Pursuing a problematic-based curriculum approach for the sake of social justice

Lew Zipin

Abstract

This article envisions, and argues for, what I call a *problematic-based curriculum approach* (PBCA) in which students work with/on knowledge in relation to local lifeworld *problems that matter*. In the process, students and teachers would extend curriculum work beyond school walls, engaging with diverse knowledgeable actors – 'lay' and 'expert' – in relation to *mattering problems*. In outlining PBCA, I draw significantly on Vygotskyan thought, including the Funds of Knowledge approach to curriculum design, and on Isabelle Stengers' pragmatist arguments for a proactive politics of knowledge in which 'expertise' proliferates. The article also contrasts PBCA with the Social Realist approach to curriculum (SR) that underpins South Africa's *Curriculum and Assessment Policy Statements* (CAPS). In this contrast, I argue that SR/CAPS is *re*-formative, whereas CPBA would be *trans*-formative in Nancy Fraser's sense of "chang[ing] the deep grammar" that frames curriculum, towards robust and vitally needed social-educational justice.

Introduction: Aiming to transform the curriculum frame

> *[T]he transformative politics of framing aims to change the deep grammar of frame-setting in a globalizing world.* (Fraser 2009, p. 23)

This article outlines what I call a *problematic-based* curriculum approach, in which students work with/on knowledge in relation to local lifeworld *problems that matter* (problematics). In the process, students and teachers extend curriculum work beyond school walls, engaging with diverse knowledgeable actors –'lay' and 'expert' – in relation to *mattering problems*. I argue that this curriculum approach is *trans*-formative, not merely *re*-formative, in Nancy Fraser's sense of "chang[ing] the deep grammar" that frames curriculum.

As a social philosopher, Fraser (2009) derives principles for practice of *robust justice* in conditions of the present-becoming-future. She seeks justice that is inclusive and egalitarian in terms of: (a) *redistributing* material and cultural resources needed for good lives; (b) *recognising* cultural histories and practices of diverse groups in the institutional formations within which they are subjected; and (c) participatory-democratic *representing* of diverse social groups in processes that define and enact the ways, means and norms for 'a good life'. Fraser finds that, in current globalising contexts, not only are historically inherited institutional norms becoming precariously unsettled, but social-structural inequalities of power and wellbeing are intensifying. Thus, says Fraser (2009, p. 158), "I can't ever remember such a dark period in my lifetime", whereby it is "a crucial job for the critical theorist to reflect on the historical situation one inhabits, to ask oneself: What do the times 'demand'? What are the challenges, the opportunities, the perils?"

To address such questions requires analysis of severe barriers to robust justice, and *pragmatism* about how to proceed in redressing barriers. Such 'pragmatism', however, is not as the term is commonly inflected in mainstream political discourse: e.g. "don't make 'perfect' the enemy of 'possible'" (paraphrasing Obama) – which calls to limit pursuit of change to what 'realities' (simplistically defined) allow. Such low-common-denominator 'realism' pushes, at best, towards ameliorative *re*-formation rather than *radical* (getting to the *root* of what matters) *trans*-formation. In the philosophical register in which I see Fraser, and myself, as 'pragmatist', I define the term as *practical pursuit of what works to achieve what, in ethical terms, is worth working towards*.

Proper pragmatism is thus driven by an *ethical* impulse. Fraser's "transformative politics of framing" expresses such *ethical*-pragmatic impulse to fathom critically, in order of pro-act beyond, historically received limits. "The problematic of *framing*", says Fraser (2009, p. 2; original italics), hinges on the ethically charged question: "What, if anything, *should* delimit the bounds of justice?" (*ibid*; italics added). Present limits on possibilities for future justice are not only material but also epistemological, encoded in taken-for-granted assumptions – Fraser's "deep grammars" – historically sedimented into features of institutions such as schools. Hence, a job for critical theorists – including critical *curriculum thinkers* – is to articulate and interrogate underpinning assumptions of present frames, in relation to ethical principles and proactive possibilities, with intent to further ethical-practical impetus toward **trans**-*formative social justice*.

Deep grammars codify institutionally through histories of power struggle. They thus correlate with deep structures of social-relational power asymmetry. Schooling, as a key institution within social formations, and curriculum as a key 'message system' within schooling (Bernstein, 1975), thus encode tacit grammars that, deeply sedimented, are most difficult to change (Tyack & Tobin, 1994). Pursuing transformation of deep grammars runs against a thick matrix of deflective, refractive and cooptative forces that tend to conserve coded grammars, in turn *reproducing* power inequalities (Bourdieu & Passeron, 1990). However, curriculum – as a locus of high-stakes contestation over what/whose needs and aspirations schooling addresses – attracts ongoing vigorous effort not just to preserve power of some social groups relative to others, but political momentums to transform grammars – which, in times (such as now) of acute unsettlement, gain possibility.

Curriculum is formulated, and contested, most directly at government policy levels. As such, curriculum can appear to change relatively quickly, if we think in a time-scale of policy *re*-form cycles. However, if we think in a time-scale of powerful sedimentation, and possible *trans*-formation, deep grammars encoded in curriculum tend, within all the policy flux, to resist change. Curriculum policy shifts issuing from governments, such as national curricula, tend – with all their fanfare of 'major reform' – not to dent deep codifications that select for (re)production of inequalities.

Indeed, curriculum reforms in the time-scale of political cycles can tend towards pendulous bipolarity around two sides of a coin of deep grammars that does not change. In the next section I argue that post-apartheid South African (SA) curriculum policy reforms display just such coin-conserving binariness. Ensuing sections pursue this article's primary project: an ethical-pragmatic rationale for a *problematic-based curriculum approach*. I build, first, on a Vygotskyan curriculum logic, which I then extend via the 'experimental constructivist' thought of Isabelle Stengers, a pragmatist philosopher of science. In conclusion, I argue that a problematic-based approach holds grammar-transforming potentials to advance social-educational needs and aspirations of all learners, and especially power-marginalised groups that constitute so much of SA's population, through robust cultural inclusion and participatory parity (Fraser, 2009) that, as Fraser suggests, "the times 'demand'".

The bi-polar coin of post-apartheid curriculum reforms

Given textual space limits, I here provide only a very abbreviated tracing of shifts in post-apartheid curriculum reform. My focus – as central to this article's argument – is on a bi-polarity regarding use, versus rejection, of 'everyday knowledge' within curriculum.

After the 'long walk' to 1994's Mandela/ANC government, post-colonial impulses for ethical renewal included curriculum for greater social justice – in terms of both cultural recognition of the diverse majority of power-marginalised peoples under apartheid (recognitive justice), and education for capacities by which a broader range of citizens could realise economic wellbeing (redistributive justice). Hence, says Slonimsky (2016, p. 38), "[t]he first post-apartheid curriculum explicitly aimed to promote the political goals of equity, redress, a culture of human rights, democratic citizenship and social justice and the skills and dispositions necessary for individual and social economic development".

Such justice aims both led to, and dissipated within, a comprehensive reform, *Curriculum 2005* (C2005), introduced in 1997. C2005 framed social-justice orientations within the neoliberal cast of 1990s 'development' and 'globalisation' discourse. SA policy makers, looking to the USA, UK and Australia, borrowed an Outcome-Based Education (OBE) design for C2005, defining 'outcomes' in terms of *competences* (Jansen, 2002; Fataar, 2006). In educating structurally less-powerful groups, aims to instil economic skills and dispositions translated to a vocational – as *against* academic – focus. As observed by Fataar (2006), a lack of coherent curriculum architecture, and a bits-and-pieces approach to naming and including 'everyday competences', inhibited social-justice aims to build meaningful cultural knowledge from the lives of diverse social groups into curriculum. 'Everyday knowledge', says Fataar (2006, p. 649), thus became an object of overly simplistic, equal-but-opposite criticisms about "over-emphasis on everyday knowledge" at cost of "undervaluing of formal school knowledge". A government review in 2000, notes Fataar (*ibid*, p. 656), targeted "Curriculum 2005's emphasis on everyday knowledge" as a "weak conceptual framing" that "impeded conceptual progression"; hence, "[t]he review accorded pride of place to … formal school knowledge acquisition as central to the developmental role of the school curriculum".

In 2012, the swing to 'formal knowledge' became official and firm in a new national curriculum policy: the *Curriculum and Assessment Policy Statements* (CAPS). In logic and implementation, CAPs departs sharply from C2005. Against using 'everyday knowledge' in curriculum, CAPS virtually excludes it (as I discuss shortly). Also, whereas C2005 left much pedagogically open for teachers to determine at the classroom level, by contrast, observes Slonimsky (2016, p. 33): "CAPS is highly prescriptive of content, method and pacing, and has arguably closed down spaces for teacher discretion". In Slonimsky's Kantian philosophical terms, CAPS effects excessive "heteronomy", i.e. "authority from outside"; whereas C2005 effected excessive "autonomy", i.e. "authority from the inside", for which teachers – too soon after decades of heteronomous habits, cultured in apartheid teacher-education and school practice – were not ready.

I find Slonimsky's distinction – autonomy/heteronomy – analytically useful in indicating a dimension of the bi-polarity of post-apartheid national shifts in curriculum policy. Against such polarised swings, Slonimsky appeals for policy and teacher-education that supports flexible balancing along "a continuum between heteronomy and autonomy" (*ibid*, p. 38), such that teachers can *both* operate within sensibly authoritative regulations *and* exercise creative pedagogic determinations emergent from their autonomous agency in situations of classroom work. Otherwise (*ibid*), "[t]oo much regulation and stability constrains initiative and an imagination for the possible", but "[t]oo few limits result in extreme anxiety (anomie) or extreme detachment (egoism)".

I argue further that neither C2005's unclarified conception of 'everyday' knowledge, nor CAPS' prescriptive disciplinary content and pacing/testing, actually interrupt how schools serving power-elite populations reproduce their students' social-positional power through schooling. Schools with histories of strong academic results, linked to powerful structural positions and associated cultural capital of students inhabiting them, typically retain much relative autonomy to continue with, and innovate further on, curricular and pedagogic approaches that have 'proven successful'. Rigorous accountability for following scripts of either C2005 or CAPS is more apt to apply in schools inhabited by power-marginalised groups who are likely to be alienated by culturally unfamiliar curriculum and pedagogy.

To be fair, the theory underpinning CAPS is not perfectly translated in CAPS policy or practice. However, the theory poses problems too, I argue, hinging

on the key curriculum issue of *what/whose knowledge counts*. I accord with Slonimsky's affirmation (2016 in what follows) that knowledge is a "constitutive condition for autonomy" (p. 40) in culturing teacher and student capacities for "reason, critical reflection, deliberation and initiative in a … morally acceptable [to communities] manner" (p. 32). However, a vital question becomes: *What/whose knowledge, worked with/upon in what ways, can culture such critical-ethical capacities*? Slonimsky valorises "disciplinary knowledge" (p. 36), i.e. "specialised forms of knowledge necessary for critique" (p. 32), as warranted in "Durkheim's **social realist** science of morality" (p. 36; my emphasis). This valorisation of Social Realism (SR) raises what, to me, is the more vexing bi-polarity of post-apartheid curriculum reforms: C2005's positive valuation, followed by CAPS's negative valuation, of 'everyday knowledge' as useful for school curriculum work.

SR is an academic movement of high influence in the conceptual formulation of CAPS. As to what knowledge should be used in curriculum, SR argues in terms of Durkheim's distinction between 'sacred' (disciplinary) and 'profane' (everyday) social bases of knowledge, and Bernstein's (1999) parallel distinction between 'vertical' (disciplinary) and 'horizontal' (everyday) knowledge modes. I lack space to amplify SR concepts and rationales (see Zipin, Fataar & Brennan, 2015, and Edwards, 2014, who elaborate arguments by key SR authors, in articles critical of these arguments). I focus here on how SR valorises 'disciplinary' *as against* 'everyday' knowledge. As Young (2014, p. 62) puts it: "[Curriculum that] celebrates the experience of pupils, whatever that may be … [goes against] the idea that the purpose of schools is to introduce them to knowledge beyond their experience". In more theoretical vocabulary, Young says (2008, p. 89; italics added):

> Bernstein's distinction between vertical and horizontal knowledge structures … assumes that … the codes and practices associated with subjects and disciplines … are designed to set the curriculum apart from the everyday knowledge that students bring to school … [I]t is this *separation of the curriculum from everyday life* that gives the knowledge acquired through it an explanatory power and capacity for generalization that is not a feature of everyday knowledge tied to practical concerns…. Certain principles for guiding curriculum policy necessarily follow … [e.g.] curriculum cannot be based on everyday practical experience. Such a curriculum would only recycle that experience.

As remarked above, the 'everyday knowledge' upheld in C2005 lacked epistemological clarity in policy texts, in school practice, and in attacks by critics who, like Young, saw it to offer only *deficits* for school learning. However, in ensuing sections I argue that there are richly meaningful

knowledge processes in family and community lifeworlds of power-marginalised (and all) students, which, if put into *dialectical interaction* with disciplinary knowledge, hold great *asset* potential for curriculum work that extends learners' capacities for explanatory power far beyond what they already experience (which, for that matter, is not static in everyday life). I argue that curriculum which valorises *either* disciplinary *or* everyday knowledge, to the exclusion of the other: (a) weakens the knowledge, and its learning value, that is given polarised valorisation; and (b) sustains the frame of deep grammars by which curriculum work *un*justly reproduces social-structural inequalities.

The life of knowledge and curriculum

> [T]here [should] exist within the very nature of the educational process ... as close an interaction, with life itself as might be wished for. Ultimately only life educates, and the deeper that life burrows into the school, the more dynamic and the more robust will be the educational process. That the school has been ... walled in ... from life itself has been its greatest failing. Education is just as meaningless outside the ... [life]world as is a fire without oxygen, or as breathing in a vacuum. The teacher's educational work, therefore, must be inevitably connected with his [or her] creative social and life work. (Vygotsky, 1997, p. 345; cited in Moll, 2014, pp. 120–121)

"Ultimately only life educates": so, curriculum should be designed for life-based knowledge to burrow deeply in, rather than wall it off. Notably, Vygotsky conceives what is embodied in socio-cultural life beyond school as importantly *creative*; and he calls for its deep connection with educational processes among both *students* and *teachers*. Clearly, Vygotsky sees vital powers stemming from use of life-based knowledge in curriculum work, rather than – as per Young – keeping curriculum separate from everyday knowledge and its practical concerns.

However, Vygotskyan curriculum does not valorise everyday knowledge to the exclusion of specialised disciplinary knowledge, the powers of which Vygotsky also significantly valued. He conceived a dialectical "relationship in schooling between what he called 'spontaneous' and 'scientific' concepts", says Moll (2014, p. 34), a leading figure in the Vygotsky-informed Funds of Knowledge approach to curriculum design (to be discussed below).

Spontaneous concepts emerge in the sensuousness of everyday life, as embodied consciousness engages with natural and social worlds, mediated by cultural tools and artefacts available in everyday lifeworlds. However, *spontaneous* concepts do not cohere in refined knowledge systems; whereas *scientific* concepts, says Moll, "form part of an organised system of knowledge and thus can more easily be reflected upon and deliberately manipulated" (*ibid*, p. 35).

That is, everyday knowledge is not to be made curricular in any direct take-up whereby, as Young worries, it does not offer capacities for generalisation. Rather, everyday concepts are to be *recontextualised* for school curriculum use – a key aspect of which is interaction with systematised bodies of scientific (disciplinary) knowledge, from which greater powers of reflexivity, manipulation and cogent explanation accrue. Vygotsky thus theorised curriculum work, says Moll (*ibid*, p. 35), as a "relationship between scientific and everyday concepts [that] is reciprocal"; i.e. "[t]hey mediate each other". However, in this dialectical reciprocity, life-based knowledge contributes not just vitality but *meaningfulness* that is fundamental to the *knowledge value* of scientific concepts. Says Moll (*ibid*; italics added):

> *Everyday concepts provide the "conceptual fabric"* for the development of schooled concepts, and the everyday concepts are also transformed through their connection with the more systematic concepts. *Scientific concepts grow into the … domain of personal experience, thus acquiring meaning and significance.* However, scientific concepts bring … conscious awareness and control, which Vygotsky believed to be essential characteristics of schooling.

Conceiving everyday concepts as *the* conceptual fabric is notable. The idea is *not* that schooling can make initial use of life-based knowledge, to 'meet learners where they start from', but then leave everyday concepts behind as learning progresses to specialist knowledge of 'higher worth'. Rather, in educative processes, specialist concepts acquire meaning and significance, and contribute to powers of matured thought, *only by virtue of* growing into domains of life experience – the conceptual fabric – and *not* by tearing away.

I will now begin pushing Vygotskyan knowledge dialectics further towards an argument for a curriculum approach that focuses such dialectics around problems that matter in locales of learners' lives. I start with the Funds of Knowledge approach (FK) to curriculum design, which draws on Vygotskyan principles. FK emerged in Mexican-American populated areas of the U.S. southwest (Vélez-Ibáñez & Greenberg, 1992; Gonzalez, Moll & Amanti,

2005). A typical methodology is ethnographic collaborations in which academics and teachers together scout students' neighbourhoods and visit their homes, researching for "funds of knowledge", defined as "historically accumulated and culturally developed bodies of knowledge and skills essential for household … [and community] functioning and well-being" (Moll, Amanti, Neffe & Gonzalez, 1992, p. 133).

After their research, teacher-academic teams review the ethnographic data for life-based knowledge with worthy potentials for recontextualising into curriculum units linked to school subjects. It is important to appreciate the purposeful *selectivity* in this process (as compared to C2005's unclear senses of 'everyday knowledge', left too much to teachers alone to figure out). FK curriculum design seeks knowledge put to *richly meaningful* socio-cultural use in lifeworlds of, say, Arizona's Mexican-American communities, or Cape Flats communities of South Africa, as resources for "transforming students' diversities into [curricular and] pedagogical assets" (Moll & Gonzalez, 1997, p. 89). Lifeworlds of power-marginalised groups are thus not seen as social spaces of cultural deficit that schools must bracket out: not "as places from which children must be saved" but "that, in addition to problems (as in all communities), contain valuable knowledge and experiences that can foster ... educational development" (*ibid*, p. 98).

Indeed, *problems that vex* community life can resource robust learning assets: what Zipin (2009, 2013; also Zipin, Sellar & Hattam, 2012) calls "dark funds of knowledge", about which students from power-marginalised groups can prove surprisingly literate to teachers. Such lived problems can spur powerful spontaneous thought in the conceptual repertoires of students, their families and communities. Thus, say Moll *et al*. (1992, pp. 133–134):

> Our approach also involves studying how household members use their funds of knowledge in dealing with changing, and often difficult, social and economic circumstances … [and] develop social networks that interconnect them with their social environments … [in] multiple spheres of activity within which the child is enmeshed.

As Moll *et al*. suggest, deeply problematic conditions – e.g. declining youth employment, ecosystem damage, gang violence, etc. – in locales where students' lives are enmeshed: (a) emergently change over time, inciting ongoing labours of thought and learning; and (b) are never simply 'local' but link to broader social-structural dynamics. Such *global-in-local problems* hold potentials to interconnect students in expanded networks of knowledge

co-labour with teachers, community members and disciplinary specialists beyond schools. In the next section, I push further towards a *problematic-based curriculum approach* (CPBA), in taking up Isabelle Stengers' pragmatist arguments for putting proliferated expertise to work on mattering problems.

Problematics that gather, proliferate and deepen knowledge

> *We are talking of a problem 'that gathers together', not of a problem to be resolved.* (Pignarre & Stengers, 2011, p. 112)

> *Each place that it was forbidden to enter, where it was thought neutral, objective experiments, independent of the uses that would be made of them, were being constructed, becomes a place that it is henceforth imperative to penetrate so as to make expertise proliferate, so as to imagine new ways of creating commonality among competences, indeed of rehabilitating excluded competences.* (*ibid*, p. 85)

I quote from *Capitalist Sorcery* by Philippe Pignarre and Isabelle Stengers (henceforth P&S): a journalist and activist in struggles of poor populations to access affordable medicines (Pignarre), and a pragmatist philosopher of science (Stengers). In Stengers' writing (solo and co-authored), she develops arguments, concepts and strategies for a politics of democratic science that generates informed publics in putting knowledge to work on situated problems (with broader implications) that matter to people's life-based needs and aspirations.

Such situations, suggest P&S, *gather* actors from diverse standpoints of social-cultural knowledge in relation to the problematic. That is, a *mattering problem* is the attractor that assembles varied actors, all of whom – whether with 'lay' experience of living the problem, or in 'specialist' areas relevant to it – are seen as bearers of knowledge with potential use-value for working on the problem. This includes "knowledges and techniques of professional researchers", say P&S (p. 86), "but they wouldn't be in command". Rather, all are accorded participatory-democratic agency on equal footing, yet appreciated distinctly for what, in their re-combinational diversity, they bring to the problem. Knowledge thus transacts in educative reciprocity, as different stakeholders mutually inform each others' perspectives, working towards

more complex purchase on the problem, with all whom the problem gathers nurturing humility – an attitude of "apprenticeship" (P&S, pp. 78ff) – about what they know, what is yet to learn, and from whom. Such inclusive, non-hierarchical respect for proliferated expertise rehabilitates varied competences. Indeed, compared to Outcome-Based Education's vague sense of 'competences', P&S reclaim a robust sense of proactive capabilities (knowledge-abilities) to contribute to work on problems that matter.

The principle of inclusive proliferation is both *ethical* in its democratic impulse, and *practical* in its methodo-logic for pursuing 'solutions'. From the premise that mattering problems are complex and emergent, the argument is that social sources of knowledge which may offer powerful knowledge towards working 'solutions' are more diversely proliferated than the specialist communities that Durkheimian Social Realists deem 'sacred'. The logic, then, is to expand, rather than contract, connections across knowledge sources that can elucidate the problem: to "honor the making of connections", says Stengers (2012, n/p). As Nicolini (2012, p. 216), discussing Stengers, puts it: "[G]ood science is generative, not eliminativist: its goal is to increase our capacity to make connections among phenomena, not to eradicate interesting features in the name of generalization". Hence, sources from whence knowledge may improve purchase on the problem cannot be presumed in advance. "In all these cases", say P&S (p. 86), "the connections do not pre-exist, they have to be created".

By this logic, *putting knowledge to work* on a problematic – which both uses and *(re)makes* knowledge – generates *working* solutions, not definitive resolution, as the problem is too complex and unfolding to yield a 'once-for-all' reckoning. Nor can working solutions for *emergent* problems derive simply from *a priori* principles or precedents. Thus Stengers (2012, n/p) urges us not to work from "models and norms" that frame problems narrowly, but rather to nurture "empirical and pragmatic concern about effects and consequences". As P&S (p. 17) define it: "Pragmatism is an art of consequences, an art of 'paying attention'". To this *aesthetic* sense of good science as artfully attentive practice, Stengers (2011, p. 12) adds an *ethical* sense of *care*: "Pragmatism is the care of the possible": it frees our work towards emergent futures from overly narrowing fixations on past as precedent, sustaining a sense of possibility for change at Fraser's *frame-transforming* level of depth. Recalling my discussion of 'pragmatism' early in this article: Stengers conceives *an ethical-pragmatic science, attentive to what works for pursuing what is worth working towards*.

I note that Social Realists reject the pragmatist attitude, arguing that emphasis on diverse practical uses of knowledge dilutes the generalisability that gives disciplinary knowledge its coherence and explanatory power. Says Young (2008, p. 66): "Vygotsky's emphasis on social activity … preclude[s] him from treating knowledge as … separate from its uses … [which is] Durkheim's key point in his critique of pragmatism". And (*ibid*, p. 70): "For Durkheim ... [the] power [of knowledge] could never arise out of its usefulness in terms of satisfying specific needs". Regarding the question of what knowledge is curriculum-worthy, Young's gist is that to mix life-based and disciplinary knowledge debilitates the organising powers of the latter, devolving thought processes towards an undisciplined, 'anything goes' relativism. I have already argued, via Vygotsky, that if curriculum links life-based and disciplinary knowledge dialectically, the latter infuses its systematising powers into the conceptual fabric without losing potency, while in turn gaining meaningful significance. (See Zipin *et al*., 2015, for more amplification of this debate.) I here argue further that, when a mattering problem draws diverse knowledges to it, its centripetal pull generates organisation. Moreover, with artful attention on the problem, knowledge diversities are all tested as to whether/how they provide insight and proactive possibility regarding the problem. Stengerian proliferation of expertise thus does not run to relativism, since the gravity of the problematic is selective for what knowledge is gathered and held in bounds.

In the previous section, by way of Vygotsky/Moll and the Funds of Knowledge approach, I argued a rationale for building curriculum around dialectical interactions of life-based and disciplinary knowledge. In this section, by way of Stengerian pragmatism, I extended the Vygotsky/FK logic to a rationale for building knowledge dialectics around problems that matter in locales of students' lives. However, principles for connecting such problematics to *school curriculum* need explication, as does the claim that such an approach furthers robust social justice that transforms reproductive framings. These are tasks for the next section.

Towards problematic-based curriculum

In this section, I aim to outline principles for curriculum that develops knowledge-abilities in working on problems that matter in students' locales. I here draw significantly on an article by Sarah Whatmore and Catharina

Landström (henceforth W&L): 'Flood apprentices: an exercise in making things public' (2011; unless otherwise indicated, quotes below are from this article, with only page numbers provided). W&L discuss a situation where proliferated expertise gathered to work on a problem of chronic river floods, affecting people in/around the town of Pickering in the Ryedale district of England's North Yorkshire region. This case of problematic-driven knowledge work did not involve schools. However, in deriving principles from W&L's account, I apply them to a problematic-based *curriculum* approach.

W&L were part of a multi-disciplinary network of academics, concerned with issues of rural economy and land use, and attentive for sites where local populations had become aroused to want other than 'official-expert-only' solutions to problems. This was the case in Pickering after engineering consultants, contracted by a government Environment Agency (EA), issued a report recommending that a floodwall be built through the town, which the EA promoted "as *the* solution circulated as expert knowledge" (p. 592; italics in original). However, the Pickering & District Civic Society, a volunteer organisation, gathered expressions of "local disagreements … when this was put out for public consultation" (p. 588), questioning whether the floodwall would address all matters in which citizens had stakes, "thereby challenging the expert knowledge claims that underpinned the initial EA proposal" (p. 589).

This emergent politics of knowledge drew W&L's team of "social and natural scientists" to the scene, with the aim of "working collaboratively with people affected by flooding … to interrogate the science that informs local flood management and intervene in the public controversy to which it had given rise" (p. 582). Collaboration took form in a Ryedale Flood Research Group (RFRG). In what follows I do not detail the history or science of the flood controversy (as W&L do in their article). My focus is on passages that amplify Stengerian elements of the RFRG's work on a mattering problem, which I translate to curriculum principles, at once ethical and strategic. (Within space limits, I can give these principles only minimal *pedagogic* translation, leaving it to readers' to imagine putting them into practice in specific school contexts.)

Focussing on molten matters that attract and force thought

> *Michel Callon's 'hot situations' (1998), Bruno Latour's 'matters of concern' (2004a) and Isabelle Stengers' 'things that force thought' (2005a) ... provide vocabularies for addressing those moments of ontological disturbance in which the things on which we rely as unexamined parts of the material fabric of our everyday lives become molten.* (p. 583)

For student energies to be drawn to knowledge work on problematics, the problems selected for curriculum focus must *really matter* in lifeworld milieus. In the above passage, W&L cite philosophers of science, including Stengers, who define such concerns in a language of 'materiality' and consciousness-raising 'heat'. That is: a mattering problem substantively disturbs resources, infrastructures and other materialities that people tacitly count on to sustain life; and such social-ontological disturbance to "the *material* fabric" of everyday life incites epistemic *molten*-ness in Vygotsky's '*conceptual* fabric', such that unexamined dimensions of lived conditions boil up into thought.

Curriculum work that builds around mattering problems thus extends thought in new ways and degrees. Contrary to Young's earlier-cited claim that "curriculum … based on everyday practical experience … would only recycle that experience", focus on life-based problems quickens awareness and reach of Vygotsky's 'spontaneous concepts', catalysing capacity for dialectical interaction with disciplinary concept-systems. Making such problems curricular thus "forces thought" – which, in Stengers' terms, does not mean external authoritative demand on learners (Slonimsky's 'heteronomy': e.g. 'It will be on the test; so study it.'), but that an attracting problematic impels thought-activation.

Redistributing expertise; building collective competences

> *[T]he experimental research apparatus we draw upon here – the 'competency group' (CG)4 – ... [puts] Stengers' experimental constructivism into research practice. CGs are forums for collaborative thinking designed to ... highlight the connections between scientific work and other types of activities ... [and] generate new*

> *collective competences in handling the uncertainties of flood-risk knowledge and redistribute expertise.* (p. 586)

For students to develop knowledge-abilities to think and pro-act, pedagogic contexts should be rich in knowledge presence and transaction, connected to meaningful work on matters of compelling interest. There are inevitable limits to school-based teachers' expertise across (a) multi-disciplinary knowledges; and (b) how things are known, and what matters, in students' lifeworlds. Why not, then, bring students and their *school-based* teachers into milieus that redistribute expertise across a wider range of pedagogic agents? Problems that both matter in local communities, and connect to broader structural issues, present opportune scenes for proliferation of pedagogic actors who – in learning-from/teaching each other – expand collective knowledge competences. This is the methodo-logic for calling the RFRG's research apparatus a "competency group": a term, as W&L explain in footnote #4 (embedded in the above quote), adapted "from the notion of 'competent publics' in a web essay by Stengers on 'sustainable development'" (p. 606).

To initiate the RFRG, W&L's network used local press advertisements "for recruits to join an 'experimental research forum' on flooding in Ryedale" (p. 592). Schools cannot expect such fortuitous occurrences of academic specialists taking initiative to gather distributed expertise around a mattering local problem to which they could link. However, students and school staff could act as instigators, using Funds of Knowledge methods – ethnographic forays in local community settings; classroom discussion of what they find; and so on – to identify molten life matters. They could investigate whether such matters have drawn attention from disciplinary specialists, and/or contact specialist and civic organisations, and canvass across family and community networks, seeking 'competency group' participants. By such activist means, students and teachers can recognise their agency to affect futures regarding problems that matter for their lives with others, learning to see themselves not as mere knowledge receivers, but as socially collaborative knowledge *creators*.

Thus to cast curriculum as knowledge-creating co-labour is, I suggest, *frame-changing* for students, teachers and schools. In social-justice terms, it is especially vital for learners from power-marginalised groups, who too-typically 'learn' – from schooling's hidden-curricular messages – that they lack 'inborn' potentials for effective agency in social life. That work on mattering problems is necessarily knowledge-*creative* is indicated in W&L's

claim (above) that such work cultivates new competences in handling *uncertainties*. Given the *emergent* (and *emergence-y*) nature of problems such as Pickering's floods, conceptions of 'problem' and 'solution' are necessarily *experimental, at-work, under construction*: hence Stengers' "experimental constructivism".

Slowing down reasoning; framing problems alternatively

> *[F]or Stengers, emergent publics are induced by generative events ... in which ... problems that 'slow down reasoning' make a difference.* (p. 584)

> *Staging the CG experiment in the context of this extant [flood] controversy, our aim ... was to 'slow down' reasoning by creating a space in which the expert knowledge claims that informed the flood wall proposal could be more closely interrogated, and residents moved by the event ... could try out alternative ways of framing and addressing the problem ... informed by their experiences.* (p. 589)

Experimental grasp on thought and action in the heat of generative events requires frame-changing in another dimension: *time*. Curriculum work needs to abandon rush-paced syllabi – as in CAPS and most national curricula – that push teachers and students to 'keep up'. A matter that *forces thought* correlatively compels thought to *slow down*, such that learning is framed as a *problem-regarding* cultural *process* of dynamic knowledge-*making* (Gutiérrez & Rogoff , 2003), wherein learners see themselves as *knowledge co-workers* among others "moved by the event". This does not disregard acquisition and use of content knowledge linked to school subjects that bear on a problem. As already discussed, learning is enriched in a pedagogic milieu of both community-resident and discipline-based 'teachers' (from within and beyond school walls). However, *the emergent nature of a problematic event makes controversial all knowledge that it gathers*, including from disciplinary experts. All gathered knowledge needs pragmatic testing – not by specialists 'sacredly' aloof from 'profane' life-residency, but in a competency-group milieu of redistributed 'expertise' – in terms of how it contributes to grasping a problem in its *complexities and uncertainties* that compel slowed-down collaborative reasoning.

Slowing down thought is key to curriculum development of a vital *collective* competence: to "try out *alternative ways of framing* … the problem" in dialogue that hears, considers and interrogates, in relation to the problematic, "experiences and observations" from diversely situated others. Culturing such *knowledge-practicing capacity to open the framing of mattering problems* is indeed a frame-changing virtue of the competency-group approach.

Reconfiguring the ethics of knowledge work

> *Local group members' visceral experience of the recent flood event and frustrated dealings with the flood-risk 'experts' charged our collective flood apprenticeship with a keen sense of urgency … [to] reconfigure flooding expertise among group members. Working with brought objects (such as maps, photos, satellite images … a piece of mouldy carpet) … to situate each member's attachments to the event … helped to dissociate the 'university' members from the normal networks constitutive of their authority.* (p. 593)

> *[O]ne of the group's university members … is quoted [in a local newspaper] as saying '"The people who live with flooding know as much, if not more, as scientists like me"' … [A local member] said it had been a "'true collaboration" between local people with local knowledge and academics who were experts in the field of flooding issues'.* (pp. 597–598)

I argue that curriculum is, crucially, about *cognitive-**and**-ethical* development. My hyphens signify 'cognitive' *and* 'ethical' as inextricable dimensions of all knowledge work (see Zipin *et al*., 2015 for fuller argument). In cognitive terms, W&L reflect the Vygotskyan premise that lifeworlds are sources of rich "visceral" (spontaneous) concepts for meaningful inter-elucidation with disciplinary concept systems. W&L's Stengerianism highlights the ethical point that curriculum work *ought* to encourage learners not to defer when, viscerally, they register dissonance with 'official' knowledge claims. Curriculum work on a mattering problem should teach that knowledge controversies are agentic opportunities to bring visceral sense into conceptual articulation, in dialogue (including debate) with bearers of disciplinary concepts, aiming to advance collective sophistication regarding the problem.

Another cognitive feature of Vygotskyan curriculum work is purposeful use of mediative cultural-historical tools: "artifacts with which students themselves are expert", and through which, in classroom analytical practices, "students are socialized into academic discourse as they learn more about their familiar tools and practices, as well as about unfamiliar and even alienating canonical texts" (Gutiérrez, Morales & Martinez, 2009, p. 231). The RFRG made just such use of artefacts to, as W&L say, "situate each member's attachments to the event" and – with Stengerian ethical import – democratise openness to *whose* 'expertise' might prove 'authoritative' in relation to the problem. In this group, comprising local and academic agents, "brought objects" were aptly representative: from repertoires of everyday life use (photos; bits of flood-mouldy carpet) and specialist use (satellite images). In dialogue among members who share problem-focussed interest in each other's use-values, such diverse artefacts all have stories to tell, laden with 'spontaneous' and 'scientific' concepts, the interchange of which facilitates mutual respect and educative reciprocity.

Significant in RFRG members' reconfiguration of 'expertise' was an ethical attitude of "collective flood apprenticeship" wherein all share: (a) *humility* in appreciating how the unavoidably provisional grasp on an emergent and fraught problem means that no position of attachment to the event has automatic 'best knowledge' about the problem; and yet (b) *courage* to act as knowledge-able contributors towards grasping the problem. Say Pignares and Stengers (2011, p. 76–77):

> Apprenticeship is not a pedagogy, it is a production of knowledge, the production of a new type of expertise … new means of grasping a situation, leading to the production of new ways of acting, of connecting, of being efficacious.

Across diverse RFRG members, an apprenticeship praxis supported de-hierarchic "true collaboration" (as W&L quote a local newspaper). I suggest that schooling for such humble-yet-agentic collective responsibility across diversities, committed to producing new knowledge for grasping new futures, would *radically reconfigure the framing* of curriculum. Indeed, it could help to reconfigure how schools, communities and governing bodies might connect efficaciously in a vital political-ethical project: capacitating *knowledgeably informed, participatory-democratic and justice-oriented citizenry*.

Educating for knowledge-able publics; democratising the frame of governing mentalities

> *[D]iversifying the publics with whom scientists collaborate, and the terms on which they do … facilitate[s] the emergence of new kinds of public … capable of producing … 'in the very process of their emergence, the power to object and to intervene in matters which they discover concern them' [W&L here quote Stengers].* (p. 606)

> *[R]ethinking of the relationship between science and democracy … [must attend] as closely to the practices involved in constituting publics as to those of producing knowledge.* (p. 603)

RFRG knowledge work produced an alternative to the floodwall: what members called a *bund* model, which they believed took better account of diverse local and academic concerns, experience and knowledge. "All members of the RFRG contributed to constructing and testing the bund model in different ways", say W&L (p. 594). Details of this model's differences from the floodwall, and how it was tested, are beyond this article's purview. I here focus on the *ethico-politics* by which this alternative circulated to a wider sociality, beyond its RFRG origins. A public exhibit/discussion, organised by the RFRG at the Pickering Civic Centre, "attracted some 200 visitors" including local residents and "EA [Environment Agency] staff, local politicians and journalists" (p. 596). Reference here is to the same EA that had touted the floodwall, designed by its chosen 'experts', as *the* definitive solution. In ensuing months, the EA fluxed between doubting the credence of RFRG 'lay' members, and weighing the bund model on its merits. Meanwhile, "[i]n the wake of the public exhibition", say W&L (p. 599), "the bund model … gather[ed] a public to it, multiplying the 'actors' and amplifying the 'matter' at stake". Eventually, local and national government bodies funded trials of the bund model, some noting possible applicability to flood situations elsewhere: thus "the project's significance extrapolated beyond the local case" (p. 601).

Governing institutions, as power-loci in processes shaping 'public mindedness', tend, if left to their devices, to conserve status-quo deep grammars. Yet RFRG efficacy shows how projects moved to "amplify a 'matter' at stake" can stir frame-changing epistemologies into public thought. Extending its knowledge-work to wider publics, the RFRG was politically

persuasive that *public-meets-specialist* science can do better than *specialist-only*. Indeed, it stood as antithesis to government and media populism that frames public thought within ideo-logics that *simplify* grasp of lived problems. In contrast, RFRG mediation both *aroused and slowed down public thought, capacitating citizens to grapple with lived complexities*. Gathering wider publics into its knowledge processes, the RFRG thus "facilitated emergence of new kinds of public" with *new knowledge-able competences*. This public-educational extension of *micro*-group competency incited a *meso*-level of government and media actors to join processes of frame-changing thought. Daring to be 'utopian', I suggest that if, across a range of social geographies, projects for working on life-based problems emerged and *linked schooling of young people into them*, this could help to transform framing mentalities at *macro*-structural levels of "extrapolation beyond the local case".

Conclusion: Problematic-based curriculum for frame-changing social justice

Across the previous section, I noted what I see as the *frame-transforming ethical-pragmatic virtues* of a *problematic-based curriculum approach* (henceforth PBCA). In this concluding section I contrast PBCA, in *ethical* terms, with the Social Realist approach (SR) underpinning South Africa's current CAPS national curriculum. In doing so, I draw on Nancy Fraser's 3-'R' principles for robust social justice: *redistribution*, *recognition*, and *representation*. (I lack space to elaborate Fraser's definitions and arguments. For amplification, see Fraser, 2009; and, applied to curriculum, Zipin *et al*., 2015.)

I begin with **redistribution**. SR proponents Maton and Moore argue (2010, p. 10) that discipline-based curriculum works "in the service of progress and social justice" by making "epistemologically more powerful forms of knowledge … accessible to everyone". As I read it, their justice claim is that discipline-based curriculum carries superior epistemic powers to other modes of knowledge; hence school redistribution of this 'powerful knowledge', such that *all* learners gain access and proficiency – *including those from power-marginal social positions* – will redress how schooling historically has provided selectively greater access to learners from power-*central* positions. And more equal distribution of knowledge powers will help towards

equalising social power across *all* future citizens, instead of reproducing the greater power of those already privileged.

Drawing on Vygotsky, I have argued that disciplinary knowledge *by itself* – not interacting dialectically with life-based knowledge – lacks sufficient scaffolding meaningfully to engage most power-marginalised learners. I here note further that SR valorises redistributed access to *the same* knowledge for all, on the premise that it is *best for all* by virtue of deriving from 'sacred' spaces of specialist knowledge work. SR thus redistributes culturally *assimilative* knowledge, bracketing out most people's diverse cultural knowledge as 'profanely' *less worthy for curriculum*.

PBCA also redistributes disciplinary knowledge, but in *dialectical* engagement with life-based knowledge. The premise is that, with careful selection of *rich* knowledge-strands – *funds* of knowledge (FK) – from life-based conceptual fabrics, people's *diverse* social-cultural ways of knowing all can contribute to rigorous knowledge work. In Stengerian extension of the FK approach, I have argued that mattering problems test what cultural knowledges are rich for purpose. PBCA thus claims that (re)distributing a *proliferated* expertise furthers more powerful work with/on knowledge than can 'specialist' expertise alone. PBCA's concept of 'redistribution' thus strikes deeper ethical registers than SR. It *transforms framing grammars of knowledge-valuation* from: (a) 'Knowledge is *best* if specialists are confident in it'; to (b) 'From our diversely competent knowledge co-labours, our emergent consensus is that these understandings *better* grasp the problem'.

From different framings, SR and PBCA both aim to **redistribute** 'power' in the sense of agency, thus attenuating 'power' in the sense of structurally unequal social leverage. However, SR *assimilationist* stress on 'specialist' knowledge fails to **recognise** – *by valued inclusion in curriculum* – knowledges of meaningful use among diverse cultural-historical groups. Likewise, fetishising 'specialist' provision of knowledge fails to nurture *diversified* participatory **representation** in social-decision processes – including curriculum knowledge-selection. To SR, "[t]he purpose of schooling is to specialize learners' voice with respect to the school code" (Hoadley, 2008, p. 65). By implication, only after initiation in *specialist knowledge codes* are people fit to participate in social decisions *guided by those codes*.

By contrast PBCA – valuing diverse specialist *and* life-based codes, put *interactively* to work in knowledge-and-action praxis – extends *redistribution* into the further 'Rs' of inclusive cultural *recognition* and participatory-democratic *representation*. In South Africa, where so many schools serve students from power-marginal positions and high-poverty lifeworld conditions, I argue it is vital that students, teachers, families and community stakeholders are culturally recognised and democratically represented in deciding what curriculum work can help empower their futures. And there are abundant molten problems – in complexly intermeshed domains of environment, employment, technology, health and social-service needs – to attract both local and specialist expertise that, linking students in, could provide opportune learning milieus for students to gain immersion in the praxis of all three of Fraser's 'Rs'.

In this article I have made a case for curriculum frame-change in South Africa, joining debate about what curriculum grammars are 'best' for SA young learners. I must end, however, on notes of caution and humility. I recognise that policy reforms, once initiated, take time to play out, surfacing pros and cons to 'iron out'. How entrenched is CAPS' time to run, and whether, in that time, there are spaces to experiment with PBCA-like alternatives, I am not situated to speculate. Visits in the past few years to SA, giving invited workshops on the Funds of Knowledge approach, and more recently the PBCA approach, have drawn me into SA curriculum debates; but I do not live in SA or have a lived SA history. I recognise that, in my search in this article for ethical-pragmatic shift in curriculum framing, it is a *philosophical* pragmatism that I have primarily outlined. While my argument draws support from *praxical* illustrations, such as the Funds of Knowledge track record and the RFRG experiment, these are not SA-based instances.

Nor are my instantiations African, or 'southern'. I have indeed countered SR's set of 'northern theory' tools (Connell, 2007) with another 'northern' set. I do not suggest that 'north' has nothing to offer 'south', or that 'global south' is utterly distinct from 'global north'. These can be overly generic categories, essentialising 'wholes' from 'parts' that do not simply reduce to them; and elements of 'south' and 'north' have formed over long histories of complex interaction. Yet the distinction remains analytically important, recognising that epistemologies do emerge variously in different geographies; and in the *geographic* south, meaningful epistemes have undergone suffocations in histories of domination by forces from northern geographies (Santos, 2007). By the very ethical principles I take from Fraser, Stengers and others – which

themselves, if put to work in new spaces, require tests of those spaces – I affirm that regional ownership of key social-epistemological projects, such as curriculum, is vital for the future of those whose lives will be subjected to their regimes. I humbly invite critical examination, from *diverse* SA-situated stakeholders, of the thought this article has put towards a problematic-based curriculum approach, and whether/how it might hold viability and promise for SA educational praxis.

Acknowledgements

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Lew Zipin
Extra-ordinary Professor
Faculty of Education
Stellenbosch University
South Africa

zipin@sun.ac.za