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**To cite this article:** Marilyn Fleer (2015) Developing an assessment pedagogy: the tensions and struggles in re-theorising assessment from a cultural-historical perspective, *Assessment in Education: Principles, Policy & Practice*, 22:2, 224-246, DOI: [10.1080/0969594X.2015.1015403](https://doi.org/10.1080/0969594X.2015.1015403)

**To link to this article:** <http://dx.doi.org/10.1080/0969594X.2015.1015403>



Published online: 01 Apr 2015.



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## Developing an *assessment pedagogy*: the tensions and struggles in re-theorising assessment from a cultural–historical perspective

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*(Received 23 September 2013; accepted 2 February 2015)*

As schools become living sites of evidence-based practice, teachers increasingly accumulate large quantities of observations and records. In these times of an overabundance of documentation, there is a need to find the *unit of analysis* that determines the essence of what matters for assessment. In drawing upon cultural-historical theory, this paper presents the outcomes of a study which examined how 11 teachers from one primary school used the concepts of the social situation of development, motives, the zone of proximal development and the relations between the real and ideal forms of development in order to change their assessment practices. Findings show the tensions and struggles that emerged as teachers worked against the discourses associated with traditional institutionalised assessment practices where age dominates, and again as they worked with key concepts to theorise new ways of conceptualising and enacting assessment for building a new *assessment pedagogy* for their school.

**Keywords:** cultural-historical theory; sociocultural theory; assessment; primary; elementary; child development

### Introduction

Curricula and reporting frameworks generally use *age* for framing content and for deciding upon the overall scope and sequence of subject-specific areas (Eisner, 2002). Swaffield (2011) remarks that this is a ‘mechanism for advancing students up a prescribed ladder of subject attainment’ (p. 440). What is hidden when this ladder metaphor is adopted is how age is used for determining *what* a child is expected to achieve (match of curriculum to age of the child) and *when* they are expected to progress (assessment reporting framework) (see Berliner, 2011). Age is therefore seen as a central criterion for marking progression. What is core here for assessment theory is a view of change that uses age as a central criterion for mapping expectations and for making value judgements about *what* and *when* something should develop as a result of schooling. The age of the child (i.e. eight-year-old) is therefore the rung in the metaphorical ladder described by Swaffield (2011).

Age as a marker for development underpins theories of learning and development that some schools are currently moving away from in their quest for improved educational programmes (see Fleer, 2010; Moll, 1990; Moss, Pullin, Gee, Haertel, & Jones Young, 2008). This is a paradox because in many schools contemporary learning theories consider a distributed view of learning (Lave, 1993; Lave & Wenger,

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1991), but use traditional assessment approaches for measuring progression of the individual (see Lee, 2008; Moss, 2008; Moss, Girard, & Greeno, 2008). This misalignment is a central problem for assessment theory and practice (Fleer & Richardson, 2009), and has already been noted in the literature as problematic (see Crossouard, 2009; Fleer, 2010).

A theory of learning and development must be consistent with the theory of assessment (see Lunt, 2008). Yet few outside of cultural-historical theory<sup>1</sup> have examined the theoretical drivers which underpin assessment practices that are adopted by many primary schools (see Hargreaves, 2005; Moss, Girard, et al., 2008). A growing number of researchers are studying teacher beliefs about assessment theory in relation to teaching and learning practices (Alton-Lee, 2011; Moss, Girard, et al., 2008), and most acknowledge but do not re-theorise the relations between school practice and the push from nationwide assessment of children (Hickey & Zuiker, 2005). Some studies, such as that of Dixon, Hawe, and Parr (2011) have shown that there is often a disjunction between theoretical beliefs and actual assessment practices. Others have shown the challenges between collective and individual constructions of assessment (see Crossouard, 2009; Lunt, 2008; Pullin, 2008) and a growing number have examined equity and opportunity to learn in relation to assessment beliefs and practices (see Moss, Pullin, et al., 2008). What remains under-researched is how teachers who use cultural-historical concepts for teaching and learning that go beyond a distributed view of learning (Lave, 1993), funds of knowledge (Moll, 1990) or legitimate peripheral participation (Lave & Wenger, 1991) rethink assessment practice. Poignantly, Lunt (2008) states that there are 'remarkably few sociocultural studies of assessment and assessment practice' (p. 35) and therefore there is much to still learn about the essence of a cultural-historical view of assessment. Knowing more about how teachers engage with cultural-historical concepts to re-theorise their assessment practices will add to the literature on assessment theory.

This paper examines how teachers who had knowledge of cultural-historical theory for teaching came together in their professional development days to move beyond age as the central criterion for framing assessment, and how over continued lunchtime forums and evening meetings, they re-appraised their assessment tools in order to build a new assessment pedagogy that was more aligned with their teaching-learning philosophy. In drawing upon cultural-historical concepts, the teachers sought theoretical alignment between their teaching and their assessment. In particular, the staff asked how assessment could be theorised and enacted in their school in ways that supported their approach to teaching and learning. This paper documents this journey and examines teacher insights on this central question. As will be shown, making this transition was met with theoretical tension, struggles between assessment reality and rhetoric, and a theory-practice disjunction. Teachers worked against the dominant assessment discourses found within the general professional community as they moved towards a cultural-historical theorisation of assessment (e.g. Crossouard & Pryor, 2008; Otero, 2006; Smith, Teemant, & Pinnegar, 2004).

The article begins with a discussion of cultural-historical theory in relation to assessment pedagogy. Specifically, the concepts of *social situation of development* (Vygotsky, 1994), motives (Hedegaard, Edwards, & Fleer, 2012), *the zone of proximal development* (ZPD) (Vygotsky, 1997) and the relations between the *real and ideal forms of development* (Vygotsky, 1994) are introduced in order to gain insights into the reported *assessment interactions* that were commonplace in the

neighbourhood communities and multi-age group classrooms within the school. In this paper, cultural-historical theory was used to inform practice. However, the study also drew upon the teachers' enquiries and their practical insights in order to inform theory (see Chaiklin, 1996). In line with Chaiklin (1996), the study took a dialectical view of theory and practice, where the activities and practices of the teachers created new concepts, while the cultural-historical concepts that were new to the teachers informed their building of new practices. A dialectical reading does not allow theory and practice to be used as a binary, but rather sees them to be mutually constituted in the process of informing new action and activities.

## **Foundational concepts underpinning cultural-historical assessment**

### ***Zones of development***

Vygotsky (1987) argued that traditional approaches to assessment always measured what had passed. He stated that a cultural-historical view focuses on the future, what is yet to come and what could be achieved in collaboration with others, well above what a child could do independently. Important to Vygotsky's conceptualisation of assessment was the ZPD where the concept of future performance has been nicely captured. Whilst many have written about the ZPD in relation to teaching (see Chaiklin, 2003 for a critique), few have used ZPD for theorising assessment, as was Vygotsky's (1987, 1998) original intention for understanding learning and development.

It has been shown by Vygotsky (1997) that the ZPD is the dynamic region of sensitivity in which the transition from interpsychological to intrapsychological functioning can be made. That is, at the interpsychological level, attention is paid to what is in the child's social and material environment that represents the full and holistic use of the concept/interaction. For example, when a child hears spoken language, she receives modelling of a high order or 'ideal' language-rich environment (discussed further below). The child engages in forms of communication, repeating words that are supported conceptually and structurally by the adults who surround the child. The child begins to use these words (imitation with understanding, and what is relevant to the next psychological period of development) and on understanding their significance and meaning in social interaction develops intrapsychologically with a consciousness of language use and meaning.

In assessment, the "zone" has a centre and periphery defined in terms of how a child maintains and realises different positions in collaboration with adults while performing an external productive action' (Bozhovich, 2010, p. 54). The zones are not entities, but rather are dynamic interactions between children and adults. This conception emerges in the work of Lunt (2008) on assessment who tries to capture these dynamics and interactions through the concept of *collective zones of proximal development*. In this conception, the intersection of the individual and the collective is featured, and through this the mediated activity becomes more evident.

Hickey and Zuiker (2005) have also recognised the *assessment interaction* in their study where they examined the, 'complex issue of reconciliation between the activities of the individuals and the social contexts and how "dialectical" reconciliation addresses tensions between classroom assessment and external testing, and between formative and summative functions of assessment' (p. 277). This conceptualisation is in the study by Smith et al. (2004) who examined the

assessment of ESL learners and noted that, 'The interaction between content and language requires teachers to determine whether a student's difficulties are due to lack of content knowledge or lack of language proficiency' (p. 38). They argued that assessment from a cultural-historical perspective recognises the importance of the activity where 'valued behaviours, cognitions, and contextualised social performances' are integrated into the assessment activities (p. 40).

Importantly, Smith et al. (2004) have noted that a cultural-historical approach to assessment positions knowledge as a cultural understanding with competent participation, that learning and development is social, that teaching is assisting and that performance is situated. Lunt (2008) too has suggested that a cultural-historical view of assessment moves away from the individual and seeks to capture the dialectical nature of shared thinking, mutual support and common knowledge as part of the unit of analysis in assessment theorisation. Therefore, using a cultural-historical conception of assessment means teachers do not separate out a single child from other children, or separate out the interactions between the assessed and the assessor or the activities performed as part of the assessment context. All of these inform the *assessment interaction* and give meaning to the assessment results. It can be argued that a cultural-historical reading of assessment, where development is mapped in relation to collaborations as a form of proximal development, and where the 'ideal' is mapped as a form of potential development, augurs well for developing an assessment pedagogy that focuses on collaborative, rather than individual, assessment.

### ***Social situation of development***

Yet what is missing from this analysis of the ZPD and the assessment interaction is the child's *social situation of development*. Vygotsky (1994) introduced and Bozhovich (2009) elaborated this important concept when they both give a clinical example of how four children from the same family experience this same environment differently. The same family context of a single mother with substance abuse will be experienced differently because the youngest child (2 years) does not understand the neglectful situation, whilst the eldest child (10 years) does. In Vygotsky's example, the eldest child takes on the role of primary carer for the family, acting well above what might be expected of a 10-year-old child. Each child experiences the same home context differently, and this is based on what they each bring to the situation. Hedegaard and Fleer (2013) have shared an example of a morning breakfast setting in Denmark where a child is singing a song which the family discusses. The same home event was experienced differently. The youngest child (five years) sings the song to show he knows the words. The 10-year-old child discusses the pedagogical features of learning the song at school, questioning why the teacher keeps stopping the singing of the song to repeat verses. The 5-year-old has play as his leading activity (Vygotsky, 1966) and wants to enjoy the singing and share what he can do by remembering the words to the song, whilst the 10-year-old has learning as her leading activity (Elkonin, 1999) and is confused because she does not yet know that the teacher is seeking a higher level of musical engagement by studying the presentation of the verses within the song. In assessment children each bring to the assessment interaction a level of life experience, motive orientation and conceptual understandings, which means children will each experience the same

assessment context differently. This adds complexity to the assessment interaction, making it a dynamic rather than static context (also noted by Tzuril back in 2000).

### ***Relations between the ideal and real forms of development***

Bozhovich (2010) has argued that, ‘When we apply the principle of collaboration in order to determine the ZPD, we have an opportunity to directly study the very thing that most precisely determines the mental maturation that *should come to completion in the next and immediately following period*’ of a child’s cultural development (p. 50; original emphasis). When a child can successfully imitate because s/he is psychologically primed to pay attention (e.g. to study the verses to the song), then the nature of the collaboration in the assessment should support those features of her or his development. On their own, the child cannot show their potential for engagement in the higher levels of learning activity, but rather can only show what they can ‘actually’ do (actual zone of development) on their own. But when children are approximately (proximal zone of development) able to do the learning task and show this when being collaboratively supported in particular situations, then a better understanding of learning is achieved.

What lies in the proximal must at some point also be in the child’s social and material environment in an ‘ideal’ or mature complete form of development. Even if the child is not yet primed to pay attention to the ideal form of development, the assessor can assess if this ideal learning concept is available within the child’s social and material environment as something for the future. If it is in the environment already, it becomes familiar and socially meaningful to the child over time. This latter perspective seeks to notice potential learning and development through assessing if the ideal form of development is present in the child’s environment. Looking for the ideal form during the assessment process should also be part of the assessment context. Vygotsky (1994) captured this important dimension through the concept of the *relations between the ideal and real forms of development*. Something that is to form later in a child’s development must be in the child’s environment from the beginning. The assessment does not focus only on the child, but rather focuses on the social and material conditions that create the potential zone of development that Kravtsova (2010) has described psychologically and Fleer (2006, 2010) has named in education as *potentive assessment*. Fleer and Richardson (2003) in their cultural-historical study of assessment practices in a childcare setting show the significance of the ideal form of development through mapping how a small group of children aged three to five years wrote letters to include in a postbag for delivery. The teacher introduced a storybook that held a range of different types of letters (business letter, postcard, birthday card, etc.). The letters were in envelopes embedded in the picture book. These letters represented the ideal form of letter writing development. In this engaging context, children could ‘add their own handwritten letters to the envelopes in the picture book’ and create a unique assessment context that included both the ‘ideal form of letters’ and the ‘real form of letters’ that the children had written. The teacher made the task of writing motivating because the real form and societal purpose for hand writing (as opposed to email writing) were made explicit within the children’s environment.

### ***Motives***

In conceptualising the potential zone of development in assessment, it is possible to examine what children are oriented towards by considering in the assessment context how learning motives for specific school subject matter knowledge are embedded in the child's social and material environment – such as, looking at children's books with embedded envelopes and letter writing to families. Motives from a cultural-historical perspective does not mean a biological, internally driven approach to things, but rather it is the relations between the child and how the activity settings can develop a motivation towards particular events or activities (see Hedegaard, 2002). In this reading, assessment must include if or how learning activities become motivating, so that culturally valued motives towards subject matter content (the ideal) are acquired as part of the children's personal and collective motive hierarchy (Leontiev, 1978) or actual or real forms of development (Vygotsky, 1994). The general theorisation of the zones in relation to assessment has generally missed motives as an important psychological dimension of the assessment context. No cultural-historical studies which used the concept of motives for informing the study of assessment could be found.

In examining the literature on cultural-historical readings of assessment, where the zones of development are central, what becomes evident is that other concepts are needed to fully understand how the zones of interaction are measured. This is in keeping with Vygotsky's approach where his theory must be conceptualised as a system of concepts. The concept of motives, the relations between the ideal and real forms of development, and the social situation of development, together constitute a system of concepts for better understanding assessment within the ZPD. However, how these concepts inform teacher thinking about assessment has not yet been studied.

### ***The study design***

Haigh and Dixon (2007) suggest 'that research has not been part of a teacher's employment contract, [and therefore] many teachers will have had little or no experience of research' (pp. 372–373). Yet the school that was the centre of the inquiry reported in this paper had a culture of undertaking research. In this school, the staff regularly researched their own practice and together with some more experienced teacher-researchers (including the school principal who had come from a research-led school) collectively gained experience of the research process for informing their practice. What the staff were interested to learn through the research was how they could develop a cultural-historically informed assessment approach. What the study sought to examine was: How do cultural-historical concepts inform primary teachers' thinking during the process of building a new assessment pedagogy for informing their assessment practice?

### ***Study site***

The school is located within an inner-city suburb of Australia, drawing upon a mixed school population of middle and working class families, including European heritage (Greek, Italian, French) and recently arrived immigrant families from Africa (Sudanese, Ethiopian, Somalian) and Asia (Korean, Chinese, Vietnamese). The



school architecture is traditional, with mostly brick buildings and classrooms designed initially for 30 children and 1 teacher. Under the leadership of the current principal, the school was renovated and the traditional classroom walls removed, affording open plan spaces, designed furniture and carefully managed interior design to facilitate children of all ages working with teams of teachers. Only in the first year of school do children have a home classroom of 24 children. These learning spaces are known in the school as neighbourhood communities and multi-age group classrooms, rather than as classrooms because they afford a very different space for teaching and learning. The researcher's role, along with the principal of the school and an architectural consultant to the school, was to facilitate and document teacher discussions and to represent extracts of data taken from previous discussion forums for further elaboration by the teachers. (Details follow below in the procedure.) The study was not an externally organised research project implemented by the author, but rather it represented the ongoing documentation made of 11 teachers over a two-year period (across three school years), with 76 hours and 17 minutes of video data and the associated field notes made from the guided discussions held during lunch time forums, professional development days and observations and informal interviews of teachers and children engaged in collective inquiries.

### ***Procedure***

In the collective research into assessment practices in the school, 11 teachers from a staff of 22 specifically sought to meet regularly with the researcher, the school principal and the architectural consultant in order to theorise their assessment and to build new concepts of assessment for informing practices within their school. Three types of teacher professional learning activities were video recorded by the researcher over a two-year period spanning three school years:

- (1) Lunchtime research forums, where staff discussed key cultural-historical concepts.
- (2) After school hours research meetings, where staff shared work samples or the researcher introduced video clips of child–teacher interactions. The samples and video clips were discussed in the context of key cultural-historical concepts.
- (3) School professional development days, where staff presented to each other in relation to the collective inquiries occurring within each neighbourhood, where lead teachers gave presentations of big ideas in curriculum and where the researcher presented key cultural-historical concepts that were discussed in the context of pedagogy and assessment. The architect also gave presentations on how designed spaces supported learning. She created panels of learning from the teacher–children inquiries which were shared with staff at these whole-school events.

In addition to video recording the key professional learning activities that the 11 staff participated in, data were also gathered during:

- (1) Staff planning meetings for the Year 1 and 2 neighbourhood community (in second year).
- (2) Inquiry time in the three neighbourhood communities.



- (3) Presentations by senior staff to the community (families and visitors to the school) (in second year).
- (4) Child–teacher interviews *in situ* in the neighbourhood or during specifically designed times.

A summary of the data generated through the research process is presented in Table 1.

### Analysis

Vygotsky (1987) introduced the concept of the unit of analysis, which was elaborated further by Davydov (2008), where the unit is the smallest ‘cell’ that possesses

Table 1. Data overview.

	Guided discussions	Whole staff forums	Senior staff presentations	Planning meetings	Video observations of inquiry time	Interviews
Year 1 (end of year only)	1 h 3 min 20 min				Half-day (field notes)	Teacher interview (24 min)
Year 2	Lunch time forums: 1 h 21 min; 1 h 3 min; 55 min	2 days (plus field notes)			Year 1/2 (35 min); Year 3 (25 min); Year 2 (25 min); Year 2 (45 min); Year 1 (50 min) (plus field notes)	Year 4 (20 min); Year 2/3 (26 min); Year 5/6 (25 min); Student council (15 min); Teacher (15 min) Parent interview (50 min) Five child–teacher interviews (35 min)
Year 3	Lunch time forums: 55 min; 26 min; After school research meetings: 2 h; 2 h (plus field notes)	2 days (mid year) (plus field notes)	Princes Hill Conference Film festival presentation by staff and children to families (2 h). 12 h of senior staff presentations to community.	9–11.30 am over 9 weeks (15 h)	9 weeks (2 h) (plus field notes). 12 full day visits with field notes.	Interviews with 12 children (6 h)
Total – video observations	8 h 42 min	24 h	14 h	15 h	5 h	9 h 35 min

all of the characteristics of the whole. Vygotsky (1987) gave the example of the cell in an organism that contains all of the characteristics of human life. This concept of a unit of analysis allows for an examination of a whole system of interactions, as would occur during assessment, in order to determine its essence, that is, to find the smallest unit or cell that contains all of the features of the whole assessment system. Vygotsky (1987) also gave the example of how water is composed of hydrogen and oxygen as a point of contrast. Water is made up of chemical elements, but knowing this does not in itself reveal the essence or characteristics of water, only the elements of water – hydrogen and oxygen. A reductionist approach would never ‘succeed in explaining the characteristics of the whole’, all that would be known is ‘the characteristics of its elements’ (Vygotsky, 1987, p. 45).

In order to identify the smallest ‘cell’ that possesses all of the characteristics of the whole, this study drew upon the relations between the *ideal and real forms of development* that were active across the research period. All video observations were logged and then coded through a process of extracting video data in the form of clips using iMovie software. Dialogue from teacher and child interviews/forums or examples of practices where the relations between the ideal and real forms of development were evident were copied, coded and examined. Some of these data segments were used in subsequent guided discussions to explore these concepts with teachers in relation to their beliefs and practices of existing and possible new approaches to assessment.

### Study findings

The teachers in this study used concepts from cultural-historical theory to examine their existing assessment practices. The guided discussions sought to make more conscious teachers’ existing assessment pedagogy and to conceptualise a more collective rather than individualistic view of assessment, where potential, proximal and actual zones of development featured. It is these zones that the teachers in the school were interested in better understanding, and through their research, they actively sought to consciously enact a cultural-historical approach to assessment in their neighbourhood communities and multi-age classrooms. But ‘Discovering and measuring the “zone” was at first described as a simple procedure: independent work on a learning task followed by the work with an adult on learning tasks of the same or greater difficulty’ (Bozhovich, 2010, p. 50). However, as noted through the theoretical review, the more the field engages with this concept in the context of assessment, the more complicated ZPD appears. This was also noted by the teachers during their research.

Allal and Ducrey (2000) have examined ZPD and noted two interpretations of the relationship between ZPD and assessment. In the first reading, measurement of the ZPD is focused on the individual with validity across settings, such as seen in dynamic assessment; and the second interpretation examines the ZPD in interactive formative assessments within classrooms. Importantly, Allal and Ducrey (2000) suggest that in the former conceptualisation, the ZPD is interpreted as an individual trait carried across contexts, while the latter assessment is conceptualised as intervening within the ZPD that is developed as a result of ongoing interactions in classrooms. In this study, the second interpretation was followed. Specifically, the study found that teachers had to examine how to deal with (1) age as foundational to summative assessment acting in contrast to a cultural-historical view of assessment; (2) the

relations between the individual and the collective in formative and summative assessment collaboration; (3) and measurement within the zones of actual, proximal and potential development. These are discussed in turn.

### *Age as a driver for assessment*

We can find you examples of our assessment, but they are all horrible. We hate them. We just want to find something else. (Kerri, lunch time forum, Year 2)

Kerri's comment reflects the need of the teachers at the school to re-theorise their practices and to construct new assessment concepts and tools. In examining a range of cultural-historical concepts, including motives, the relations between the ideal and real forms of development and the social situation of development, teachers recognised that using cultural-historical concepts for assessment was a challenging theoretical shift from what has been advocated by the education system for assessment in their state. Informed by Vygotsky (1997) who stated that '... it is easier to assimilate a thousand new facts in any field than to assimilate a new point of view of a few already known facts' (p. 1) (introduced in Year 1), the staff re-examined their beliefs and practices with a view to creating a theoretical alignment between assessment and teaching. The tensions between the system expectations for summative assessment (noted here as VELs)<sup>2</sup> and the philosophy of teaching in the neighbourhood communities and multi-age groups (noted here as projects) are captured in this exchange made early on in the project by the teachers:

- Kerri: Our [summative] assessment is very VELs related, and therefore very skills based. And that's what we don't like about it ...
- Keith: If you were to take someone like Child X, and take his story from when he first came into prep, right up to this point now, I just don't believe that a series of VELs reports ... do *justice* to his journey (original emphasis)
- Mary: ... we are in a transitional place at the moment, we are not letting go of VELs completely, we are really not allowed to in any case, ... so if we mark against it as far (shows with hands), as on a continuum, they are within that range (shows with hands), but it is not an either or, it is a matter of how they are doing when we look at that child or any child, what measures do we use ... ? (Lunch time forum, Year 2)

Mary rightly points out that VELs, and how it is traditionally interpreted, is a form of summative assessment. VELs foregrounds a maturational continuum of expectations that are linked directly to year levels. The staff comments reflect the tension they experience when maturational assessment as privileged in their school through VELs clashes with the adoption of a cultural-historical perspective on children's learning and development.

The age-related continua that Mary discusses are mirrored by an age-related approach to organising children in schools. The common practice tradition in Australian primary schools is for children of the same age to be placed together in a single classroom. This structural organisation reinforces *age* as an important criterion for teaching and assessment in schools. Usually, schools rely upon age as a marker for what is to develop and what it is that should be measured, suggesting also that the theoretical underpinnings of school organisation are based on a maturational view of child development. VELs and the traditional schooling structure continue to reinforce age as a central criterion for measuring change.

Keith and Kerri clearly seek to work against the privileging of VELs and the positioning of age-related skills as central for assessment. The discussion about projects in relation to VELs highlights the tension that is overwhelmingly felt by the staff (all 11 staff commented on this) as they struggle with the VELs system which is developed upon a maturational framework of child development, and the school teaching philosophy which uses projects and inquiry-based learning that draws upon a cultural-historical view of child development. Documents such as VELs become the authority and through their use implicitly sanction particular forms of progression for individual children, as noted by both Tony and Tomo:

Tony: These [VELs] are guidelines, we are not saying it is definitively that these are the behaviours that a child should be showing at this particular [age/time], we are saying that these are things you might look for ...

Tomo: ... as examples of progression. (Lunch time forum, Year 2)

A maturational view of development has been extensively critiqued and found to be problematic (see Karpov, 2005; Vygotsky, 1997). In problematising the concept of age, Vygotsky (1997) wrote 'we are justified in asking not only what his [*sic*] chronological age is, what his intellectual age is, but also at what stage of cultural development he is' (p. 231). *Age* does not determine development, but rather it is *education* that leads a child's cultural development. Vygotsky wrote that when a teacher matches the curriculum to the child's actual developmental level, that is, to their age as related to the level of schooling, then as discussed earlier, teaching is focused on development that has already passed. This insight was also noted by Tim, who spoke of VELs as a summative assessment tool for 'checking-in at the end of learning cycle':

... you are using VELs as a bit of a check-in at the end, just to ensure that what you are doing with your inquiry ... is aligned to some sort of framework. (Tim, lunch time forum, Year 2)

As noted earlier, in a cultural-historical view, teaching and assessment should always be ahead of the child's development, where assessment examines the potential of the child, rather than their actual development. This view of assessment would suggest that it should be the cultural development of the child that is the focus of summative assessment in schools and not summative assessment related to progression matched to the age of the child. In the latter reading of child development, the child's biology becomes the focus of attention. In referring to cultural development, Vygotsky (1987, 1997) does not mean race or ethnicity, but rather his focus was on how communities through their schools develop children culturally. Tools and signs are cultural inventions created by humans for particular needs (e.g. the need for standard measurement so that trading could occur more effectively) and are passed on from one generation to the next, but are also recreated (e.g. from Imperial to metric) in communities and classrooms (i.e. they are not static). This is a different view of development than a biological or maturational view of child development, where age is the central driver for expectations and norms.

***Formative and summative assessment as an individual enterprise or as a collaboration?***

Collaborative assessment brings together the teachers and the children within the neighbourhood communities and multi-age group classrooms (where there are two to three teachers). The organisational structure of the school for teaching involves children's families. However, it is a new practice for teachers to involve families in formative assessment. The bordering that exists between schools and homes must be actively contested if a truly collective response to formative assessment is to occur. Deliberate planning and reimagining of formative assessment is needed. However, as pointed out by Mary, the collaboration with families is challenging. Mary uses a fencing metaphor to make this visible:

We are trying to remove that fencing between what happens in school as an institution, as apposed to what's happening outside which is real life. We are trying to say ... it is about taking it out, [and] it is about bringing it back in. (Mary, lunch time forum, Year 2)

If formative assessment involves the 'taking it out, [and] it is about bringing it back in' so that families are a part of the assessment dynamic, where real world learning features, as suggested by Mary, this represents a contradiction to traditional formative assessment approaches. As mentioned previously, a taken-for-granted assumption is that assessment is about the assessment of the individual (see Elwood, 2006; Hickey & Zuiker, 2005). It can be asked: Do children really develop on their own? Clearly they do not. Lunt (2008) suggests that there is a paradox in assessment because 'assessment is typically a solitary practice', yet in primary schools, understandings are usually 'developed and sustained in and across groups' (p. 36). Gee (2008) notes that a traditional way to view knowledge is 'in terms of mental representations stored in the head ("mind/brain")' of the individual (p. 77). This view raises the questions of how it is that 'information gets into the head, how exactly it is organised in the head, and how it leaves the head when people need to use it' (p. 76). If information is stored 'in the individual's head', then it naturally follows that assessment must be about 'extracting individual understandings from the head'. It can be noticed that the tools prescribed by systems tend to encourage staff to focus on an individual view of learning by assessing the individual, as noted by Keith:

Coming back to a cultural-historical perspective, there is a disconnect there, while we do have to report on individual children, I guess the way our pedagogy is set up, we believe children learn through social activity, that's one of our principles. (Keith, lunch time forum, Year 2)

The tension between individual and collective assessment is real. This can be problematised further by asking: When you are physically on your own, are you 'still with others'? Bozhovich (2010) contends that even when a child is solving a problem at home using a model that was introduced at school, the child '*continues to act in collaboration*, although at the moment the teacher is not standing beside him [her] ... This assistance, this *collaboration*, is *invisibly* present, [and] contained in the child's apparently independent solution' (Bozhovich, 2010, p. 56; original emphasis). This too can be viewed dialectically: when a child is at school, they too continue to act in collaboration with their families, even if they are not present in the classroom. Learning and therefore assessment go beyond the notion of an individual to an individual in collaboration with others, even those not physically

present. Moving the lens from the individual to the collective in both formative and summative assessment is an important development in assessment pedagogy. As noted by Kerri, this perspective brings a new way of thinking about assessment from an ‘individual assessor’ to a more collective response to all forms of assessment:

I really like this idea of this partnership and collective responsibility for assessment. (Kerri, lunch time forum, Year 2)

The concept of collaborative assessment where the responsibility of assessment moves from the teacher to the collective requires some rethinking as also noted by Kerri:

... collaborative assessment is actually more than just the collaboration between the children and teacher assessing that. Collaborative assessment is all the partnerships involved and contributing, so there becomes this collective responsibility for assessment, and it is a completely new way of looking at it. (Lunch time forum, Year 2)

Lunt (2008) argues that ‘Assessment as a collective practice involves meaning making in the form of aligning heterogeneous voices through negotiation as well as using institutionally developed tools’ (p. 37), which Kerri has already identified as problematic because these tools do not yet exist in her school.

Bozhovich (2010) has argued that, ‘Collaboration is not something that is used in isolation but a generalised name for a variety of techniques that help uncover a child’s potential abilities’ (p. 50). The net for understanding the nature of assessment within a school needs to extend to the family context. For instance, in discussing the idea of moving parents into the assessment net, Kerri highlights the importance of finding the most family-appropriate ways in which this should happen so that negative value judgements are not made:




I think you have to be really careful that there is not value judgments made, that there is not stereotyping and so on. (Kerri, lunch time forum, Year 2)

As Haertel, Moss, Pullin, and Gee (2008) remind us, opportunities ‘are unequally distributed, as attested by large differences in test score distribution (read uncritically as indicators of skill distribution) for groups defined by race and ethnicity, poverty or parent education, language background, or disability status’ (p. 1). Kerri makes the dangers clear by warning about value judgements, as these can colour how situations are read, and how these may inadvertently turn into interpretations that negatively impact on assessment judgements, and reduce opportunities to learn (see Moss, Girard, et al. [2008] for a comprehensive critique of opportunities to learn in terms of the assessment dynamic).

Tony makes the point that the communications across school–home borders do not always make the learning visible or understood by families because of expectations for a static and traditional view of summative assessment. Tony has also found that children can and do actively contribute to assessment, and are capable of looking for evidence for making learning visible:

I had a really good kind of assessable moment<sup>3</sup> ... kids were doing the assessing, and really tearing the project to bits, saying “Show us this (pointing to an assessment rubric – see Table 2), show us that (pointing to an assessment rubric)”. This is the criterion [you need to show evidence for]. (Tony, lunch time forum, Year 2)




Table 2. An assessment rubric used by children.

Maths project – Assessment rubric				
				
Action plan	Followed the stages of the action plan to design the inquiry. Objective is not particularly clear and not really supported by mathematical reasoning	Utilised the action plan to design and investigate a mathematical inquiry. Objective of project is reasonably clear and somewhat supported by mathematical reasoning.	Action plan is thorough and comprehensive. Objective is very clear and supported by mathematical reasoning	
Visible learning of maths	Little evidence of the maths used to complete the process. Little variety of maths undertaken. Some simple concepts demonstrated. Made limited links between numbers and key facts	Some evidence of the maths used to complete the inquiry process. Some variety of maths undertaken. Developing level of difficulty of concepts demonstrated. Made some meaningful links between numbers and key facts	Lots of evidence of the maths used to complete the inquiry process. Large range and variety of maths demonstrated. Advanced level of concepts demonstrated. Made meaningful links between numbers and key facts	
Creative use of mathematics	Selection and use of data is limited	Selection and use of data is informative and somewhat interesting	Selection and use of data is engaging and sparks interest. Leaves people wanting to know more	
Personal learning	Required teacher direction to begin work. Did not complete tasks in set time frame. There was little or no reflection on progress of process. Did not ask questions or follow advice from teachers or peers	Set to work promptly however lost focus at times. Completed some of the activities during set time frames. Produced basic reflections on the process. Occasionally asked questions following teacher prompts. Followed advice from the teacher and peers. Recognised problems and with teacher help, sought a solution	Worked to and completed all tasks during set time frames. Actively sought advice and asked relevant questions. Produced detailed reflections and made changes to products based on reflections. Recognised problems and actively worked to achieve a solution	
Quality of final presentation	Many parts of the planned presentation were rushed/ not completed. Required significant teacher assistance to organise the presentation on the day. Explained the project simplistically, mentioning most steps and some decisions made. Gave some short	Most aspects of the planned presentation were completed and evident. Required some teacher assistance to organise themselves on the day of presentation. Explained the development of the project by mentioning steps in the process and reasons for decisions	All aspects of the planned presentation were completed and evident. Organised presentation independently with all materials ready. Explained the development of the project by outlining steps in the process. Provided detailed	

(Continued)



Table 2. (Continued).

Maths project – Assessment rubric			
			
	answers to questions during the presentation	made. Answered questions during the presentation	reasons for decisions made. Answered questions during the presentation, justifying choices made
Reflections	I found it helpful when..... Something tricky for me was..... This project helped me to improve with..... A great strategy was..... I have learnt..... I am amazed that..... Next time I will..... I want to know more about..... I need to work on..... I demonstrated my creativity by.....		

### ***Measurement within the zones of actual, proximal and potential development as an assessment interaction***

Conceptualising all forms of assessment as working with collective zones of development, where collaboration is foregrounded, and where the zone of potential development is featured, presented some challenge for the teachers:

Are we greater than the sum of our parts? ... This is what I find so challenging. (Keith, lunch time forum, Year 2)

Mark also begins to bring forth the fuzzy nature of all forms of assessment within the zones and how they may be conceptualised and operationalised in practice:

... it's about articulating those spaces between in the kids themselves, between the teachers, between the parents ... I am thinking about using that as a way of kind of bridging, as a thread. (Mark, lunch time forum, Year 2)

Studies have theorised rather than operationalised the zones. The teachers in this inquiry found it difficult to consider how the zones might be measured. Previous work has not made concrete how teachers can capture what might represent the future dimensions of learning and development. The difficulties experienced by the teachers were not surprising because what is already known from Bozhovich (2010) is that the zones appear easy to understand, but are difficult to measure.

These important points were also raised in the context of peer assessment, where teachers discussed the need for supporting children to know how to ask questions of each other, how to verbalise their learning and how to interpret summative assessment rubrics:

Tim: ... we could assess a whole range of things, we had to make decisions about what we were going to assess ... which parts of our assessment are we going to say are really important, or not so important, ... they didn't have any evidence base ... they hadn't seen anything. The kids really feel as though they are a part of it, they're the stakeholders ...

Anne: ... the children learnt more about how to go about the process of inquiry by actually doing the assessment, the rubric itself ... What evidence was there to show that they had? What questions were they asking; and then: Did the evidence they collected actually match the question? ... (Lunch time forum, Year 2). [See Table 2 for an example of an assessment rubric used by children]

These thoughtful comments by the teachers draw attention to not only the children's capacity to use a summative assessment rubric, but also how to engage in an assessment collaboration – the latter being a central dimension of proximal assessment. That is, do the children successfully draw out of the projects the other children's actual development? Do they have to ask side-by-side questions, as occurs in proximal development through specific kinds of interactions with the other children? Can they extract the necessary evidence that is needed to judge potential development? The teachers signalled the importance of teaching children how to have a successful *collective assessment interaction* for drawing out learning – they found it was not an intuitive interaction. This is an important finding. It signals the need for documenting the kinds of assessment interactions that occur between the assessors and the assessed when making judgements about the worth of documented outcomes that are then reported. Here, Bozhovich's (2010) question is pertinent: Do teachers measure capacity to perform or capacity to collaborate?

The potential lying within a function's ZPD might be significant, but the ability to collaborate (communicative competence, a desire to understand the partner's logic, etc.) may be something the child lacks or may be poorly developed. In this case, there is no type of assistance that will necessarily reveal what is hidden within the 'zone'. (Bozhovich, 2010, p. 52)

Moss, Girard, et al. (2008) have argued that in all forms of assessment practices, teachers need to pay attention to the relationship between the child and their learning environment, and this includes the assessor and the assessment interaction, but this also takes into account families. In dynamic forms of assessment, the relationships between the child and their social and material world are always evolving and must be captured in the assessment practice. The view is that children are always learning and have a capability for learning. This 'credit' assumption (see Carr, 2001) that is inherent within dynamic forms of assessment contrasts with traditional standardised summative assessment approaches which examine the learning ability of individuals as static or stable. Moss, Girard, et al. (2008) suggest that independent functioning of children is not a good predictor of a learner's ability to respond to intervention. Capturing collaboration in assessment was a new direction for formative and summative assessment practice for the teachers of this school.

### ***Working with cultural-historical concepts***

Over the two years of the study, the teachers began to progressively work with concepts when reflecting upon the assessment practices being used. For instance, at a two-day conference, Esme reported to the participants:

... how do we get into the zone of potential development, proximal development and then leading onto actual development. Exploring deeply children's motives, and through Vygotsky's term, the social situation of development, [we have asked] what are the motives of 5 year olds, and as we know, how do those motives change to 12 and 13 year olds. Both groups have very different motives to engage in the school context. How do we bring the learning to that? (Esme, two-day conference, Year 3)

Concepts were also used retrospectively by teachers when discussing major teaching projects and summative assessments of child outcomes. For example, in Table 3, it is shown over time how one teacher used the concept of the ideal and real forms of development to make conscious the assessment of the learning taking place as a result of creating a theatre company in the school and putting on the production of the play of 'Alice in Wonderland'. In this example, Tim organises learning and assessment in the school through an authentic experience which required not only conceptualising a social event that commonly occurs within the children's community (Year 1), but analysing what concepts are learned through this during the process (formative) and at the conclusion to the project (summative) as a final performance (Year 2). In Year 3, he examined this event again, drawing upon the relations between the ideal and real forms of development. However, he took it one step further and used this concept to conceptualise how future projects might require the ideal forms of development to be present in the child's environment, and for assessment to focus on the relations between the ideal and the children's real forms of development through these expansive projects (Table 3).

As noted in Year 3, Tim used the concept of the relations between the ideal and real forms of development to think more deeply about his assessment, as is evident when he said 'reflecting on the concept [of the relations between ideal and real development]. I wasn't conscious about how we do it, giving it a name, and labeling it.' Anne also used the concept of the ideal and real forms when she identified:

The dynamic tension of the enactment of the ideal or through the teacher, and then the time where the children are actually taking that on board and working with that, and I think it is that stepping in and stepping out of, and the assessable moments are probably in the latter part of that. (Evening professional learning meeting, Year 3)

This is consistent with Vygotsky (1994) who stated that '*Something which is only supposed to take shape at the very end of development, somehow influences the very first steps in this development*' (p. 346; original emphasis) because 'that which is possible to achieve at the end and as the result of the developmental process, is already available in the environment from the very beginning' (p. 345). As noted by Tim, the ideal form should be present at the beginning, it should form a part of the child's lived world, giving social meaning to what they do, where assessment is meaningfully and socially constituted – as a stimulating motive. Assessment practices rarely examine what exists in the environment already, as the ideal that teachers are seeking to reproduce through teaching and to measure in terms of assessment. The relations between the ideal and real forms of development constituted one important concept drawn upon and discussed by all of the 11 teachers.

The teachers also used the concept of the social situation of development when discussing assessment. For example, Mary draws on this concept to discuss why assessment is challenging. She stated that what each child brings to the learning situation is different, and this makes assessment difficult:

... but what is difficult to assess is ... their bringing their bits and pieces, their personalities, so certain things will have greater impact, some will have minor impact, nonetheless an impact, so it is measuring, we are looking, looking to see a particular standard or a particular level that everyone's reaching, but because you don't really know exactly what they are gaining, and to what degree, that's where it becomes difficult, and I think that's been all the difficulty in the data collection that we trying to capture at any particular

Table 3. Working with the concept of the relations between the ideal and real forms of development.

Year 1	Year 2	Year 3
<p><i>Theatre company:</i></p> <p>‘We set ourselves up in different project groups [in the classroom], ... [the classrooms across the Year 5/6 neighbourhood] as a theatre company. Part of that experience was going out to a theatre company, we went out to a theatre company for a day, ... and got to see behind the production, the sets, went into the costume department, the dressing rooms, backstage, we went and looked at the sets, and David talked about the sets and the concepts behind the sets, ... opportunity to talk to ... the artistic director ...’ (Tim, teacher–child interviews, Year 1)</p>	<p><i>Reflecting on the learning and formative and summative assessment of the process of setting up a theatre company in the school:</i></p> <p>‘... then when we got back to the school we asked them to apply what aspect of the theatre department would interest them, we had a stage, a set department, costume department, and we had the performers of course. We also had Maggie (student in Year 6) acting as the director. Maggie in the role of director was overseeing the whole thing, it was her vision. This involved having meetings with Maggie and Maggie having meetings with each of the departments. So we also had a marketing department, we had to sell the show, let people know it was on, we created tickets, press release came from the marketing department, ticket sales, and then we had documentation where we were interviewing kids going through the whole process, keeping track where they were at with their learning. <b>When we were thinking about what were the concepts we were developing in the kids,</b> there was this real sense of collaboration, team work and working towards a shared goal, and that each of these small departments were working together for a larger goal and how my little bit contributing to the whole, and that was really evident on the opening night, the kids were operating the sound, the lights, back stage stuff, we had the performers, Maggie and her direction, it was authentic ... (Tim, two-day conference, Year 3)</p>	<p><i>Using cultural-historical concepts to analyse the experience of the theatre company and then use these concepts for future projects and the summative assessment:</i></p> <p>It goes back to the discussions we had [Evening Research Group Meetings] ... reflecting on the concept [of the relations between ideal and real development]. I wasn’t conscious about how we do it, giving it a name, and labelling it. (Tim, lunch time forum, Year 3)</p> <p>The Alice [in Wonderland] project was about that going out to the Malt House. A good example of was when we had people come in to teach ‘hip-hop’ song. I thought a better way to go was to do the hip-hop song first, and then break it up, but they didn’t, they broke it up first and the kids didn’t know where they were going. They were showing them all these silly movements, and it would have engaged them if they had of just wowed them as expert dances, showing them the possibilities. It’s that simple ... we are thinking about that now with our projects, and bringing the outside world in ... (Tim, lunch time forum, Year 3)</p>

time they would know, **but it doesn't work that way, that's what makes assessment difficult ... who's to say you don't see the value add three years down the track, because it is an accumulation of all sorts of different things and response to the environment ...** (Mary, professional learning evening, Year 3)

In using the cultural-historical concept of the social situation of development, Mary was able to articulate the longitudinal nature of learning where learning may show up well after the assessment period has passed. Using concepts to think differently about assessment was a key feature of the teacher discussions over the two years of the study. The concepts allowed teachers to reconceptualise what had already passed and to think differently about their role in the assessment dynamic.

### **A synthesis**

The focus of assessment is usually only the child and not the dynamic interplay between children, artefacts, teachers and families. But what if assessment practices actually examined the conditions that were made available to groups of children and analysed to see if it is possible for children to develop a meaningful motive, where the situations make sense to the child? This takes the focus away from blaming the child if they cannot achieve age-related outcomes. Rather, it can be asked: How is the environment constituted for providing the possibilities (meaningful motives) and ideal forms (stimulating motives) of the concept (culturally valued motive) in action? Collecting assessment data on the social and material environment and the children's interactions within it would constitute a major shift away from the idea of the assessment being about extracting what is in the head of the individual child. Assessing for the existence in the social and material environment of the 'ideal' or 'the mature forms' of what it is that needs to be learned captures the potential zone of collective development. This understanding by the teachers was an outcome of the study and demonstrates that although measurement within the zones might be thought of as initially conceptually difficult, using the concept of the ideal and real forms of development helped teachers to understand the potential zone of development. This concept and the concept of the social situation of development also supported teachers to think about their assessment interaction differently.

The struggles and the successes of using the concepts by teachers were also noted as tensions between the traditional approaches to formative and summative assessment and a cultural-historical conception of assessment. The struggles were:

- dealing with the contradictions of a state-based assessment vs the assessment of meaningful learning related to the children's lives, contexts and projects.
- moving the assessment lens away from just the individual child to include others.
- going beyond age as the central criterion for determining what should be assessed.
- broadening the assessment lens to include families and home activities.
- static conception of assessment at the end of projects.
- assessment of the zones.

The solutions were:

- conceptualising an assessment interaction as part of an assessment pedagogy.
- looking for the ideal forms of development available in the environment as part of the assessment approach.
- teaching children to build the ability to communicate what they know and to make visible learning.
- including children in the assessment and supporting them to engage in an assessment interaction.
- looking for a range of ways of breaking down the barriers between home and school, so that assessment practices include families.

Through the regular discussion of cultural-historical concepts in the context of assessment practices, assumptions were made visible, allowing teachers to collectively contest age as the essence of assessment and to think more deeply about their assessment pedagogy. These tensions triggered the teachers' engagement with new concepts, and allowed them to speak in a more nuanced way about their assessment practices, and to work more consciously towards the development of a cultural-historical assessment pedagogy for their school.

### Acknowledgements

Special acknowledgement is made of the staff and children from the school, the principal Dr Esme Capp and the architectural consultant Mary Featherston. Their ongoing contributions to discussions and their individual and collective inquiries into assessment provided a rich context in which to examine cultural-historical assessment.

### Notes

1. The term cultural-historical theory has been used because this term is what features in the Russian literature. This paper draws primarily upon the collective works of Vygotsky to inform the theoretical concepts discussed. It does not use secondary sources to discuss key Vygotskian concepts. Many secondary sources use the term sociocultural theory, and this term was first introduced by James Wertsch in the North American context. Although this term has been taken up by some scholars in a range of countries, I have chosen to use the term cultural-historical theory because it is more strongly associated with the legacy of the *Collected Works* (Volumes 1–6).
2. Victorian Essential Learning Standards (<http://www.education.vic.gov.au/school/teachers/support/Pages/ausvels.aspx>). Within Victorian Essential Learning Standards, there are three major stages of learning: the Preparatory to Year 4 level, Years 5–8 and Years 9–10. A report card is prepared that is written in plain English, giving parents a clearer picture of their child's progress against expected statewide standards (<http://www.education.vic.gov.au/studentlearning/studentreports/default.htm>). Standards by year level are explicitly stated for each of the learning domains (see <http://www.vcaa.vic.edu.au/Pages/foundation10/curriculum/assessment.aspx>).
3. See Fleer (2006). The assessable moment represents teacher professional judgement about the right moment in which to begin to document learning and development, typically when children are meaningfully engaged in a learning event, where motive orientation is high, and where performance is thought to be the highest. This contrasts with setting up an assessment task and time. The parallel concept that is widely understood and acknowledged is the idea of the teachable moment.

### Notes on contributor

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