pupils can distinguish between what must be achieved to be successful on a task and what might be done to gain extra credit*).	466	2.91	1.10
2. Pupils are encouraged to record their progress using, for example, learning logs.	472	2.82	1.00
12. Time is set aside during parent/guardian-teacher meetings for pupils to be involved in reporting on some aspects of their learning (e.g., *pupils select an example of their best work for discussion at the meeting*).	471	2.48	1.03

To-date the AfLAi has been used for two purposes principally: (a) to facilitate teachers' review of their understanding and use of AfL and (b) as a point of departure for continuous professional development (CPD) sought by schools where the majority or all of the members of a teaching staff have completed the audit. Teachers' responses to, and interpretations and explanations of, the findings regarding their shared understanding and use of AfL, which are presented in anonymised and aggregated form to school staffs by the researchers, demand critical review at this point because - at face value - they appear to challenge the reliability of the data from the AfLAi.

Discussion

Of the 48 primary schools that participated in the pilot of the AfLAi, to-date, more than 20 have sought site-based continuous professional development (CPD) from the authors of the instrument with the expressed intent of (a) interpreting and mining the aggregated data from their audits and (b) identifying

actions that would help them to exploit opportunities and mitigate challenges to the seamless integration of AfL in their schools. As described elsewhere (Lysaght, 2011), this work has been conceptualised in the context of activity systems theory: people representing different constituent groups (in this case teachers and researchers) elect to engage with each other for different, albeit, complementary purposes, using a variety of tools and artefacts. The activity system, understood as "…a complex and relatively enduring 'community of practice'…" (Engeström, Engeström, & Kärkkäinen, 1995, p. 320) has resulted in the establishment of school-based learning communities of teachers supported, upon invitation, by the researchers (both of whom are third level teachers of assessment).

In keeping with a distributed instructional leadership paradigm (Spillane, 2012), the principle negotiating 'artefacts' of the learning communities are (a) the AfLAi, (b) the aggregated data derived from participating teachers and (c) the knowledge, expertise and teaching experience of both teachers and researchers. In keeping with activity theory, both sets of participants occupy distinct 'zones' - in this case a college of education and different schools. Engagement with 'artefacts' necessitates 'boundary crossing' such that teachers and researchers create a novel shared research/learning space in which they work collaboratively in response to shared and/or distinct goals (Hatano & Oura, 2003; Tuomi-Grohn & Englestrom, 2003). Although the individual learning communities typically differ according to the culture and characteristics of the various schools, nevertheless, patterns have begun to emerge from working with different staff that, at face value, challenge the reliability of the data derived from the AfLAi.

Reflecting on the principal concerns identified by the learning communities across the 20 participating schools, three recurrent issues have emerged based on one, over-riding, finding: in all cases, teachers identify serious inconsistencies between their self-reports on the AfLAi and their day-to-day classroom assessment practices. More specifically, disaggregation and mining of school-based data with teachers, led by the authors of the AfLAi, consistently uncovered fundamental misunderstandings and ambiguities regarding AfL strategies and how these approaches might be used to democratise learning and engage students optimally in self-determined learning across cognitive, affective and psycho-motor domains.

Through discussion of these findings with teachers, two explanations typically present. First, teachers over-estimate their understanding and use of AfL because (a) they do not, or cannot, review critically the extent to which their assessment practices reflect those captured in the items of the AfLAi scales and/or (b) teachers are reluctant to present their practices in ways that they fear might undermine the perceived quality of teaching, learning and assessment in their respective schools. Interestingly, neither of these explanations is particularly novel or surprising; they have emerged in similar research on AfL with teachers (e.g., Lysaght, 2009) as well as in research within other professionals (e.g., Mann, 2013). As Elmore (2010) observes, the fact is that "…as practitioners, we are notoriously poor observers of our own practice and therefore not very good at judging the correspondence between our beliefs and our behaviour" (p.1). Moreover, teacher professional development is frequently thwarted by tacit and, hence, unchallenged, hidden beliefs about how teaching, learning and assessment should occur based on what Lortie (1975) termed one's 'apprenticeship of observation'. In response, what is required are opportunities, such as those provided by the site-based learning communities described in this paper, that challenge teachers to engage creatively and forthrightly

with the 'problem of complexity' and develop in themselves the kinds of practices they expect of their students, namely skills of meta-cognition and self-regulation (Flavell, 1979, 1987; Lampert, 2001). Put simply:

> Resilient, powerful new beliefs - the kinds of beliefs that transform the way we think about how children are treated in schools, for example - are shaped by people engaging in behaviors or practices that are deeply unfamiliar to them and that test the outer limits of their knowledge, their confidence in themselves as practitioners, and their competencies […] You don't really know what your espoused beliefs mean until you experience them in practice. The more powerful the beliefs, the more difficult and seemingly unfamiliar the practices. (Elmore, 2010, p. 1)

It is this kind of transformation in thinking that is evidenced in the schools that have sought CPD on foot of participation in the pilot of the AfLAi. Following acknowledgement of disparities between their self-reports and actual classroom practices, teachers have begun to seek advice internally from colleagues and/or externally from the researchers regarding practices that they now realise and acknowledge are unfamiliar or challenging to them and, by default, their students. Although differences frequently emerge regarding the specific level and nature of CPD required by schools, without exception, support is sought regarding three issues that are at the very heart of AfL:

- The need for explicit instruction in writing SMART goals that are differentiated (if required), include conditions and criteria of performance, and can be shared with students to enable self-regulation and learning-focused teaching. It is evident that teachers find it very difficult to align teaching goals with methods/ resources and assessment protocols. Typically, this manifests in an inappropriate focus on activities and tasks (what the students are 'doing') instead of goal-directed learning (what the students are 'learning' by engaging with various activities/task in particular ways):

- The need for support in identifying and seizing opportunities to democratise teaching, learning and assessment practices and adapt planned routines in response to students' 'minute-to-minute' needs. In essence, this is the challenge of embracing the 'spirit' not just the 'letter' of AfL concomitant with an expectation that students will incrementally learn, through encouragement and modelling, to assume increasing ownership for, and control over, their learning and that of their peers. This is perhaps the most challenging element of the work with teachers because it calls for contingency in classroom planning and practice coupled with an ability to self-regulate and very sophisticated pedagogical and content knowledge.

- The need for whole-school organisational frameworks mapping the incremental and spiral integration of AfL strategies and techniques across and within grades. What is at issue here is the deprivatisation of classroom practice and resources and 'boundary crossing' within and across school 'zones' so that the collaborative practice expected of students at class level is mirror (and modelled) at the macro level by teaching staff. Again, this frequently presents significant challenges to school traditions, cultures and mores, not least because it assumes

confident distributed instructional leadership - an element of overall school leadership that is not always encouraged and promoted in schools as noted by Southworth (2009).

Conclusion

The literature on self-regulation indicates how crucial it is for young people to be afforded opportunities to learn how to self-regulate by 'learning how to learn'. Further, it is recognised that SR can be taught and AfL presents as a viable pedagogy for supporting teachers' and students' incremental assimilation of SR practices. However, quantitative and anecdotal data derived from use of the AfLAi suggest strongly that Irish teachers currently over-estimate the extent to which they understand and use AfL. These findings warrant attention because they suggest "constraints in classroom and related environments that interfere with student efforts at SR" including, potentially "conflicting goals, unproductive work habits and styles, and inappropriate teaching methods, all factors that […] compromise the goal of increasing SR capabilities for large numbers of students" (Boekaerts & Corno, 2005, p. 226).

Looking forward, emerging data from the AfLAi completed for a second time by teaching staff following engagement in well-crafted, teacher-driven, sustained CPD deserve mention here. These data signal discernible patterns of improvement in participating teachers' understanding of AfL evidenced by slow - but incremental and important - changes in their classroom teaching, learning and assessment practices and, in turn, the nature and extent of student self-regulation. These findings, though preliminary and unsubstantiated as yet by empirical analysis, are encouraging. They attest to (a) the value of the AfLAi as a research tool, particularly when it is used to bookend site-based CPD and (b) the model of CPD in use that can be scaled with fidelity to meet the needs of both teachers and researchers.

Finally, the research methodology described in this paper, underpinned by a commitment to a biopsychosocial approach to mental health and well-being, suggests a mechanism for exploring important social factors of significant import to students in the immediate and long term. It is hoped that these research findings and the methodological approaches described will spur complementary research investigations. Given the complexity of young people's lives, manifest in the reciprocity and interplay between the sociological, psychological and biological aspects of their well-being, the requirement for a multifaceted, multidisciplinary research response is axiomatic. In particular, further research is required to develop assessment tools for use with vulnerable populations of young people to ascertain their experiences of, and perspectives on, the learning environments to which they are exposed and how these contribute to their mental health and well-being.

References

Agran, M. & Wehmeyer, M. (2000). Promoting transition goals and self-determination through student self-directed learning: The self-determined learning model of instruction. *Education and Training in Mental Retardation and Developmental Disabilities, 35*(4), 351-364.

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*(2), 119–132.

Black, P. & Wiliam, D. (1998). Inside the black box: raising standards through classroom assessment. *Phi Delta Kappan, 80*(2), 139-148.

Black, P. & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability, 21*(1), 5-31.

Boekaerts, M. & Corno, L. (2005). Self-regulation in the Classroom: A perspective on Assessment and Intervention. *Applied Psychology: An International Review, 54*(2), 199-231.

Corno, L. (2001). Volitional aspects of self-regulated learning. In B.J. Zimmerman & D.H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed) (pp. 191–226). Mahwah, NJ: Lawrence Erlbaum.

de Bruin, A.B., Thiede, K.W. & Camp, G. (2011). Generating keywords improves metacomprehension and self-regulation in elementary and middle school children. *Journal of Experimental Child Psychology, 109*(3), 294-310.

de la Fuente, J., Zapata, L., Martínez-Vicente, J. M., Sander, P. & Putwain, D. (2015). Personal Self-regulation, Self-regulated Learning and Coping Strategies, in University Context with Stress. In A. Peña-Ayala (Ed.), *Metacognition: Fundaments, Applications, and Trends* (pp. 223-255). Switzerland: Springer International Publishing.

Department of Children and Youth Affairs (2011). *National Strategy for Research and Data on Children's Lives 2011- 2016.* Government Publications: Dublin. Retrieved on 10th November 2014, from: http://www.dcya.gov.ie/documents/publications/NSRD_summary.pdf

Engeström, Y., Engeström, R. & Kärkkäinen, M.(1995). Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities. *Learning and Instruction: An International Journal, 5*, 319-336.

Elmore, R. (2010). "*I used to think… and now I think…" Reflections on the work of school reform*. Harvard Education Letter, 26(1). Retrieved on 7th November 2014 from: http://sai.dynamicwebware.com/Leadership/Superintendents%20Network/RoundsAndNetworks/IUsedToThinkElmoreArticle.pdf

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*, 906-911.

Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert, & R. H. Kluwe (Eds.), *Metacognition, Motivation and Understanding* (pp. 21-29). Hillside, New Jersey: Lawrence Erlbaum Associates.

Hanafin, S., Brooks, A.M., Roche, G. & Meaney, B. (2012). Advancing understandings of child well-being through the strategic development of a national children's research programme. *Child Indicators Research, 5*(3), 567-586.

Harris, K. R., Friedlander, B., Saddler, B. Frizzelle, R. & Graham, S. (2005). Self-monitoring attention versus self-monitoring of academic performance: Effects among students with ADHD in the general education classroom. *The Journal of Special Education, 39*(3), 145-156.

Hatano, G. & Oura, Y. (2003). Commentary: Reconceptualizing school learning using insight from expertise research. *Educational Researcher, 32*(8), 26–29.

James, M. (2015). *Assessment for learning: What is it and what does research say about it?* University of Cambridge. Retrieved on 7th November 2014 from: www.learntolearn.ac.uk/home/.../001_assessment_for_learning_MJ4.doc

Klenowski, V. (2009). Assessment for learning revisited: An Asia-Pacific perspective. *Assessment in Education: Principles, Policy and Practice, 16*(3), 263-268.

Lampert, M. (2001). *Teaching problems and the problems of teaching.* New Haven, CT: Yale University Press.

Lendrum, A., Humphrey, N., & Wigelsworth, M. (2013). Social and emotional aspects of learning (SEAL) for secondary schools: Implementation difficulties and their implications for school-based mental health promotion. *Child and Adolescent Mental Health, 18*(3), 158–164.

Lortie, D.C. (1975). *Schoolteacher.* Chicago: The University of Chicago Press.

Lysaght, Z. (2009). *From balkanisation to boundary crossing: Using a teaching learning community to explore the impact of assessment on teaching and learning in a disadvantaged school.* (Unpublished Doctoral Dissertation), Dublin City University, Ireland.

Lysaght, Z. (2011). Assessment for learning in Irish schools: A window into current practice. *InTouch, 116*, 38-39.

Lysaght, Z. (2012). Using an activity systems lens to frame teacher professional. development in a site-Based, teacher learner community. In B. Boufoy-Bastick (Ed.), *The International Handbook of Cultures of Professional Development for Teachers: Comparative international issues in Collaboration, Reflection, Management and Policy* (pp. 159-182). Strasbourg-France: Analytrics.

Lysaght, Z. & O'Leary, M. (2013). An instrument to audit teachers' use of assessment for learning. *Irish Educational Studies, 32,* 217–232.

McCaslin, M. & Hickey, D.T. (2001). Educational psychology, social contructivism, and educational practice: A case of emergent identity. *Educational Psychologist, 36,* 133–140.

Mann, K. (2013) *Exploring self-assessment and feedback: A research journey.* In Proceeding of Presentation to the Centre for Medical Education, Dundee, Scotland, UK, 29 May 2013. Retrieved on 12th November 2014 from: https://vimeo.com/68705911 /

Marshall, B. & Drummond, M. J. (2006). How teachers engage with assessment for learning: Lessons from the classroom. *Research Papers in Education, 21*(2), 133-149.

Mischel, N. (2014). *The Marshmallow Test: Understanding Self-Control and How to Master it.* New York: Little Brown and Company, Hachette Book Group.

National Council for Special Education. (2013). *Supporting students with special educational needs in schools.* Ireland: NCSE, Co. Meath.

National Council for Special Education. (2014). *Educational experiences and outcomes for children with special educational needs: A secondary analysis of data from the Growing Up in Ireland study.* NCSE Report No. 17. Ireland: NCSE, Co. Meath.

O'Leary, M., Lysaght, Z., &. Ludlow, L. (2013). A measurement instrument to evaluate teachers' assessment for learning classroom practices. *The International Journal of Educational and Psychological Assessment, 14*(2), 40-62.

Pettit, P. (2010). Representation, responsive and indicative. *Constellations, 17*(3), 426-434.

Ramaprasad, A. (1983). On the definition of feedback. *Behavioral Science, 28*(1), 4-13.

Sadler, D.R. (1989). Formative assessment and the design of instructional systems. *Instructional Science, 5*(1). 119-144.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist, 25*, 71-86.

Southworth, G. (2009). Learning-centered leadership. In B. Davies (Ed.), *The essentials of school leadership* (pp. 91–111). London: Sage.

Spillane, J. P. (2012).*Distributed leadership* (Vol. 4). San Francisco: John Wiley and Sons.

Thompson, M. & Goe, L. (2006). *Models for effective and scalable teacher professional development*. Paper presented at the annual meeting of the American Educational Research Association. San Francisco, CA.

Tuomi-Grohn, T. & Engestrom, Y. (Eds.). (2003*). Between work and school: New perspectives on transfer and boundary-crossing*. London: Pergamon.

Wiliam, D. (2014). *Formative assessment and contingency in the regulation of learning processes*. Paper presented in a Symposium entitled Toward a Theory of Classroom Assessment as the Regulation of Learning at the annual meeting of the American Educational Research Association. Philadelphia, PA. April 2014.

Winne, P.H. (1995). Inherent details in self-regulated learning. *Educational Psychologist, 30*, 173–187.

Wolters, C.A. (2011). Regulation of motivation: Contextual and social aspects. *Teachers College Record, 113*(2), 265-283.

Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education, 45*(4), 477-501.