

Bernsteinian Perspectives on the Reading to Learn Program

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1. Introduction

Systemic Functional Linguistics (hereafter SFL) boasts a long tradition in its fruitful interdisciplinary dialogue with Bernstein's sociology of education. Such dialogue enables linguists "to think about linguistics in sociological terms" and sociologists "to think about sociology in linguistic terms" (Bernstein 1995: 398). Martin (forthcoming) outlines four phases of interaction between SFL and Bernstein's theory. The first revolves around the theme of semantic variation, providing linguistic evidence for coding orientation (Bernstein 1995; Halliday 1973, 1995; Hasan 2005, 2009). The second phase is concerned with the development of the Sydney School genre-based literacy using Bernstein's theory of pedagogic discourse (Bernstein 1990; Martin 1993a, 1999a, 1999b, 2000, 2009). The third shifts to a focus on understanding knowledge structures through field analysis (Bernstein 1996; Maton & Muller 2007; Maton 2009; Martin 1993b, 2007). The fourth comes back to concerns with users of language, examining the issues of identity and community (Martin 2006, 2008, 2009, 2010; Maton 2008).

Drawing on the second and third phases of the interdisciplinary dialogue, this paper discusses Bernsteinian influence on the development of the Reading to Learn (hereafter R2L) program, a Sydney School approach to genre pedagogy. It reviews research on the use of Bernstein's theory to support the development of the program and examines issues related to attributes of horizontal and vertical discourses and the bridging of the two discourses in the R2L classroom practice.

2. Coding Orientations and Pedagogic Discourse

R2L is a literacy program developed by Rose (Rose 2004a, b, 2005, 2006) for the purpose of enabling all learners to read and write successfully. It is grounded on the systemic functional model of language (Halliday 1994; Halliday & Matthiessen 2004) and a theory of genre proposed by Martin (1992, 1993a). Like the Sydney School's Teaching and Learning Cycle designed by Rothery (1994), R2L consists of three stages with each divided into two phases. It begins with the Deconstruction stage of Preparing before Reading and Detailed Reading. Then at the Joint Construction stage, the teacher

and students proceed to Sentence or Note Making and Joint Rewriting. The last stage is Independent Construction which covers the phases of Individual Rewriting and Independent Writing. In terms of pedagogical orientations, the innovative approach is characterized by its adoption of an explicit mode of transmission and its ideologically motivated advocacy to empower the disadvantaged groups in Australia. The program is designed to respond to educational inequalities still prevalent in Australia. The mission and the teaching strategies of the program are formulated on the basis of Bernstein's theory of coding orientations and pedagogic discourse.

Because of his concern for relative school underachievement of the working class children, Bernstein (1971) directed an investigation on the relationship between social class, language use and education in Britain. He found a significant difference in the use of language between middle class and working class children. The middle class children tend to use what he termed a formal or elaborated code while the working class children are largely confined to the use of a public or restricted code. Bernstein defines a code as "a regulative principle which controlled the form of the linguistic realization" (Bernstein 1971: 15). The elaborated code is more abstract, explicit and context-independent while the restricted code is more localized, stereotyped and contingent. Schooling, however, privileges the elaborated code, putting the middle class children at an advantage.

Bernstein's code theory provides a convincing argument for the need to help pupils from the disadvantaged backgrounds. The R2L, based on Rose's years of experience working in Indigenous communities in Australia, follows this theory in arguing its case against the educational inequalities which still persist in Australian society. For example, Indigenous Australian school students perform well below average standards in literacy (DEST 1997). Rose (2004a) attributes such unequal outcomes to two key factors. First, schools fail to teach reading skills explicitly, disadvantaging those students who come from less literate homes. Both upper primary and secondary stages focus on curriculum content rather than explicit literacy teaching. So students who have been well prepared in their homes are most likely to succeed from such teaching practices. Second, the current pattern of classroom interaction helps to maintain the inequalities among learners. In such a pattern of interaction, unscaffolded questioning (IRF) cycles dominate and teaching becomes a mere knowledge testing process. As a result, more successful students are rewarded for their good answers to teachers' questions while the least successful students are led to frustration only after their responses are repeatedly ignored, negated or even criticized.

To remedy the situation, Rose (2005) designed the scaffolding learning cycle as the foundation of the R2L Pedagogy. It consists of the three learning steps of Prepare, Task and Elaborate. The teacher first prepares his students by paraphrasing a sentence, telling them where to look and explaining the meanings of a relevant word. Then students

are given the task to identify the word or phrase followed by teacher's affirmation. In academic contexts, elaboration takes the form of defining technical or literate wordings, explaining new concepts or metaphors or discussing students' relevant experience. The interaction cycle aims to enable students to access academic discourse and improve learning performance.

R2L has been implemented successfully in some Australian educational sectors. In an investigation of the impact of the program at Wiltja, McRae *et al.* (2000) demonstrate the approach is effective for indigenous students at both the primary and secondary level as significant increases in student achievement have been measured. In an evaluation of the Years 7-10 English Aboriginal Support Pilot Project, Carbines *et al.* (2005) find the pedagogy helpful in building students' confidence and preparing them to tackle new reading situations. Though the approach is designed for weaker students, teachers have witnessed a general improvement level in all students. Rose *et al.* (2004) introduce the approach to Koori Center, University of Sydney and record a great success with Indigenous adults preparing to enter tertiary studies. Students have made improvements in reading as demonstrated by their ability to write summaries of what they have read. Joyce, Hood & Rose (2008) investigate the impact of R2L on adult literacy and find that the pedagogy is effective in helping ESL adult learners improve their reading and writing skills.

In his discussions of genre pedagogy and R2L, Martin (2006) made a creative adaptation of Bernstein's concept of pedagogic discourse. For Bernstein, pedagogic discourse realizes the recontextualization of knowledge and determines the relationship between the regulative discourse concerned with creating social order and the instructional discourse used to transmit skills and subject knowledge. Instructional discourse is embedded in the regulative discourse and is dominated by the latter. In order to avoid confusion with functional linguistic terms, Christie (2002) chose "project" to replace "embed", treating instructional discourse as projected by the regulative discourse. Martin (2006) prioritizes the role of functional linguistic metalanguage which he refers to as social semiotic instructional discourse (hereafter SSID). On one hand, SSID acts as a mediator between regulative discourse and instructional discourse. It helps to improve transmission of subject knowledge like English, maths and history among non-mainstream students by providing explicit instruction of knowledge about text in context. In this way, SSID projects ID. On the other, it may also project the regulative discourse as it provides teachers and students with the basis for the negotiation of their regulative discourse. The semiotic tools make it possible for teachers and students to deconstruct their schooling by means of knowledge about text in social context.

In a linguistic analysis of semiotic tools, Martin (2006) discusses ideational,

interpersonal and textual resources deployed in the R2L. Ideationally, behavioral processes of perception are used to draw students' attention to a text and material processes to get them highlight relevant parts of a sentence in the text. Interpersonally, wh-interrogatives are frequently employed to help students identify relevant parts of a sentence without having to use specialized SFL terms. Textual resources include the use of co-text as a cue to elicit responses from the students and the deployment of exophoric reference to track a word, a phrase or a sentence.

Martin & Rose (2005) also apply Bernstein's concepts of classification and framing in the examination of the teaching and learning cycle in the genre pedagogy. Classification and framing are developed as conceptual tools for identifying different types of pedagogy. The two concepts refer respectively to categorical relationships and pedagogical relationships. Bernstein (1975: 88) defines classification as "the degree of boundary maintenance between contents". Where classification is strong, the boundary between categories is clearly marked and highly insulated. Where it is weak, the level of insulation becomes low and the dividing line blurred. Classification provides the basic structure of curriculum, whereas framing takes control of the basic structure of pedagogy. Bernstein (1975: 89) defines framing as "the strength of the boundary between what may be transmitted and what may not be transmitted in the pedagogical relationship". Where framing is strong, the degree of teacher control is high and students are left with limited options. Where it is weak, the boundary of pedagogical relationship is less marked and students are left with more options in the control of what is taught and learned. The genre approach is designed to provide varying degrees of classification and framing from phase to phase for the purpose of establishing an authoritative and empowering pedagogy. For example, weak classification and framing dominate the first part of the Deconstruction stage as teachers brainstorm students to open up the field and the context of the genre. Students are given freedom to express their ideas about the topic. Then classification and framing strengthen with the introduction of a model text. Here the teacher exercises more control in the classroom when he provides explicit instruction about the genre of the model text.

Furthermore, Bernstein's topology of theories of instruction (1990) helps Sydney School scholars clarify the stance of their genre pedagogy in the traditional and progressive debate. He outlines four types of pedagogies along the vertical dimension of intra-individual and inter-group and horizontal dimension of implicit acquisition and explicit transmission. As the Sydney School pedagogy attempts to promote social justice through redistribution of literary resources to empower the socially disadvantaged groups. Martin (1999a, 2006) positions the R2L pedagogy in the lower right-hand quadrant of Bernstein's topological diagram of instructional theories, regarding it as explicit and subversive. Martin (forthcoming) claims that such understanding

strengthens his determination to push forward the literacy initiatives and make them succeed.

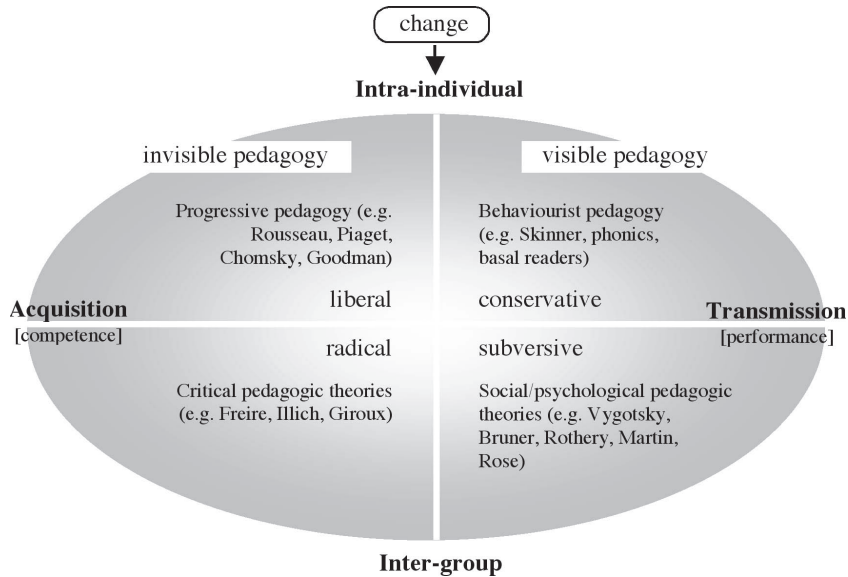


Figure 1 Martin's adaptation of Bernstein's typology (1998)

In short, Bernsteinian influences are clearly felt in the design of the genre pedagogy and R2L. Bernstein's theory helps to shape R2L's mission, turn a literacy initiative into an issue of social justice and characterize the nature of the R2L program. However, the communication is primarily one way in this phase of interaction between Bernstein's sociology of education and SFL literacy action research. The subsequent phase proves to be more like two way traffic.

3. Horizontal Discourse and Vertical Discourse

At the phases of Preparing before Reading and Detailed Reading in the R2L program, the teacher summarizes an academic text, paraphrases sentences and explains new expressions and technical terms. In other words, he talks around the text, using mostly everyday words to scaffold academic reading. Then what are the attributes of academic discourse and everyday talk? What strategies do teachers employ to help students access academic discourse? Here Bernstein's theory of knowledge structures provides a sociological tool for functional linguistic analysis.

There have been many contrastive studies of the two fundamental forms of discourse, usually seen as oral and written forms. In SFL research, Halliday (2008) shows that spoken language is marked by intricacy of clause combinations and sparsity

of lexical meanings while written language is characterized by syntactic simplicity but dense lexicalization. Martin & Rothery (1990), Coffin (2000) and Veel (2006) explored contextual dimensions of everyday and academic contexts. Their findings exhibit major differences across the two contexts in terms of genre, field, tenor and mode. In academic contexts, socially valued written genres are used such as report, explanation, exposition, discussion, narrative and procedure while in everyday contexts, familiar everyday spoken genres are used such as instruction, observation, anecdote, personal response and personal recount. In terms of field, academic contexts are typically realized by use of generalized participants, technical terms, grammatical metaphor and relational, defining verbs, and everyday contexts are characterized by specific human participants, everyday lexis and action verbs. As far as tenor is concerned, academic contexts are marked by low frequency of personal pronouns, but plentiful use of passive voice, objective impersonal modality and statements while everyday contexts see a high frequency of personal pronouns, active voice, subjective personal modality and a variety of mood choices. In terms of mode, academic contexts are characterized by high lexical density, low grammatical intricacy, use of grammatical metaphor and clear progression of themes, but everyday contexts reflect low lexical density, high grammatical intricacy and variation in theme choice.

Bernstein's work (Bernstein 1999) on knowledge structures provides an insightful analysis of greater differentiation within and between the two forms of discourse and social basis of this differentiation. His model attempts to integrate the internal structure of specialized knowledges, their fields of practice, identity constructions and forms of acquisition. Bernstein produces two new terms, horizontal discourse and vertical discourse to refer to the two fundamental forms of discourse which realize different types of knowledge. Horizontal discourse is defined as follows:

“A horizontal discourse entails a set of strategies which are local, segmentally organised, context-specific and dependent, for maximising encounter with persons and habitats.” (Bernstein 1999: 159)

For Bernstein, horizontal discourse is common sense knowledge dealing with the everyday problems of human life. Its crucial feature lies in its segmental organization, which means there is no coordinating principle for integration of meanings across different segments. This segmentally differentiated discourse results from the culture's different specializations in activities and practices. However, not all segments have equal importance with some being more important than others. Horizontal discourse is generated by the structuring of the social relationships and in turn affects the structuring of social consciousness, its contextual mode of orientation and realisation. Horizontal discourse plays a major role in the relay of culture. Its mode of acquisition is functionally related to the everyday life with its meaning depending on one segment

or context. What is acquired in one context does not inform what will be acquired in another context. It is transmitted by modeling, showing or by explicit mode. The pedagogical process is confined to the context of its enactment, “usually with strong affective loading, and directed towards specific, immediate goals, highly relevant to the acquirer in the context of his/her life” (Bernstein 1999:161). It is characterized by a common competence rather than a graded performance. In short, competencies in horizontal discourse are segmentally related with no integration of specific acquisitional knowledge.

Vertical discourse, however, is organized in a much different manner. As Bernstein puts it:

Briefly a vertical discourse takes the form of a coherent, explicit and systematically principled structure, hierarchically organised, as in the sciences, or it takes the form of a series of specialised languages with specialised modes of interrogation and specialised criteria for the production and circulation of text, as in the social sciences and humanities. (Bernstein 1999: 159)

Bernstein (1999) distinguishes between hierarchical knowledge structures and horizontal knowledge structures in vertical discourse. The former is typical of the natural sciences and the latter is commonly found in the social sciences and humanities. Unlike horizontal discourse, vertical discourse is decontextualised, hierarchically organized and integrated at the level of meanings. The pedagogy of vertical discourse is an on-going progress without contextual constraints inherent in the pedagogy of horizontal discourse. The construction, evaluation and distribution of its social units are determined by the principle of recontextualisation. Bernstein contrasts the two forms of discourse in terms of practice, distributive principles, social relations and acquisition. Vertical discourse is institutional and individual, based on recontextualisation and graded performance, whereas horizontal discourse is local and communalised, based on segmentation and competence.

With regard to circulation of knowledge in the two types of discourse, vertical discourse is characterized by strong distributive rules regulating access, transmission and evaluation whereas horizontal discourse is circulated through distributive rules structuring and specialising social relations.

Bernstein compares a hierarchical knowledge structure to a triangle. In this type of discourse, new theory develops through integration and subsumption of previous knowledge and moves towards more generalizing propositions at a higher level of abstraction. It is a triangle because the wide range of phenomena at the bottom are progressively integrated within the theory up to a small number of axioms or propositions at the top. Thus, an integrating code enables the production of hierarchical knowledge structures.

In contrast, horizontal knowledge structures develop through accumulation of a series of specialised languages with different approaches to theoretical construction. Based on a collection code, it is visualised as a series of Ls on a horizontal line. Each discipline has various modes of inquiry with different assumptions and different criteria for legitimate focus of study. Development of such discourse depends on introduction of “a fresh perspective, a new set of questions, a new set of connections, and an apparently new problematic, and more importantly a new set of speakers” (Bernstein 1999: 163). Competing theories in hierarchical knowledge structures are capable of incorporation into more generalized propositions. Such possibility is denied to horizontal discourse structures because of their characteristics of non-translatability and self-centredness.

Bernstein uses strong grammars and weak grammars to make a distinction within horizontal knowledge structures. Strong grammars characterize those disciplines which can provide relatively unambiguous definitions of empirical phenomena and empirical relations under study while disciplines with weak grammars are less capable of such explanations. He cites economics, linguistics and parts of psychologies as examples of strong grammars and sociology, social anthropology and cultural studies as examples of weak grammars. He highlights one attribute of strong grammars of horizontal knowledge structures, the restriction on the scope of study, implying that transformational grammar is more capable of empirical descriptions than Halliday’s systemic functional grammar because transformational grammar tightly restricts its object of study, while SFL looks at a much wider understanding of language and so is a less tidy or neat system.

In his study of vertical discourse, Muller (2007) proposes “verticality” and “grammaticality” to analyze two attributes of Bernstein’s conceptualization of knowledge structures. Verticality is used to calibrate the degree to which a theory progresses through subsumption and integration of knowledge at the lower level into more generalizing propositions. Grammaticality refers to the degree to which forms of knowledge deal with empirical descriptions. A relatively strong degree of grammaticality enables a theory to interpret data more precisely. Weaker grammaticality means the theory concerned is less able to deal with empirical research and more or less confines itself to critique. Hierarchical knowledge structures have stronger grammaticality as they afford precise empirical descriptions and formal modelling of empirical relations. Horizontal knowledge structures have relatively weak grammars as they rely on new perspectives and use theory to interpret texts.

SFL’s contributions to the unpacking of vertical discourse lies in the study of grammatical metaphor (Halliday 1998, 2004, 2008; Halliday & Matthiessen 1999; Martin 1989, 1993b, c; Simon-Vandenbegen *et al.* 2003). SFL’s model of language is stratified, consisting of three layers: phonology, lexico-grammar and discourse semantics. Each layer is realized by the other. The realization of discourse semantics

through lexico-grammar can take the congruent form or the incongruent form. The congruent form refers to the realization of participants by nouns, process by verbs, quality by adjectives and logical relations by conjunctives. When process and quality are realized nominally and logical relations realized verbally, the incongruent metaphorical form appears and is termed grammatical metaphor. On the side of SFL analysis, grammatical metaphor is identified as the key linguistic resources for construal of vertical discourse. Martin (forthcoming) demonstrates the critical role grammatical metaphor plays in construing verticality. With nominal groups realizing processes and qualities, grammatical metaphor builds up abstraction, enabling the construction of vertical discourse. With Agentive relationships realized by verbal groups achieving the “cause in the clause” effect, the metaphorical device helps to construct a deep level of theorization. Furthermore, it is also the means to construe abstract technical concepts and enable the integration of hierarchical knowledge. However, Martin (2007) points out that grammatical metaphor loses itself in definitions and changes into technical terms, thus producing “the distilling impact of technicality”.

The exchange of ideas between SFL scholars and Bernsteinian sociologists on grammatical metaphor and technicality and on the functions of different knowledge structures stimulated Maton’s interest in semantics which has recently been associated with his Legitimation Code Theory. Maton (2008, 2009) argues that Bernstein’s model fails to account for the fact that horizontal knowledge structures are capable of creating ideas in an integrative and cumulative manner, highlighting that Bernstein’s framework is just such an example. Therefore, a continuum of stronger and weaker verticality and that of stronger and weaker grammaticality are required to characterize knowledge development across disciplines and the form of relations between the theoretical and the empirical. To explore such continua, Maton (2008, 2009) proposes the use of semantic gravity to analyze relations between knowledge and its social and cultural contexts and semantic density to examine relations between knowledge and its symbolic meaning. Semantic gravity is determined by the extent to which meaning depends on the context of its use. A higher degree of dependence will make semantic gravity relatively stronger and vice versa. In this vein, vertical discourse exhibits weaker semantic gravity than horizontal discourse. Semantic density describes the degree of meaning condensation within symbols. More meaning is condensed within a symbol where semantic density is stronger (SD+), less condensed when it is weaker (SD-). The two variables are independent of each other. Semantic density may be stronger while semantic gravity is weaker. Maton labels the different strengths of semantic gravity and semantic density as “legitimation codes of semantics” or “semantic codes” for brevity. These concepts may be used to describe the processes of either weakening or strengthening semantic gravity and semantic density. For example, it is possible to strengthen semantic gravity

by concretizing and contextualizing abstract or generalized ideas and weaken semantic density by substantiating an abstract idea with relevant empirical details. Maton claims that weaker semantic gravity and stronger semantic density constitute the basis of strong L1/verticality while stronger semantic gravity and weaker semantic density form the basis of L2/grammaticality.

Based on theories of knowledge structures and recent SFL's research on instantiation, Liu (2010) conducted a case study of R2L as it was being incorporated into a writing course entitled Intensive Academic Writing (IAW) at Center for English Teaching in an Australian university. This is a pre-sessional five week course mostly for Chinese students preparing to enter a post-graduate program in the university. This study focuses on teacher talk around the text in the Preparation and Detailed Reading phases. It explores relations between elaboration and academic discourse. What linguistic devices are employed in scaffolding academic readings? How does meaning shift from an academic text to teacher's elaboration on it? First patterns of lexical and discursal relations are identified and analyzed in terms of reinstatement of meanings. Then teacher's pedagogical treatment of grammatical metaphor and technical terms is examined respectively along the clines of the semantic gravity and the semantic density (Maton 2009). The findings show that teacher's elaboration of academic texts belongs largely to everyday practical discourse for the purpose of scaffolding students' reading comprehension. Because of its choice of stronger semantic gravity and weaker semantic density, it is "oral, local, context dependent and specific, tacit, multi-layered and contradictory across but not within contexts" (Bernstein 1996: 157). However, its relations with academic texts interact in complex ways. In elaboration of lexical and phrasal meanings, we identify patterns of generalization which include de/classification, de/composition and exemplification. Elaboration of de/classification tends to be more general and less committed while that of de/composition and exemplification may be more specified and committed.

When grammatical metaphors are unpacked, there are apparent shifts in semantic gravity. In unpacking experiential metaphors, congruence takes the place of incongruence, thus strengthening semantic gravity. The process of restoration is localized and context-dependent. Meanwhile, the shifts of meaning are double-barreled. In the case of nominalized grammatical metaphor, the unpacking misses certain connotations implied but reveals the people and the things formerly elided. Furthermore, attitudinal meanings may be instantiated. When it comes to logical metaphor, the use of explicit conjunction makes explicit the internal conjunctive relations though it may affect the grading of probability. To facilitate students' understanding of explanations and arguments in academic texts, elaboration may begin with a meta-explanation summarizing the inherent links among the sentences.

Elaboration of technical terms is accompanied by shifts in semantic density. Technical terms are discipline-specific, mostly originating from grammatical metaphors. Their technicality is significantly weakened in elaboration. In social sciences and humanities, technical terms are often axiologically charged, invoking different attitudinal reactions among readers with different political inclinations. Naturally when a teacher elaborates a technical term, he/she usually infuses his/her attitudes into the elaboration which may not necessarily be the author's point of view. This is especially the case in the humanities.

In general, linguistic analysis of R2L is largely limited to a few ideal samples in the demonstration lessons by Rose. Grounded on the dialogue between SFL and Bernstein's sociology of education, Liu's study is the first of its kind to examine the adaptation of R2L in a tertiary setting at the micro-level of classroom practice. More work needs to be conducted on how R2L is adapted in the classroom across primary, secondary and tertiary levels.

On the theoretical front, Maton's work on semantics has posed new challenges for SFL. For example, the linguistic manifestation of semantic gravity and semantic density is not confined to grammatical metaphor and technicality only. More research is required for interpretation of shifts in gravity or density in linguistic terms. The dialogue between SFL and Bernstein's sociology will continue in a fruitful manner.

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