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Learning activism, acting with phronesis

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The research by Hoeg, Lemelin, and Bencze was ambitious in its undertaking on two counts; the difficulties of nurturing sustainable forms of critical consciousness among (privileged) students coupled with the relatively young age of its participants. It is thus satisfying and commendable that over the span of a school year, these Grade 6 students were exhibiting what the authors have labeled “research-informed activism” that impacted school policies and their own families in concrete ways (see also Roth 2010). Based on a series of teacher- and student-led inquiries into exploitative child labor (in the context of agriculture, manufacturing & war) that culminated into a Fair Trade Fair at the school, the students became knowledgeable of themselves as important agents who could alleviate global problems of injustice as easily as they could perpetuate these in multiple, inadvertent ways. Even among adults, few realize that mundane commodities found in the supermarket such as cashew nuts and strawberries often camouflage oppressive labor practices; they are instead completely “abounding in metaphysical subtleties and theological niceties” (Marx 1987, p. 76, cited in Mitchell 2003, p. 235).

Whether another teacher elsewhere could replicate this curriculum with similar levels of success is moot as the authors have underscored how a number of support factors were at play here including positive school culture, curriculum flexibility and openness to content related to activism, and teacher readiness, motivation, and facilitation skills. It is thus gratifying that the level of sociopolitical action and learning (e.g., empathy) among these 6th graders was reasonable as well as appropriate, which experts in the field would very likely concur (e.g., Hodson 2010). Being faithful to an SSI- or STSE-informed curriculum is, of course, no guarantee that any student would want to contribute towards improving the lives of others beyond their immediate communities as accountable global citizens (e.g., Lee H. et al. 2013), which makes this study all the more special.

It must also be remembered that this curriculum centered on the development of sociopolitical thinking and its manifestation in everyday life (referred to as activism) within a French-language class—mastering science content took a secondary focus. While this emphasis is not wrong, most science educators who adopt SSI approaches wish to prioritize learning the science behind the controversies and/or the processes of argumentation, reasoning, dialogue, and decision-making and so forth (Ratcliffe and Grace 2003). The latter goals were probably the closest to what these students had experienced, especially in its ethical-moral dimensions that do not dichotomize thought from practical action. Insofar as grappling with SSI by students does mandate some degree of scientific knowledge that is mediated by personal histories, familiarity, and interest in the phenomena under scrutiny, the choice of child labor as a topic here was apropos; sufficiently broad yet one that immediately resonated with these Canadian youth. The emotional dimension of learning that traditional science instruction eschews was allowed, if not capitalized

upon, in this curriculum, which is one of the hallmarks of SSI-based teaching for functional scientific literacy (Zeidler and Nichols 2009):

Socioscientific Issues, then, is a broader term that subsumes all that STS has to offer, while also considering the ethical dimensions of science, the moral reasoning of the child, and the emotional development of the student. (Zeidler, Walker, Ackett and Simmons 2002, p. 344)

At this point, I would like to place an alternative theoretical framework of inquiry alongside this study by Hoeg, Lemelin, and Bencze—phronetic social research. Phronesis is a philosophical concept that emphasizes mindful deliberation and action that *together* is oriented towards critical problem solving within a specific context (Aristotle 2009, 1141b). In more colloquial language, it is knowing the right thing to do at the right place and time—practical wisdom—that can be classically distinguished from *epistemé* (generalizable scientific knowledge through inquiry) and *techné* (craft knowledge that endeavors to produce useful things). For a person to act phronetically, it therefore requires a switch from merely doing what is correct to doing what is right or good for the benefit of fellow human beings (William 2008). Because phronesis concerns itself with the particular and the local rather than the fixed or generalizable when working in episteme that scientific research frequently typifies, this way of being adopts a relational ethic of care that is ideal for cultivating holistic forms of scientific literacy within education (Noddings 2013), and indeed in the social sciences as a whole. Following ethical standards and codes are a good beginning when undertaking research, but fleshing things out in *this* situation at *this* time under *these* operating conditions for *these* people requires more than a mechanical following of the rules (Small 2001). It requires something more, which I think has to be acting in phronetic modes to engender practical reasoning, virtue, and wisdom for theory as well as for practice. One recalls the words of Charles Tolman (1991, p. 5) who said that “[a] psychology that deals with averages in the hopes of achieving generality through abstraction can never become relevant to the particular individual.”

Hence, those who are guided by this intellectual virtue that Aristotle esteemed above all others will consider issues of power and history seriously as in Bent Flyvbjerg’s seminal study of civic planning in Aalborg, Denmark (Flyvbjerg 2001). For researchers of curriculum, phronesis shares most resemblances with the practices found in the deliberation tradition (Null 2011) or from cultural-historical activity theory (Lee Y.-J. 2011). However, we need to remember that acting phronetically also means that one is not able to anticipate all the solutions beforehand because not every answer can be pre-specified and nor is it desirable to do so. Insofar as many researchers, science educators included, continue to search for codified or context-independent knowledge and rules, there will be a possibility of good transfer across contexts but with extremely low success rates (De Laet and Mol 2000). A single truth with a capital “T” does not typically exist in the social sciences due to the inseparable, dynamic influence of context and culture that smudge the distinctions between facts and values. Rather than a weakness, phronetic social research actually celebrates its ontological and epistemological disciplinary distance from the natural sciences.

What then does phronetic social research (a way of inquiry) have to offer towards understanding and implementing SSI-based teaching (a way of instruction)? Recall that the aim of research inspired by phronesis is to generate socially relevant knowledge, to ask difficult questions of the problem, and to open up possibilities for a better future within a bounded social context. Without resorting to a formulaic prescription, the following have been found to be generative heuristics during such research:

1. Where are we going with this specific problematic?
2. Who gains and who loses, and by which mechanisms of power?
3. Is this development desirable?
4. What, if anything, should we do about it? (Flyvbjerg, Landman, Schram 2012, p. 5)

It is therefore claimed that if conducted successfully, this chain of questioning would allow learners in the kind of curriculum promoted by Hoeg et al. to experience and learn similar sociopolitical dispositions as what has been reported. Regardless of the many varieties of curricula informed by SSI and STSE theories, adopting a phronetic posture during SSI teaching would very likely nurture a similar vision of research-informed activism among learners. Table 1 below shows a number of the shared characteristics between phronetic social research and typical SSI teaching with their assumptions about being and acting in the world. For the sake of readability, reference citations that have informed the creation of this table have been removed but readers are advised to refer to key work by Bent Flyvbjerg and associates for phronesis as well as Dana Zeidler, Troy Sadler, Derek Hodson, Wolff-Michael Roth, and Angela Calabrese Barton among many others for details on SSI instruction.

Table 1. Comparison of key features of between phronetic social research and SSI-based instruction.

Key features	Phronetic social research	SSI-based instruction
<i>Aims & outcomes</i>	Attempts to holistically understand and solve real-world social problems. Empowers participants to take practical action, upholds acting with wisdom	Teaching and learning of scientific literacy and nature of science using controversial issues. Encourages critical decision-making with data, personal responsibility, character development, and taking practical action among other outcomes
<i>Values, ethics & empathy as integral components</i>	Acknowledges these as essential and are the strengths in/for social research	By engaging with these, one appreciates that the sociopolitical and personal aspects (e.g., emotions, identity) of science are irreducibly linked with its cognitive aspects
<i>Involves or considers contradictions, tradeoffs, power & history</i>	Tension points (“dubious practices” from Foucault) are actively sought to generate expansive or beneficial policies & practices	Culture, politics, human interests and beliefs are shown to be deeply intertwined with scientific controversies

<i>Possibility of “control” and/or closure</i>	Desired but acknowledged that this is difficult to achieve in social science research	Scientific knowledge is authoritative but teachers can allow students to reach their own sense-making or decisions for action about the issues
<i>Mode of problem solving</i>	Relies on dialogic inquiry as problems are very complex. Wisdom however underpins all reasoning and action; means & goals are equally important	Seeks use of argumentation, deliberation and judging of evidence as learners handle complex, authentic case studies
<i>Attention to contexts & multiple perspectives</i>	Useful knowledge (which challenges power) is regarded as contextual and contingent. Participants are not just subjects of research but agents of change	Deeply context-based for situated learning of SSI. Learners, as citizens, are encouraged to act locally but think globally. Diverse viewpoints are welcomed as well as debated
<i>Transfer of learning</i>	Possible but faces barriers due to various cultural-historical differences	Desired but there are difficulties of transfer of content and/or processes across diverse contexts

Given that phronetic social research and teaching with SSI are closely aligned across key areas, science educators who promote activism as one of the valued learning outcomes of science education arguably stand to profit from following phronetic ideals in at least two ways. First, SSI-based teaching can be a form of conducting teacher-led research into ways of increasing an activist stance. Every instance of its enactment therefore adds to the general knowledge in teaching of what can excite or motivate learners to undertake practical action in the world. As well, this new knowledge of SSI Teaching often leads to yet more efficacious or phronetic ways of acting in the world when theory and practice interact in a dialectical fashion (Lee Y.-J. and Roth 2005). Second, phronesis helps SSI teachers realize the significance of pursuing wisdom when dealing with controversial issues. Wisdom is an uncommon but needed consequence of an education in science—it is timely to explore this intellectual virtue if we are serious about developing more holistic and meaningful forms of literacy in schools. I do not pretend that it will be an easy process to cultivate reflexive judgment with evidence (see Sadler, 2011); what more when we ask teachers to lead even-handed discussions on how to think and act phronetically as students negotiate wicked problems. Sandra Harding (1995) once denounced as condescending and ultimately futile efforts to increase female participation in development—they were but variations of “just add women and stir.” Likewise, teaching how to think and act phronetically during SSI instruction cannot simply be a matter of sprinkling some science/values/politics/activism into our lesson plans and waiting for results. What is necessary is a willingness to grapple hard as a classroom community with what it means to act humanely, which is what we are meant to be.

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Biographical Information

Yew-Jin Lee was trained as a secondary school Biology teacher in Singapore. Currently, he is a science teacher-educator at the NIE with research interests in curriculum studies, scientific ways of knowing, and informal science learning environments. He also brings to his research sociocultural concepts of learning as well as theoretical insights from the social sciences and humanities. Recent publications include articles on design-based inquiry, implementation research and “*The world of science education: Handbook of research in Asia*” (Sense Publishers, 2010) and “*The eternal return: Reproduction and change in complex activity systems*” (with W.-M. Roth and L. Boyer) (Berlin: Lehmanns Media, 2008). Apart from being the co-editor of *Pedagogies: An International Journal* (Taylor & Francis), Yew-Jin serves on the editorial boards of *Studies in Science Education* and *Research in Science Education*.