


Conceptualizing a Radical Visible Pedagogy

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Abstract

This paper contributes to the theorization of radical visible pedagogy by building upon Basil Bernstein’s initial conceptualization and previous efforts to develop it. Alongside Bernstein’s “classification” and “framing” we suggest that incorporating the concepts of “semantic gravity” and “semantic density” from Legitimation Code Theory (LCT)—concepts that were not available to those engaged in earlier efforts to theorize radical visible pedagogy—adds an important dimension to this theorization. Outlining the principles of radical visible pedagogy has the potential to inform equitable classroom practice in a manner that eschews the tendency toward dichotomous conceptions of pedagogy as either “traditional” or “progressive.”

Keywords

Bernstein, visible pedagogy, knowledge, pedagogy, social realism

But what of a radical visible pedagogy? ... This is the space of potential and possibility that Bernstein opened with the theory of pedagogic discourse and where the work is to be done.

(Moore, 2013, p. 191)

Introduction and Historical Context

In the 1970s, the British sociologist Basil Bernstein upset the assumption commonly held by many across the educational research community that the pedagogical models he termed “invisible pedagogies” could be expected to reduce educational inequality (Bernstein, 1977). Though Bernstein (1977, 1990, 2000) did not assign ideological value to them, these pedagogies were—and remain—typically associated with educational progressivism. In seeking to break down boundaries between school subjects and between knowledge and experience, invisible pedagogies frequently espouse interdisciplinary curricula and constructivist conceptions of teaching and learning. They place heavy emphasis on students’ interests and experiences and appear to grant students significant influence over matters such as classroom discipline and the selection, organization, and pacing of the curriculum: over what to learn and how to learn it. Bernstein suggested instead that, despite their apparent and avowed “student-centeredness,” invisible pedagogies serve largely to obscure the fact that teachers retain considerable control over these matters, most particularly through the evaluation of student performance against norms and standards that are not always made explicit to the students themselves. He argued that invisible pedagogies would likely prove most

advantageous to those students socialized to successfully respond to them within the homes of the “new” middle class (typically comprising public sector professionals such as teachers and information technologists working in the field of symbolic control responsible for molding the ways of thinking and orientations to knowledge deemed legitimate in society). Bernstein suggested further that “An invisible pedagogy ... is likely to create a pedagogic code intrinsically more difficult, at least initially, for disadvantaged social groups (from the perspective of formal education) to read and control” (1990, p. 79). This is because not all students are equally likely to recognize the implicit rules and expectations of invisible pedagogies for what they are. Students who are successful in classrooms characterized by invisible pedagogies have usually been taught the rules for “decoding” them in the home or community.¹ The homes and communities of middle-class students are more likely than those of students from lower-income backgrounds to afford the time, space, and support necessary for this “decoding” to occur (Bernstein, 1977; Lareau, 2003). Recognizing this likelihood is not to suggest that lower-income students’ homes and cultures should be changed to more closely resemble those of the middle class. Rather, it is to encourage teachers and

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schools to work consciously in a manner that makes the means for academic success accessible to *all* students.

Bernstein contrasted invisible pedagogies with what he termed “visible pedagogies.” Visible pedagogies are characterized by more explicit teacher control over matters such as classroom discipline and the selection, sequencing, and pacing of curriculum content, as well as the assessment of students’ understanding of it. Again, Bernstein (1977, 1990, 2000) declined to assign an ideological value to visible pedagogies. However, they have frequently been positioned discursively as “traditional” or “teacher-centered,” with teachers typically cast in the role of “sage on the stage” in contrast to the “guide on the side” more often valorized in descriptions of invisible pedagogies. Visible pedagogies have long been assumed to work against the interests of students, especially those from groups that have been historically marginalized within the education system, because they are unresponsive to learners’ backgrounds and individual learning needs. While this can indeed be the case, Bernstein stressed that:

A visible pedagogy is not *intrinsically* a relay for the reproduction of differential school achievement among children from different social classes. It is certainly possible to create a visible pedagogy which would weaken the relation between social class and educational achievement. (Bernstein, 1990, p. 79, emphasis in original)

For Bernstein (1977, see, especially, chap. 6; 1990), the problem with “traditional” forms of visible pedagogy is not that they are “visible” (for any pedagogy to be successful, students need to be able to “see” what is being asked of them). Rather, it is that they too often serve to leave students stratified and disengaged by relying on pedagogies of rote transmission, individualistic and exam-based competition, and lack any connection between curriculum content and students’ lives and interests.

As an alternative to this potentially exclusionary mode of teaching and learning, Bernstein proposed the tantalizing but heretofore underexplored possibility of conceptualizing a “radical visible pedagogy.” He described this as “a radical realization of an apparently conservative practice” (Bernstein, 1990, p. 72). The “apparently conservative” dimension of practice refers to the “visibility” of the pedagogy through the retention of substantial teacher control over matters including curricular selection, sequencing, and evaluation. The “radical” dimension has to do with the visibility’s aim—the promotion of social justice through the more equitable provision of access to academic knowledge and the forms of student-teacher interaction most likely to support this aim. This radical dimension is premised on inclusivity and an effort to make the “rules” of educational success available and achievable for all students in a setting where they feel socially and intellectually included (Bernstein, 2000). Because both dimensions entail a

significant role for the teacher as a knowledgeable authority, “conservative” and “radical” forms of visible pedagogy might, on first appearance, be mistaken for one another. However, by explicitly addressing the need to support all students in their ability to both recognize the rules required for educational success and, ultimately, to perform accordingly (Bernstein, 1990), a radical visible pedagogy has the potential to be socially progressive in working to challenge the status quo and to alter the outcomes achieved across groups of students (Bourne, 2003, 2004).

We seek in this paper to contribute to the theorization of a radical visible pedagogy by building upon Bernstein’s initial conceptualization and subsequent efforts by others to develop it (e.g. Bourne, 2003, 2004). Most specifically, we suggest that the incorporation of the concepts of “semantic gravity” and “semantic density” from Legitimation Code Theory (Maton, 2014)—concepts that were not available to those engaged in earlier efforts to theorize radical visible pedagogy—alongside Bernstein’s (1971) long-established concepts of “classification” and “framing” adds an important dimension to the theorization of a radical visible pedagogy. In particular, these more recently developed concepts help make visible how students’ everyday knowledge might be utilized to promote better access to academic knowledge.

In pursuing our aim, we first review these two pairs of concepts—classification/framing and semantic gravity/semantic density—that we believe can support and sharpen the development of Bernstein’s notion of a radical visible pedagogy. In doing so, we also point to empirical work that demonstrates how these concepts can be applied in educational research and in the classroom. We move on to suggest that bringing the concepts together in future research can support a more complete understanding of, as well as enhanced possibilities to enact, a radical visible pedagogy among both researchers and teachers. We posit that outlining the principles of radical visible pedagogy for both researchers and teachers has the potential to inform classroom practice in a manner that eschews the tendency toward dichotomous conceptions of pedagogy as either “traditional” or “progressive.” We hope this might support teachers in their efforts with the intractable problem of how to promote more equitable educational opportunities and outcomes among students. This is the essential problematic underlying the paper.

Theoretical Perspective and Justification

The paper draws on the perspective of social realism which, in continuing to build on Bernstein’s sociology of education in the years since his death, has developed a considerable literature in relation to theoretical questions regarding knowledge and its visibility in education (Barrett et al., 2017; Barrett & Rata, 2014; Hoadley et al., 2019; Maton & Moore, 2010; Moore, 2007, 2009; Muller, 2000; Young, 2008). Social realists focus on the differentiation of knowledge types and forms, on the significance of this differentiation for

curriculum design, and on its implications for pedagogy (Barrett et al., 2017; Barrett & Rata, 2014; Maton & Moore, 2010; McPhail, 2021). “Realism,” for social realists, denotes the ontological status of knowledge as having real effects in the world (Popper, 1978), while “social” denotes the collective production of knowledge within epistemic communities. As a research program in the sociology of education, social realism recognizes the emergent and objective properties of knowledge yet emphasizes that these qualities are rooted in social ground. In short, this is the idea that the value, applicability, and effects of knowledge are influenced, but not exhausted, by the social and historical context of its production. In combination, these dimensions allow for the identification of certain forms of knowledge as worth making available to all students through education policy, curriculum, and classroom pedagogy (Barrett & Rata, 2014). Most importantly, then, social realism is a theoretical perspective that seeks to bring knowledge into view as an object of study. This is our justification for incorporating more recently developed concepts from LCT into the conceptualization of a radical visible pedagogy that we offer in this paper. The concepts from LCT we introduce below offer new possibilities for capturing the ways in which teachers and students work with knowledge in classrooms.

Knowledge Differentiation

The radical visible pedagogy that we seek to theorize is premised on the idea—derived from the work of Durkheim (1977), Vygotsky (1986), and Bernstein (1971, 1977, 1990, 2000)—that disciplinary and everyday knowledge should be theoretically differentiated because they are structurally dissimilar and provide distinctive affordances for learning (Moore, 2007, 2009, 2009; Muller, 2006, 2009; Rata, 2012; Wheelahan, 2010; Young, 2008b, 2010a, 2010b; Young & Muller, 2010, 2013). The idea of knowledge differentiation thus requires a brief introduction. Young has clarified the thinking about knowledge differentiation by arguing that there is a vital distinction to be made between what he terms context-dependent and context-independent knowledge (2008a, 2008b, 2010a). Context-independent knowledge (also known variously as theoretical, conceptual, or disciplinary knowledge) “is not tied to particular cases and therefore provides a basis for generalizations and making claims to universality” (Young, 2008b, p. 15). It is most typically acquired at school and involves the integration of meanings (for example, knowledge of the equivalence and ordering of fractions is premised on knowledge of addition and subtraction, and so on). Perhaps most importantly, context-independent knowledge carries the potential of allowing those that acquire it to imagine, think, and understand beyond their own experiences.

On the other hand, context-dependent knowledge is particularistic to certain tasks or settings; it does not necessarily have meaning or relevance in contexts beyond that in which it

has been acquired (Young, 2008b). As Bernstein pithily put it, for example: “Learning how to tie up one’s shoes bears no relation to how to use the lavatory correctly” (2000, p. 159). Context-dependent knowledge lacks “epistemic structure”: that is, the integration of concepts that create deeper systems of meaning. We need to differentiate these knowledge types because it is the different structure of disciplinary knowledge that provides unique cognitive affordances that informal, social knowledge does not. It is the epistemic structure of disciplinary knowledge—its structured coherence—which is pivotal for cognitive development (Geary & Berch, 2016). Put simply, engagement with this type of knowledge is a key to educational success that provides the means for students to learn to think abstractly and to consider the world as an object of thought, not only of experience (Charlot, 2012).

Earlier efforts (e.g., Bourne 2003, 2004) to conceptualize a radical visible pedagogy by bringing knowledge and its differentiation into view have drawn on Bernstein’s distinction between “vertical discourse” and “horizontal discourse” (Bernstein, 2000). The academic knowledge of vertical discourse is produced in a different way and in a different context from the everyday, “local, segmentally organized, context specific and dependent” knowledge produced through horizontal discourse (Bernstein, 2000, p. 157). Most significantly, the academic knowledge produced through vertical discourse has an integrated and generative structure, or system of meaning, derived from the logic and principled relations of concepts called the episteme (Rata, 2016). The generative capacity of the episteme allows interrelated concepts and ideas to generate yet more knowledge. The potential for students to consider or alter their life trajectories is most likely to be developed where the ability to think abstractly and critically can be developed through engagement with the systemized, conceptual knowledge of vertical discourse (Bourne, 2003; Rata, 2012; Young, 2008a).

However, access to vertical discourse can be obscured by the invisible pedagogies referred to earlier, which tend to blur the difference between students’ everyday knowledge and academic knowledge: that is, between horizontal and vertical discourse (Jones, 2008). Invisible pedagogies can work to the detriment of the very students they are assumed to support most directly by leaving them locked out of the disciplinary knowledge essential for academic success and social and political participation (Bernstein, 2000; Rata & Taylor, 2015). This certainly does not negate the possibility (perhaps, indeed, the requirement) that horizontal discourse represented by students’ everyday or “common sense” knowledge might also enter the classroom. Vygotsky (1986), for example, regarded everyday (or spontaneous) concepts as vital in establishing the foundations for the cognitive development required for understanding academic knowledge. Indeed, a number of studies indicate the importance of the utilization of everyday knowledge as a vital aspect of pedagogy, scaffolding students’ engagement with vertical discourse through “the managed introduction of horizontal discourse” (Bourne,

2004, p. 66); the “boundary crossing” required to develop students’ understandings (McLean & Abbas, 2009; McLean et al., 2013). However, the dissolution of the boundaries between vertical and horizontal discourse often called for by those espousing invisible pedagogies (most recently under the guise of “21st century learning,” e.g., Frodeman, 2014; Scott, 2015) can make the different affordances of disciplinary and everyday knowledge harder for students and teachers to recognize and to capitalize upon in classrooms.

Distinguishing Between Curriculum and Pedagogy

In addition to differentiating between forms of knowledge, social realism makes a clear theoretical distinction between curriculum and pedagogy. In brief, “curriculum” has to do with content or what to teach, while “pedagogy” has to do with instruction or how to teach.² The critical theorists (e.g., Bourdieu, 1986; Bourdieu & Passeron, 1977; Giroux, 1989; Willis, 1977) critiqued by Bernstein throughout his career often conflated both curriculum and pedagogy as well as knowledge types and forms. This conflation is still commonplace and leads to a lack of clarity concerning the meaning and purpose of each. In the current narratives surrounding 21st century learning, for example, invisible pedagogies are packaged like old wine in new bottles as the panacea for the continued underachievement of many students worldwide. Personalization of learning, de-centering the role of the teacher, focusing on “real-world” problems, and connections with communities via interdisciplinary problem and project-based enquiry learning are presented as the new learning models for future-focused schools (Bolstad et al., 2012; Claxton, 2013; Dumont et al., 2012; OECD, 2018; Scott, 2015). The content of the curriculum, when it is mentioned, highlights competencies and skills but knowledge itself remains something of a troubling blind spot in the literature (Hughson & Wood, 2020). The “what” of teaching is not clearly distinguished from the “how” (Maton, 2014). In such an educational climate, ironically, a focus on knowledge as promoted by social realists—and critiqued as conservative by others (e.g. Delamont, 2014; Rudolph et al., 2018)—offers a truly radical alternative.

A failure to differentiate between forms of knowledge and between curriculum and pedagogy amounts to what Young (2013) has described as a crisis in curriculum theory. This crisis is a result of a lack of engagement with knowledge as an object of enquiry. We argue that such an engagement with knowledge itself is necessary because it can serve to develop our awareness of the affordances of different knowledge types and forms, their relationship to pedagogy, and the importance of providing all students access to knowledge recognized as “powerful” (Young & Muller, 2013, 2019).³ We argue that a differentiation between types of knowledge and between curriculum and pedagogy is key to theorizing a radical visible pedagogy. Enhancing the visibility of knowledge by theorizing its structure, the inter-relationships

between its various forms, and its pedagogical implications is potentially empowering for both educational researchers as well as the teachers and students with whom they might work. This recognition is in our view a key mechanism in providing more equal access for all students to the affordances and possibilities for agency offered by powerful knowledge.

Conceptualizing a Radical Visible Pedagogy

We next review four key concepts—“classification,” “framing,” “semantic gravity,” and “semantic density”—that we believe can be fundamental in helping researchers and teachers to theorize and implement the principles underlying a radical visible pedagogy. Developing out of the Bernsteinian tradition we acknowledge the substantial contributions initiated by Bourne (2003, 2004), the on-going work of Morais and Neves (2001, 2011), and the more recent work of Maton (2013, 2014). We then demonstrate how the operationalization of these concepts in research has the potential to deepen researchers’ understanding of and efforts to improve teachers’ classroom practice. We argue that, when brought together, the concepts can lead to a more complete theorization of radical visible pedagogy than has thus far been available.

Classification and Framing

Bernstein’s concepts of classification and framing are essential for the theorization of a radical visible pedagogy. They provide a sociological means for studying and modeling the role of pedagogy in regulating access to the differentiated forms of knowledge produced through vertical and horizontal discourse (Moore, 2013) as introduced above. For Bernstein, classification has to do with the degree of boundary maintenance or insulation between contents or agents. He stressed that it “does not refer to what is classified but to the relationships between [them]” (1971, p. 205). Classification can be applied with reference to relations that are both external (e.g., the strength of the boundary between school and students’ homes or communities) and internal (e.g., the strength of the boundary between curriculum subjects) to the classroom. A strongly classified curriculum, for example, would present each academic subject discretely while a weakly classified curriculum would feature integrated and interdisciplinary subject matter. Likewise, classification can be used to describe relations at both macro (e.g., between education and the economy) and micro (e.g., between teacher and student) levels. When strongly classified, for example, the classroom relationship between teacher and student would be clearly bounded, with the former recognized as the knowledgeable authority. The boundary would begin to blur as classification weakens and the relationship between teacher and student might be thought of as more democratic, where the teacher seeks and accounts for student perceptions while still maintaining strong boundaries for knowledge content.

Along with classification, Bernstein conceptualized framing as the “degree of control teacher and pupil possess over the selection, organization, and pacing of the knowledge transmitted and received in the pedagogical relationship” (1971, p. 206). In a strongly framed classroom, a more authoritarian teacher might, for example, teach scripted lesson plans didactically from the front of a classroom to students arranged individually in rows of desks. Meanwhile, in a classroom characterized by weaker framing, students might sit in a circle on the floor while their teacher “facilitates” their understanding of curriculum content that they have chosen to engage with based on their own interests and experiences. Combined with classification, framing allows for research to focus most particularly on pedagogy at the micro level of the classroom (Morais, 2002). Classification and framing may each be stronger (+) or weaker (–) and may vary independently of each other. They are also dynamic as their strength can change (over the course of a lesson, for example) and these changes in strength can be traced over time. They are not, therefore, static typologies. These concepts are useful because they allow us to “see” the principles underlying various modalities of pedagogy, including invisible forms (generally characterized by weaker classification and framing) and both “conservative” (generally characterized by stronger classification and framing) and “radical” (generally characterized by a mix of stronger and weaker classification and framing as we suggest below) forms of visible pedagogy. In bringing the principles underlying pedagogy into focus, these concepts can thus be employed by teachers and researchers to deepen their understanding of their own practice and of the effectiveness of different pedagogic modalities in enabling students to acquire the knowledge valued in school.

Classification and Framing in Research

The concepts of classification and framing have been implemented across a considerable body of research as mechanisms for making pedagogical and curriculum choices more visible. These concepts enable the description of differing pedagogic modalities and the means to analyze their varying effectiveness in different contexts. The practices detailed in these studies (e.g., Barrett, 2017; Bourne, 2004; Hoadley, 2006, 2008; Martin, 1999; McPhail, 2013, 2017; Morais & Neves, 2011) combine to represent what Morais and Neves (2001) have, in eschewing the tendency toward dichotomous (and dichotomizing) descriptions such as “teacher-centered” and “learner-centered” or “traditional” and “progressive” pedagogies, termed a “mixed pedagogy.” This comprises differently classified and framed relations in classrooms that they have found capable of supporting the success of students from a wide range of social backgrounds in a manner that aligns with the aims of a radical visible pedagogy as outlined above. The pedagogy described in these studies is most frequently “visible” in that the selection, sequencing, and evaluation of curriculum content are almost always

characterized by strong framing with the aim of supporting students’ ability to access vertical discourse (Bourne, 2003) by making the rules required for educational success available to all. On the other hand, weaker classification and framing is frequently observed in the relations between teachers and students, students and their peers, and the use of classroom space. These studies combine to suggest that the “more visible elements” (Lubienski, 2004, p. 119, emphasis in original) of pedagogy, particularly in terms of explicit and strongly framed evaluation criteria, must be accompanied by other, more weakly classified and framed dimensions of pedagogy in order to most successfully promote students’ access to knowledge (Barrett & Moore, 2015).

Again, the effort to make the “rules” of educational success available and achievable for all students in a setting where they feel socially and intellectually included (Bernstein, 2000) constitutes the “radical” element of a radical visible pedagogy. Classification and framing provide researchers with a means of capturing and conceptualizing classroom practice dynamically in a manner that can also be explained, taught, and made visible to teachers with the aim of deepening their understanding of, and ultimately improving, their practice. Because a key element of a radical visible pedagogy is induction into vertical discourse, however, a more complete conceptualization of pedagogic practice also requires a focus on *what* the practice relays (Bernstein, 1990). While classification and framing highlight the relations between subjects and within classrooms with some degree of dynamism, we now introduce the concepts of semantic gravity and semantic density help to further “operationalize” vertical and horizontal discourse by pointing toward how they can be worked with, traversed, and transformed in the classroom. We believe that doing so adds a heretofore underexplored dimension to the conceptualization of a radical visible pedagogy.

Semantic Gravity and Semantic Density

In the final paragraph of his final book-length publication, Rob Moore identified radical visible pedagogy as “the space of potential and possibility that Bernstein opened with the theory of pedagogic discourse and where the work is to be done” (2013, p. 191). Unfortunately, Moore did not live to take up this work further but, in the same paragraph, he did suggest that the *radical* dimension of radical visible pedagogy turned on recognizing the socially transformative affordances of *knowledge* and of making this available to all students. Accordingly, we believe that incorporating semantic gravity and semantic density (Maton, 2014), two key concepts developed within LCT subsequent to initial conceptualizations of radical visible pedagogy (Bernstein, 1990; Bourne, 2003, 2004), can help support this goal. Where Bernstein’s classification and framing provide the means to make visible the underlying principles of various modalities of pedagogy, semantic gravity and semantic density provide

the means to make visible the principles underlying the structure of knowledge itself. We thus propose that, by allowing for a clearer, more dynamic conceptualization of the knowledge with which teachers and students work in classrooms, semantic gravity and semantic density can serve as important complements to classification and framing that, as demonstrated above, allow for a dynamic conceptualization of pedagogy.

Bernstein did not reveal the principles underlying the typologies of horizontal and vertical discourse in the same manner that he identified the principles underlying various modalities of pedagogy through the concepts of classification and framing. Maton states that “though Bernstein was aware of differences within his typologies [of horizontal and vertical discourse], to enact that awareness in research requires concepts that capture those differences” (2014, p. 109). Thus, semantic gravity (SG) and semantic density (SD) were developed specifically out of an effort to extend Bernstein’s model which, according to Maton, “describes characteristic features of discourses ... but not *what* [emphasis added] makes a discourse ‘horizontal’ or ‘vertical’” (2014, p. 109). Along a continuum SG and SD enable the naming and, therefore, the increased visibility of some of the key characteristics of horizontal and vertical discourse—the degree of context-dependence and independence of ideas. These concepts can be operationalized in research. Further, they enable a clearer theorization of how it is possible to traverse *between* horizontal and vertical discourse in a manner that can support student success. Thus, horizontal and vertical discourse can be seen to exist in a potentially dynamic relationship with one another, helping to avoid the tendency to regard them as static and hierarchically related (with horizontal discourse sometimes presented as a “deficit” version of vertical discourse). In this way, SG and SD are powerful additional tools for both educational researchers and teachers in conceptualizing a radical visible pedagogy. We review each concept in turn.

SG refers to the strength of the relationship between meaning and context (Maton, 2013). For example, strong SG is demonstrated where a student is asked to consider the meaning of a novel only in relation to its specifics (e.g., the particular setting, characters, and events). SG is weakened when a student is able to generalize from the specific context of the book to make observations of a more universal nature. Thus, in common with Bernstein’s concepts of classification and framing, SG can be described along a continuum as stronger (where meaning is increasingly dependent on context, that is, in the form of a concrete example drawn from a particular case, often one with which students are already familiar) or weaker (where meaning is increasingly independent of context, that is, in the form of a general principle that can be abstracted beyond a particular case). While meanings cannot be established in the absence of context, SG “conceptualizes how much they depend on that context to make sense” (Maton, 2013, p. 11).

SD refers to the degree to which meaning is condensed (within a concept, term, symbol, etc.). Like SG (as well as classification and framing as detailed above), SD can also be described along a continuum. When SD is stronger, meaning is more condensed and thus represents a range of ideas, and associated meanings can be condensed into a single word, image, or gesture. When SD is weaker, meaning is less condensed and thus denotes a more limited range of ideas (Maton, 2013). For example, “democracy” represents a semantically dense concept. It serves as a symbolic term that encompasses a number of related and inferred concepts such as the rule of law and the participation of citizens in free and fair elections. The individual components of democracy can be “unpacked” in a lesson on the topic (weakening SD) and they can be “repacked” (strengthening SD) into a symbol used to represent a broader range of ideas.

Vertical discourse typically involves weaker SG and stronger SD, whereas horizontal discourse would be characterized by stronger SG and weaker SD. However, like classification and framing, which provide the means for a dynamic conceptualization of pedagogy, SG and SD are dynamic concepts that can be applied more specifically to the very characteristics of ideas, their context, and language forms. With the application of SG and SD, horizontal and vertical discourse can be translated as points on a continuum rather than simply as opposing types (Maton, 2014). Successful academic performance often requires that students are able to access and traverse between both horizontal and vertical discourse. SG and SD can provide the means for teachers and their students to see how the degrees of context dependence (SG) and condensation of meaning (SD) that typically characterize horizontal and vertical discourse can be strengthened and weakened over time in a manner that supports students’ access to and acquisition of concepts and content. In other words, the rules for academic success can be made more visible and useable for students. For example, instruction about a particular topic might begin with context independent, abstract, and general definitions and statements (weak SG and strong SD) and then move to more context dependent, concrete, and particular elaborations of the initial abstract ideas (strengthening SG and weakening SD) and back again, or vice versa. In either instance, the “semantic profile” of any given segment of teaching and learning can be identified and made explicit for students in a manner with the potential to support their achievement. This allows for a more dynamic and, thus, more realistic description of the ways that teachers and students work with knowledge in classrooms than do dichotomizing concepts like vertical and horizontal discourse, which can serve to assign “either/or” attributes (e.g. abstract/concrete) to knowledge. As classification and framing allow for with respect to pedagogic codes (e.g., C+, F–; C–, F+), SG and SD make it possible not only to develop a typology of semantic codes (e.g., SG+, SD–; SG–, SD+) but also to capture them “topologically” in classroom practice and in

academic writing as, for example, strengthening SG or weakening SD (Maton, 2014).⁴

Semantic Gravity and Semantic Density in Research

The concepts of SG and SD offer a fecund resource for researching knowledge practices in the classroom and, like the research detailed above stemming from Bernstein's concepts, early research using SG and SD appears to offer potential for improving and making more equitable both teacher performance and student outcomes by making the knowledge practices valued in school settings more visible (Maton, 2013, 2014). An example of this productive use of SG and SD occurred within the context of an Australian study in secondary school History and Biology (the "Disciplinary, Knowledge and Schooling" (DISKS) project—see Maton, 2013 and Macnaught et al., 2013). This project aimed to provide professional development for teachers in processes that make knowledge and its structures visible. In particular, the use of the concepts of SG and SD were explored as pedagogical tools. The process of the dynamic shifting of SG and SD as outlined above has been conceptualized within LCT as realizing "semantic waves" which can create an overall "semantic profile" for a lesson, a part of a lesson, or a piece of academic writing. Within the DISKS research project, the suite of concepts provided the means to create pedagogic interventions supportive of teachers' efforts to model semantic waves and the linguistic mechanisms for creating them with students (Maton, 2013).⁵ Students were thus taught to recognize shifts in SG and SD that are typically rewarded in academic writing rather than simply being rewarded if the rules of successful academic writing have been acquired elsewhere or implicitly. This is an example of the sharing of the "rules" of academic success with students, part of the process of establishing a radical visible pedagogy.

In combination with the concepts of classification and framing, which allow for classroom practice to be conceptualized and captured dynamically, SG and SD allow for a more dynamic conceptualization of the forms of knowledge (and the shifts between them) with which teachers and students work in the classroom. In this respect, the concepts of classification/framing and SG/SD are complementary and provide a means for teachers to deepen the design and delivery of their curriculum. Alongside classification and framing, SG and SD provide the means for teachers to adopt pedagogical approaches that draw on and make visible the underlying structures of knowledge present in the curriculum—in the forms of both horizontal discourse and vertical discourse—and to allow students to move back and forth between them in a manner that supports their academic success. Purposefully modulated semantics in a lesson, initially designed to elicit students' everyday knowledge, can be a pedagogical means to make the pre-existing conceptual structure of the subject knowledge more visible for students.⁶ For example, a pedagogical approach in science lessons

might begin with the teacher eliciting students' current understandings and everyday knowledge of a chosen scientific concept through open discussion and refraining from making evaluative comments (weak classification/weak framing and strong SG/weak SD). The teacher might then utilize student ideas but introduce the scientific perspective and concepts that may or may not align with the earlier student responses. The teacher can provide opportunities for practical experimentation and subsequent discussion to explore the evidence for the scientific perspective as compared with the "everyday" suggestions raised by students in the first lesson (strengthening classification, framing, and SD). As both Vygotsky (1986) and Bernstein (2000) argue, it is in the connections between generalized and abstract concepts back to the everyday context of the student that the emancipatory potential of education lies.

The use of SG and SD can also assist with developing sociological understandings as teachers and students are made more aware of the social construction of knowledge and the varied affordances different types and forms of knowledge offer in different social and pedagogical contexts; for example, the forms of academic writing rewarded in the school. Importantly, the concepts of SG and SD were not previously available to researchers, such as Bourne (2003, 2004), who drew on Bernstein's concepts of vertical and horizontal discourse in their efforts to theorize radical visible pedagogy. We thus argue that, in combination with classification and framing, SG and SD help us to advance the discussion about what a radical visible pedagogy might look like by bringing previously obscured and inanimate features of horizontal and vertical discourse more clearly and dynamically into view.

Discussion and Implications for Practice

The concepts of classification, framing, semantic gravity, and semantic density, as well as empirical research that draws on them, can help educational researchers to avoid the recurrent tendency toward dichotomized thinking (e.g., "progressive" vs. "traditional" pedagogy) and strained efforts to categorize teaching practices into ideal types that, in reality, cannot capture their empirical complexity. Classification, framing, SG, and SD combine to provide valuable tools for making the principles of vertical discourse visible and available for all students—a radical visible pedagogy. Thus, they represent a different kind of theorizing aimed at more completely capturing the dynamic complexity of reality by identifying the principles (in the form of strengthening and weakening classification, framing, SG, and SD) that generate different teaching practices and forms of knowledge rather than retroactively labeling their empirical realizations as, for example, traditional or progressive pedagogy.

Understanding these concepts allows teachers to both imagine and apply what these concepts might "look like" in practice and—as the strength of classification, framing, SG,

and SD might vary throughout a lesson or over time—to “capture” these practices in a dynamic fashion. In theoretical terms, a teacher may allow flexibility in relation to sequence and pacing (weak framing through more apparent control for students) but the criteria for evaluation, including knowledge of semantic waves in writing, may be explicit (strongly framed)—a mixing of pedagogic modalities (Bourne, 2004; Feez, 2011; Morais, 2002; Morais & Neves, 2011; Muller & Gamble, 2010). A classroom example of this might include students being given a choice to study the Black Lives Matter movement of their lifetimes before studying the events of 1964’s Freedom Summer (weak framing over sequence and pacing) while being explicitly instructed to connect specific examples from both to the broader concept of civil rights in an examination essay (strong framing over writing for assessment).

Another key issue to be reckoned with in conceptualizing a radical visible pedagogy, and a key distinction between a radical visible pedagogy and its more conservative counterpart is that a radical visible pedagogy involves explicit instruction in and opportunities for “border crossing” between knowledge types and forms, such as horizontal and vertical discourse. Such “border crossing” can be more successfully managed through the utilization of the concepts outlined in this paper in order to allow for more managed and inclusive access to vertical discourse. As Muller notes,

the starting point ... lies in recognizing that everyday practices and school tasks are separated by a sharp disjuncture. ...The pedagogical task, therefore, is to identify areas where out-of-school practices might usefully dovetail with school [discourse] and to structure the school discourse so as to work systematically through the process of transfer. The shift from one practice to another involves the prising apart of one set of relations of signification and rearticulating or translating them to produce new meanings. (2000, pp. 68–69)

Too often, as detailed earlier, the boundary between vertical and horizontal discourse remains blurred and students struggle to gain access to the former as a result.

Adopting concepts that have been developed and applied to theorize the principles underlying a visible pedagogy can help us to overcome the traditional dead-end binaries of “teacher-centered” and “student-centered” analyses for a more dynamic and realistic approach. We believe that the implications that a more completely developed and more fully realized vision of radical visible pedagogy carry for educational practice are significant. For example, progressively minded teachers might come to understand that the seemingly “teacher-centered” practice of making evaluation criteria very clear to students actually affords a greater possibility of educational success to a greater range of them. Teachers may feel empowered to choose from a range of modalities which are appropriate for the context and the knowledge being taught, enhancing teacher professionalism rather than adhering to ideological pressures (Robertson, 2016). This continued theorization has the potential to measurably

benefit the performance of both teachers and students and to support efforts toward the promotion of more equitable educational opportunities and outcomes (Morais & Neves, 2001, 2011). As Bourne reminds us, the purpose of the school and its curriculum is “an induction into the wider collective, and ideally into an understanding of the individual’s positioning within, and potential contribution to transforming, the social and political” (2003, p. 499). We suggest that a radical visible pedagogy, with its marriage of knowledge and pedagogy as theorized in this paper, can provide a model for critical and progressive 21st century teaching and learning.

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Notes

1. See, for example, Delpit’s (2006) *Other People’s Children* for an exceptionally lucid and well-known account of the need to make, at times through direct instruction, the rules and expectations for school success available to all students.
2. For more on the distinction between curriculum and pedagogy as conceived by social realists, see Young (2013) and Deng (2017).
3. Central, but perhaps too frequently unrecognized among the affordances of powerful knowledge are expanded possibilities for *agency*. Powerful knowledge is “powerful” in large part because of its potential to give power over to students; it is for this reason that Young (2013) believes that they are entitled to it. We thank an anonymous reviewer for encouraging us to highlight this point.
4. See Maton (2014) for a more extended treatment of the value of “topology” for educational research.
5. There are also links in Maton’s work (see Macnaught et al., 2013) to the “Sydney School” of Systemic Functional Linguistics (SFL), which has made significant progress in the area of knowledge visibility with respect to literacy pedagogy, particularly with the concepts of nominalization and grammatical metaphor; the process of turning verbs into nouns that is typical of academic writing (see, for example, Christie & Derewianka, 2008). This linguistic mechanism is a key distinguishing feature of the difference between strong and weak semantic density. We also acknowledge the growing body of work utilizing Maton’s LCT, and the work of other scholars such as Luckett and Hunma (2014) and Clarence (2017) who have utilized similar concepts in Higher Education.

6. See Maton (2013, pp. 15–16) for examples of teachers utilizing semantic waves in biology and history lessons.

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