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# Bernstein, Bloom and the analysis of pedagogy in South African Schools

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## Abstract

Bernstein was interested in understanding not what was relayed in pedagogic encounters but the actual relay itself. He focused on the medium rather than the message of pedagogic communication. This concentration on the medium of pedagogy rather than its message enabled an understanding of how inequality was reproduced in British schools where the message being transmitted was tolerably the same across schools. However, in some of the South African schools in our study, two main issues arose that gave our use of a classification and framing analysis an uncomfortable gloss. Firstly we found consistent evidence for a complete failure in pedagogic relay and secondly, when relay did happen, the content of the message being relayed was often of an abysmal quality. The conceptual and analytical tools offered by Bernstein did not allow us to work in detail with the second of these issues – the quality of the message. In order to do this, we turned to Bloom's Revised Taxonomy. The Bloomian analysis is all about the levels of complexity within the message transmitted and this gave us a seemingly neat analytical combination where Bloom honed in on the complexity of the message and Bernstein on the pedagogic medium the message is carried within. This paper explores how we grappled with the intersection of these two analytical tools when analysing pedagogy and assessment in South African classrooms.

## Introduction

As we visited schools in and around Pietermaritzburg to gather data<sup>1</sup> about the implementation of the latest educational reform initiatives the brutal nature of the reproduction of inequality overrode finer questions about the nuances of policy implementation. One left the lessons with a palpable sense of learners being channelled by the quality of their school experience into radically unequal destinies. As we began to analyze the data it did not seem to matter

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The study is a four year project funded by the NRF, which aims to track the implementation of the FET curriculum in English, science and history classrooms in four secondary schools in the Pietermaritzburg region of KwaZulu-Natal.

what instrument was used. The rural and ‘township’ schools used in our study mostly registered a flat line with various pedagogic measures, while ex-House of Assembly schools showed fairly healthy signs of pedagogic activity. To over dramatize the experience, it was like searching for vital signs of life with one patient dead and the other alive. It did not matter whether we checked breathing, pulse or brain waves, the first registered a nil response, the second all sorts of activity. In this paper we want to give an account of two of the instruments we used to analyze the data and discuss what each of them offered, how each was limited, and how the two instruments both resonated and clashed with the other.

The two instruments were taken from Basil Bernstein and Benjamin Bloom, two exemplary pedagogic thinkers who not only theorized the pedagogic field but produced effective tools to work its terrain. For a tool to be effective it must specialize, and to specialize means being designed for a particular set of purposes. So as we give an account of the limited nature of the two instruments under discussion we are not critiquing the instruments but rather getting a handle on how best to use them. We have to attend more closely to what our instruments are in the field of educational research, of what to use, when, where, how and why, and then to get on with the job of using them proficiently.

## Choosing Bernstein

We had specifically chosen Bernstein as our initial theoretical guide for the research project because he had interrogated the issue of inequality in education by unpacking the black box of education reproduction theory (Jacklin, 2004). He explained inequalities in scholastic achievement of children of different social classes on the basis of inequalities in ‘what knowledge was taught’ and ‘how it was taught’. In a number of studies over 40 years he clarified what the differences were between middle class and working class learners, ranging from their home life and language modalities to differing forms of pedagogy experienced in different schools. Bernstein provided something that was lacking in other reproduction theories. As he put it:

Paradoxically, what is missing from theories of cultural reproduction is any internal analysis of the structure of the discourse itself, and it is the structure of the discourse, the logic of the discourse, which provides the means whereby external power relations can be carried by it (Bernstein, 1996, p.19).

One can hear in this quote a frustration with reproduction theorists like Bourdieu and Althusser who were lauded for their analyses of education when most of what they offered had to do with power relations external to schooling. Bernstein offered a richer tool box of concepts directly adapted to the internal working of the pedagogic world.

In using Bernstein in this way we were able to rely on the excellent work of numerous South African academics who had recognized his usefulness. The influential work of Bernsteinians like Muller, Ensor, Davis, Hoadley, Reeves, Breier and Gamble (see chapters in Muller, Davies and Morais, 2004) helped us to see how it was Bernstein could be productively applied to pedagogic analysis. In particular it was the excellent PhD of Hoadley (2005) that revealed the full extent Bernstein could be taken to when working with the issue of the reproduction of inequality in the classroom. Yet from the beginning we found a Bernsteinian analysis unable to deal with the most basic intuitive judgement we felt about the lessons – that they were either educationally worthwhile or worthless. After attending history and science classes at opposite ends of the social class spectrum and observing the respective teachers deliver mainly content driven, teacher directed lessons, our classification and framing analyses often looked fairly similar across the schools even though we intuitively felt that the lessons were of noticeably differing qualities. It was specifically the quality of the message delivered through the pedagogic interaction that Bernstein gave us no purchase on. He allowed all sorts of clear analytical moves that carved the lessons up into categories around the boundary strength between everyday knowledge and school knowledge, the relationship between different school subjects, the way the subject itself was divided up, the control the teacher and learners had over the selection, sequencing, pacing and evaluation practices of the lesson. These are key variables in how a pedagogic message is transmitted and immensely useful in providing clear criteria for both identifying these variables, measuring their strength, and working on underlying combinatorial matrixes that provide differing modalities of pedagogic transmission. It is enlightening, for example, to take a look at pedagogic transmission in terms of:

- how clearly the teacher worked with the subject in its own pure terms or allowed everyday forms of understanding a place within the lesson;
- how clearly the subject discipline is separated off from, or integrated with, other subjects;

- how clearly the specific sections of the subject discipline are separated off from, or integrated with, each other;
- how much influence the teacher allows the learners in terms of selection of knowledge in the classroom;
- how much influence the teacher allows the learners in terms of sequencing the lesson;
- how much influence the teacher allows the learners in terms of pacing the lesson;
- how much influence the teacher allows the learners in terms of assessment strategies in the lesson.

These variables can be clearly separated off, analysed and used to build modalities of pedagogy, but once we had done this analysis we still wanted to know:

- what was the quality of the way the teacher combined or separated everyday knowledge from school knowledge;
- what was the quality of the teachers links to other subjects or her choice to remain within her subject domain;
- what was the quality of her moving between themes within her subject or when staying with one theme;
- what was the quality of her selection of knowledge or the learners' selection of knowledge;
- what was the quality of her sequencing of the lesson or the learners' sequencing of the lesson;
- what was the quality of her pacing of the lesson or the learners' pacing of the lesson;
- what was the quality of the evaluation practices in the lesson.

An extreme example will show up the problem clearly. Two teachers could both give highly classified lessons that exclude everyday knowledge, make no

links to other subjects and stay focussed on the specific section under review. Furthermore, the lessons could both be strongly framed with the teacher in control of the selection of content, its sequencing, pacing and evaluation. But, we would want to say at the end of these lessons that the one lesson was an intense experience of excellence and the other the most boring collection of twaddle. We all know this to be possible. Yet on a Bernsteinian classification and framing matrix these two lessons would come out identical, even though the quality of knowledge transmitted and the pedagogic experience had been of two different orders.

This is not necessarily a weakness of Bernstein or those who have worked hard at turning his theoretical insights into functioning analytical tools that have explicit purchase on educational events. It could be that asking Bernstein's conceptual apparatus to deliver on the qualitative nature of the message being transmitted and learned in the classroom is to expect something it was not designed for. One does not use a dissecting knife to listen to the beat of the heart. Clarity is needed over what a Bernsteinian classification and framing analysis does and does not do, especially for a study of education in South Africa. One way to work towards this is to bring to mind the difference between working class schools in Britain and South Africa.

## The South African school context

Although there are serious differences in the quality of schooling across different social classes within Britain, most schools are functioning entities with adequate resources and staffing, unlike equivalent schools in the township and rural areas of South Africa. For Bernstein the difficulty was explaining how inequality was being reproduced when schools in Britain were mostly delivering the content of the curriculum. A major part of his answer was to point to the different ways teaching and learning were relayed – to the modalities of pedagogy. If the *message* was tolerably the same, then the source of inequality lay in the different forms of its *transmission*, and these differences could be tracked to similar formal divisions in social class. It was here that he opened the black box of reproduction theory to the pedagogic logics operating in schools. It stands as one of the most powerful Platonic moves in recent educational theory as it offered a way into seeing the abstract forms of education beyond the endless chatter going on in classrooms. Much like his rather more flamboyant counterpart in media studies, Marshall McLuhan, he can be read as maintaining that “the medium is the message”

(McLuhan, 1964, p.7). It is the form of the message, rather than its content, that formats consciousness.<sup>2</sup> It is an insight of enormous power and simplicity as it enables an ability to get at key underlying forces structuring consciousness beyond the continually shifting messages running through the system. Television, for example, brings with its very way of being a set of foundational experiences that exist before the variety of programmes on display. Rather than getting caught up in an interminable project of tracing ever changing contents, McLuhan cut through to the essence of media and its impact on humankind. Bernstein performed a very similar service for Education Studies– he saw through the cacophony of messages being transmitted through education into the essential forms behind them. By focussing on this dimension Bernstein was able to work with the issue of the reproduction of inequality in education by being able to compare pedagogic forms to social class forms and rigorously study their interaction. He showed us how to work across levels of analysis and still keep track. As powerful and useful as this insight was, it came at a cost, and it is a cost one pays dearly for in a South African context.

The difficulty with concentrating on how the pedagogic message is transmitted is that the poor quality of the message itself gets lost in focusing on the modalities of pedagogy. In South African schools the differences are far more gross than in Britain, revolving not only around whether pedagogy comes in competence or performance modes but whether it comes at all and what is said when it comes. It is not only a question of the forms of relay but whether relay happens at all and what is stated when it does. This is the rupture of pedagogy that Hoadley (2005) and Jacklin (2004) encountered when analyzing their data from underprivileged schools, and it is what we encountered as well. Hoadley's (2006) solution was to add to the Bernsteinian

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There is some overlap between McLuhan's hot and cold media and Bernstein's classification and framing. Strong classification and framing is similar to 'hot' media, and weak classification and framing similar to 'cool' media. Hot media, for example a lecture, are identified by high redundancy where the message has explicit and strong boundaries (strong classification) and low active participation by participants (strong framing). Cool media, for example a seminar, are identified by the demand for high participation in constructing the message (weak framing) and low redundancy (weak classification) that allows for various message forms to be constructed. As Bernstein then extends his analysis from pedagogic modalities to social class modalities, so does McLuhan extend his analysis from media forms to societal structure. For a discussion of the intersection between Bernstein and McLuhan, see Abraham Stahl (Stahl, 1975). He argues that Bernstein's elaborated and restricted code comes from a deeper source than class, it comes from a basic shift from orality to literacy, so well charted by Ong.

analysis of how knowledge was being transmitted a category ‘zero’ when there was no pedagogy happening.<sup>3</sup> As useful as this move is in terms of the way the message was being carried to the learner it did not help us grapple with noticeably differing qualities in the content of the message itself. Her zero usefully dealt with failure in the relay of the message, its rupture, not the quality of the internal message itself. She points to a situation where there is only static being transmitted. At this point a debate about the respective differences of television and radio as media becomes redundant until some coherent message gets through. This forces a focusing on the message itself, as meaning has to be conveyed for the medium to show its own particular stamp. Hoadley helped us work with the complete failure of message delivery, not with working out the quality of the messages themselves.<sup>4</sup> To work with the message in its own terms we had to use a different set of analytical tools to those Bernstein offered and we turned to Benjamin Bloom and his infamous taxonomy of knowledge for some help. It turned out to be both a productive and problematic move, as we shall see.

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<sup>3</sup> Hoadley (2006) locates one centre of the problem in the absence of evaluation. When there is no evaluation rule operative in the classroom, it causes the whole lesson to collapse inwards, as there is no distinguishing between what is and what is not valid knowledge. Her whole analysis points to the centrality of clear and explicit evaluation as the structural pole on which an analysis of the transmission of pedagogy depends. This is of particular importance for working class learners, where explicit evaluation rules (along with weak pacing) gives them some control over their learning and enables a flexible reaching towards clear outcomes.

<sup>4</sup> When Hoadley (2005) encountered the same problem of analysing the contents of meaning she turned to Dowling (1998) for help. He provided a theory of knowledge that worked a distinction between localized everyday meanings of the public sphere and esoteric meanings of disciplinary specializations. It is an elegant move. Other researchers using a Bernsteinian framework – like Jill Adler, Diane Parker and Zain Davis in the Quantum project – have encountered a similar problem. At a certain point in the analysis Bernstein’s toolbox stops working, and one of the points is when one wants to go into the content of pedagogy. The Quantum project, for example, has enlisted Hegel’s *Logic* for guidance on how knowledge is structured. We turned to Bloom as we were not looking for a theory of knowledge but a working analytical tool that had been tried and tested at a technical level across subjects, schools and countries. See Reeves (2005) for another, quite brilliant, Phd that grapples with the issue of how pedagogic content intersects with pedagogic style in relation to the reproduction of inequality.

## Looking to Bloom to analyse the quality of the message

The combination of Bernstein and Bloom is not unheard of in the annals of educational research, peculiar as the combination might sound. Bloom's taxonomy of knowledge is associated with a dour setting of lesson plan outcomes and exam papers according to hierarchical levels of knowledge complexity, a far cry from the revolutionary critique Bernstein provided of capitalist educational practices. Yet if one goes back to the 1960s and '70s one finds their work united in the attempt both to unravel the logic of the reproduction of inequality and to address the question of what to do about it.<sup>5</sup> Both Bernstein's and Bloom's work was used to understand how cultural deprivation and poverty impacted on educational achievement with close attention paid to the effects of the home environment (Hunt, 1966; Slaughter and Epps, 1987). It turns out, when reading through the corpus of Bloom's work, that his major concern was the reproduction of inequality in education, and most importantly within this overarching framework, what could be done about it through schooling. In *Human characteristics and school learning* Bloom presents the fullest statement of his position. As it has been backgrounded in the face of his ubiquitous taxonomy, allow us to briefly summarize its major points and point to how it intersects with the work of Bernstein.

The thrust of the book centres around pedagogic interventions that will ensure students from different backgrounds achieve the same outcomes. In the research leading up to this book Bloom and his students had investigated the influence of family background on school achievement, isolating important variables in the interactions between adults and children such as quality and quantity of reading, the nature of conversation around family rituals like meal times, and the quality of educational resources opened out by the family to the child. Disturbed by the massive influence of the home environment on school performance, Bloom worked on what could be done to alter this depressing

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There are all sorts of links, old and new. In a book called *Compensatory education for cultural deprivation*, Bloom and others (Bloom, Davis, & Hess, 1965) report on a research conference of the same name. The book summarises what is known about the problem of education and cultural deprivation and suggests critical problems for further research. Bernstein's early work on social class and linguistic development (Bernstein, 1961) is listed in the book's annotated bibliography of research studies relevant to the area. More recently, a Norwegian PhD student is also employing Bloom along with Bernstein as a tool of analysis (Haugen, 2006).



finding and help learners from all backgrounds do well at school. Taking specific and explicit learning tasks as his unit he worked on three major variables that impacted on learner performance: cognitive entry behaviour, affective entry characteristics, and quality of instruction. The first deals with making explicit the basic forms of knowledge and skill required as preconditions to do the task and then ensuring that learners needing help in this regard are taught what is needed to complete the task successfully. It is accepted that different learners will need different amounts of time to successfully complete the task, especially in the initial phases. The second works on the interest, attitude and self conception of the learner to ensure that learners are all motivated to do the task. The third deals with the quality of instruction given by the teacher, focusing in on the explicit nature of the directions given, the involvement of the learner in learning activities, and the explicit nature of the feedback given during and after assessment. When correctly applied, the end result should be something close to ‘mastery learning’ where almost all the learners are able to do the task, shifting the focus of education from equality of opportunity to equality of outcome and countering the disabling influence of family class background.

Current Bernsteinian studies attempting to address the same issue of what pedagogic interventions interrupt the reproduction of class inequality have, curiously, come up with very similar recommendations around clear evaluation rules and weak pacing, although a focus on the nature of content and how it is hierarchically organized is less apparent (Morais and Neves, 2001). What is disturbing about these Bernsteinian studies is the lack of awareness of the research traditions within education that have already pointed to the same answers with convincing research. Bernsteinians will have to stop reinventing and re-describing the whole educational wheel in Bernsteinian terms and begin building on the work of those before them. As one of Bernstein’s best students puts it, it is time to stand on the shoulders of giants, not redraw the silhouette in his image.<sup>6</sup>

Taking a larger view of the intersection between Bernstein and Bloom we can see that two very different educational traditions are being rubbed up against

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When reading Neves and Morais (Neves and Morais, 2001) which partially undertakes an exploration of cognitive and socio affective complexity one cannot but notice the parallels to Bloom’s cognitive and affective taxonomies, only his are outlined in far more detail with far more research attached to both its formulation, investigation, trialling and discussion. The ‘standing on the shoulders of giants’ metaphor is taken from Muller (Muller, 2006)

each other. As a sociologist, Bernstein worked with the forms of pedagogy along with its basic patterns, variations, organizational hierarchies and intersection with social class. Bloom's work is located mostly within the tradition of instructional design with its specialized focus on the systematic development of instructional and content specifications and outcomes. It analyses learning needs and outcomes and develops systems, materials and activities to meet these needs as well as running trials and evaluations of all instruction and learner activities to ensure their *usefulness* and work on *improvements*. This is the world that Bloom's taxonomy flourishes in, and this was the world we turned to for explicit guidance on the complexity of the message rather than the form of transmission.<sup>7</sup>

We recruited a revision of Bloom's taxonomy (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintich, Raths and Wittrock, 2001) which provided a useful analytical tool to identify levels of knowledge complexity and cognitive process complexity within the lessons and the assessment tasks. The original taxonomy had not sufficiently separated the knowledge and cognitive process dimensions. Bloom's taxonomy had conflated these dimensions into a one dimensional representation of six levels of increasing cognitive complexity: knowledge, comprehension, application, analysis, synthesis and evaluation. Within the revised model the knowledge dimension is described as consisting of several levels, each level representing a different and increasingly complex form of knowledge. Likewise the process dimension also consists of several levels, each level representing more demanding and complex cognitive processes. This has resulted in the creation of a two-dimensional classificatory tool which can be used to categorise and describe the kinds of knowledge learners work with (knowledge dimension), **together** with the ways in which learners work with the knowledge (cognitive process dimension).

The revised taxonomy is assumed to have a loosely hierarchical nature, in that

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Although Bloom's Taxonomy worked effectively within Instructional Design, it does not in any way encompass the field. His other work on Group Learning (Bloom, 1984), Automaticity (Bloom, 1986) and Mastery Learning (Bloom, 1988) provide excellent examples of his work in the specifics of Instructional Design. It is here, along with classics in the field like Gagne (Gagne, 1985) and Merrill (Merrill, 1992) that we gain insight into goodness of instructional design, of what the principles of designing good instruction are at the most fundamental of levels. It gets us beyond Bloom's Knowledge and Cognitive Complexity model, but this would take us beyond the confines of this paper. It is sad, however, that this rich source of researched pedagogic expertise is notably underemphasized in our English University Educational Curricula (based on our personal experiences of these universities).

a more advanced level subsumes the levels below. For example, it can be assumed that a person operating at the application level has mastered the cognitive demands required for working at the knowledge and comprehension level.

The main levels in the knowledge dimension are:

- A. Factual knowledge** – The basic elements that students must know to be acquainted with a discipline or solve problems in it.
- B. Conceptual knowledge** – The interrelationships among the basic elements within a larger structure that enable them to function together.
- C. Procedural knowledge** – How to do something, methods of enquiry, and criteria for using skills, algorithms, techniques, and methods.
- D. Metacognitive knowledge** – Knowledge of cognition in general as well as awareness and knowledge of one's own cognition.

The main levels in the cognitive process dimension are:

- 1. Remember** – Retrieving relevant knowledge from long-term memory.
- 2. Understand** – Determining the meaning of instructional messages, including oral, written and graphic communication.
- 3. Apply** – Carrying out or using a procedure in a give situation.
- 4. Analyze** – Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose.
- 5. Evaluate** – making judgements based on criteria and standards.
- 6. Create** – Putting elements together to form a novel, coherent whole or making an original product.

(Krathwohl, 2002, p.215)

Each main level has a number of sub-levels associated with it, which make for finer distinctions of knowledge and process within the level. Presenting these levels on a table in a grid fashion creates a number of intersecting cells which make up what is known as a taxonomy table. For ease of presentation, only the main levels are shown on the table here.

**Table 1: The taxonomy table**

The knowledge dimension	The Process dimension					
	1. Remember	2. Understand	3. Apply	4. Analyse	5. Evaluate	6. Create
A. Factual knowledge						
B. Conceptual knowledge						
C. Procedural knowledge						
D. Metacognitive knowledge						

Unlike Bernstein's classification and framing rubrics that enabled an analysis of the different types and components of pedagogy based on classification and framing relationships, this table provided us with clear criteria for recognizing qualitative levels of cognitive demand and knowledge complexity within the various lessons and assessment tasks. The difference can be seen by comparing the above taxonomy table to a part of a Bernsteinian rubric (Fig. 1) used for analyzing the control teachers and learners have over the evaluative criteria of the lesson (Hoadley, 2006). Here it is the communication of the criteria that is key and not the cognitive complexity of the assessment task.

**Figure 1: Excerpt from a classroom analysis rubric used by Hoadley (2006) to analyse the evaluation aspect of framing**

**DISCURSIVE RULE: EVALUATION CRITERIA (F<sup>+</sup>)**

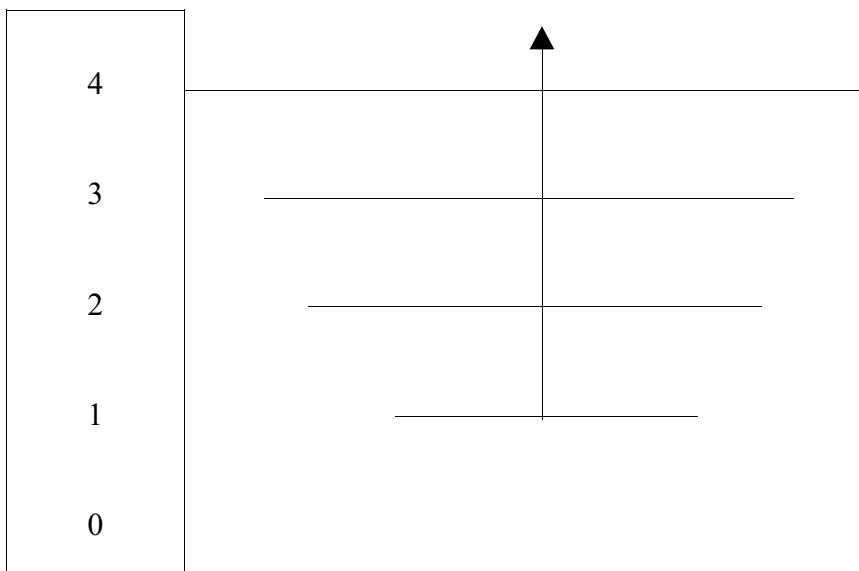
The extent to which teacher and learner have control over the evaluative criteria of the instructional knowledge pertaining to the meaning of concepts and principles and their appropriate realisation.

<b>5. In the course of learners conducting an activity or task</b>	F <sup>++</sup>	F <sup>+</sup>	F <sup>-</sup>	F <sup>--</sup>	F <sup>0</sup>
	Evaluative criteria very clear and explicit	Evaluative criteria quite clear and explicit	Evaluative criteria quite unclear and implicit	Evaluative criteria very unclear and implicit	Transmission of evaluative criteria not observable
	The teacher constantly moves around and monitors what learners are doing and makes comments. To the whole class, and to individuals, she repeatedly goes over what constitutes an appropriate performance.	The teacher makes some points, either to the whole class or to individual learners, so as to clarify what is expected of them in the task.	The teacher makes a few comments during the course of the task and looks at some of the learners work or listens to them read. However, this is not sustained and the criteria for a successful production are not made explicit to all.	The teacher looks at a few learners' work when it is brought to her attention. She rarely or never listens to them read. She seldom makes a comment to the learner. Comments are not extended to the whole class.	The teacher engages in other work in her space and is not seen to look at what the learners are doing. She makes no comment on the work as it proceeds. No action is taken to ascertain what the learners are doing.

## Hierarchical depth and combinatorial analysis

The taxonomy table (Table 1) works with hierarchical levels of complexity. It starts with the simplest level and builds up to more complex levels. Taking one dimension rather than two, we can illustrate its essentially hierarchical structure in the following figure.

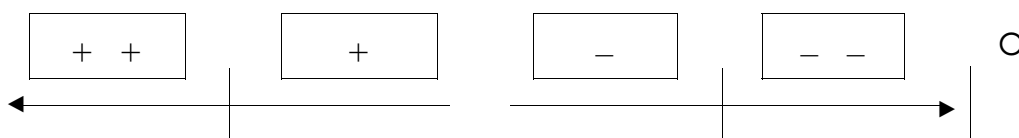
**Figure 2: The ordering structure of the Bloom's taxonomy table (Table 1)**



Within the hierarchical structure, the higher levels include the lower levels as their conditions of possibility. This gives it depth, the higher carries the lower within itself. Level 1 is included in level 2 which is included in level 3. For example, to show the level of application (3) one has to firstly remember (1) what it is and understand it (2). Although this hierarchical principle is more loosely applied within the Revised Taxonomy, it still provides the guiding operating principle.

The framing example (Fig.1) works with a completely different basic structure which can be illustrated in the following way.

**Figure 3: The ordering structure of the classification and framing rubric (Fig.1)**



The framing structure breaks a line up into various strengths ranging from weak to strong. It uses an either/or logic. Either weak or strong.<sup>8</sup> Strong does not include weak in the way that level 3 (apply) of Bloom's cognitive dimension includes level 1 (remember) within it. Here lies the basic reason why a Bernsteinian classification and framing analysis will never provide interior depth. This is no crime. As an intellectual tool it offers much of value in a dissecting way that gets us to how a pedagogic message is transmitted, the complex types of relationships between these elements, the patterns they form, the varieties they produce, the modalities they document. The depth produced by a Bernsteinian analysis comes from the combinatorial matrix, of this added to that minus that with this. Here depth comes from how the parts play with

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8

The weakness or strength of classification and framing should not be set out in a judgmental manner that makes the one good and the other bad. The strength of Bernstein is that he offers a neutral analytical device that describes pedagogic transmission in a way that breaks it down into essential parts. Weak is not bad, strong is not good. Weak is weak, strong is strong. It is in the nature of the combination of the elements and the context the elements are working within that judgments can be made. If one reads F++ and F- for evaluation on Hoadley's rubric, it seems as if F++ is good practice and F- bad practice. This is not helped by F° appearing on a continuum that goes from nothing to weak to strong – from zero to hero as it were. Hoadley certainly does not want F° to be thought of as framing that is so weak as to be almost non-existent, she points to F° as the rupture of framing. For her the key point is that a classification and framing analysis should stay with how evaluation is transmitted not with the actual content quality of the evaluation itself. This keeps the required sharpness of focus on the modalities of pedagogy. However, the F° did not help us when the evaluation rule was present and strongly framed in our classroom visits, but the particular type of evaluation event was poorly judged. Sometimes the learners could recognize and realize what the teacher required, that was not the problem in some instances, it was specifically the quality of what the teacher demanded.

each other in differing contexts, rather than what the parts contain inside themselves.<sup>9</sup> Combining Bernstein and Bloom was a way of mixing combinatorial analysis with hierarchical depth, of bringing together variations in how the pedagogic message is relayed with the qualitative complexity of the message itself.

## Using the different tools of analysis

We now provide an example of how a Bloomian analysis works so that we can see its difference to a Bernsteinian classification and framing analysis. The specific analysis is of pedagogy and assessment in grade 10 history classrooms in two very different kinds of schools. Lincoln High is an ex-House of Assembly school that is well maintained, well resourced, well managed with an array of well qualified, highly motivated teachers, many of them paid by the School Governing Body. The matric pass rate has been 100% for a number of years. Fees are R7 800 per year. Enthabeni High School is a black, ex-Department of Education and Training school located in a rural area. Fees are R150 per annum. No teachers are funded by the School Governing Body. The matric pass rate was 86% in 2003 and 88% in 2004. According to the principal, only 10% of the parents are working with over half the learners living with their grandmothers. It is fairly obvious, given our existing knowledge about the reproduction of inequality through schooling, that the two schools chosen for this analysis are going to throw up very different

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9

We are not maintaining that Bernstein does not work with Hierarchical analysis, only that the Classification and Framing instrument is not the best place to look for it. Bernstein's Pedagogic Device is deeply informed with Hierarchical principles (Hugo, 2004) as is his late theorization of Vertical Discourses (Bernstein, 1999). Indeed, one could summarize Bernstein's whole project as the attempt to understand how specialization of consciousness was differentially distributed on social class lines. However, Bernstein's intricate system did not get into the specifics of the hierarchical complexity going on inside the instructional event, at this point the tool-kit he provides shifts into a combinatorial analysis utilizing relations of Classification and Framing rather than hierarchical analysis. It is almost as if, after working through the whole pedagogic device all the way down from international, national, provincial and local dimensions and finally getting into the classroom and into its instructional discourse, one opens it out and finds a set of variables to explore, not a deeply structured, hierarchical event. Bloom's insight was that instructional discourse is fundamentally hierarchical in structure, not in relation to regulative discourse, but in its own terms. What flattens out at the bottom of a Bernsteinian analysis suddenly opens out in depth when using Bloom. The point is to be able to use both forms of analysis, Bernstein for the transmission of the pedagogic code, Bloom for the hierarchical complexity of the pedagogic message



results, but what we want to demonstrate through the analyses are the different ways that the classification and framing matrix work in comparison to Bloom's taxonomy.

Classroom data were collected by video taping five consecutive Grade 10 history lessons in each school. Starting with pedagogy, a Bernsteinian analysis of pedagogic discourse shows that history teacher in both schools is definitely in control of the sequencing and selection (the framing is strong). At Enthabeni the pacing is strongly framed while at Lincoln learners have a little more control of the pacing of the lesson. It is in the evaluative rule that there is a marked difference between the two classrooms. The Lincoln teacher generally used strong framing, asking the learners to elaborate on answers or comments and signals what is missing from the learner's production. For example, after a learner has explained the philosophy of capitalism, she says:

You have given the philosophy now, which is good. . .but just to add to that – private ownership of wealth in a nutshell.

At Enthabeni, the evaluative criteria were weakly framed. The teacher looks only for yes/no answers. Incorrect answers are generally ignored or the reasons for them are not sought. Correct answers are accepted and may be praised, but are not elaborated on. Yet the difference in framing of the evaluation criteria still does not adequately describe the qualitative and cognitive differences between assessment in the two classrooms.

Moving onto assessment, Bloom's Revised Taxonomy is a tool most useful for analysing the cognitive complexity of questions asked in the classroom, of classroom tasks and of written tests and assignments. A count and analysis of the instructional questions asked by the teachers' shows that the number of questions asked by the two teachers over five lessons is similar. However, 60% of the questions asked by the teacher in the Lincoln classroom are higher order (that is requiring understanding, analysis, application, evaluation or creation) whereas only 18% of questions in the Enthabeni classroom are higher order.

Three tests written by Grade 10 history learners in each school were analysed. Each test question was analysed using Bloom's Revised taxonomy. The table shows the percentage of marks in a particular category according to the type of knowledge and the cognitive level required by the questions in the test. A comparative analysis of the assessment tasks given in History at Lincoln and Enthabeni shows the following pattern emerging:

**Table 2: Knowledge dimensions and cognitive complexity of history tests written at Enthabeni and Lincoln**

The knowledge dimension	The cognitive process dimension					
	1. Remember	2. Understand.	3. Apply	4. Analyse	5. Evaluate	6. Create
A. Factual knowledge	(E) Test 1 100% (E) Test 2 100% (E) Test 3 100% (L) Test 1(28%) (L) Test 2 (26%) (L) Test 3 (20%)	(L)Test 1 (24%) (L) Test 2(10%) (L) Test 3(34%)		(L) Test 3 (2%)	(L) Test 3 (4%)	
B. Conceptual knowledge		(L) Test 2 (14%) (L) Test 3 (10%)		(L) Test 2 (12%)		(L) Test 2 (20%) (L) Test 3 (30%)
C. Procedural knowledge				(L) Test 1 (28%) (L) Test 2 (18%)	(L) Test 1 (20%)	

At Enthabeni all the questions in all three tests focused on remembering factual knowledge, whereas Lincoln's assessment practices ranged in complexity over both cognitive processes and forms of knowledge. There was still a strong element of remembering factual knowledge purely in its own terms, but a substantial number of questions assumed factual recall within it and went on to test procedural knowledge where learners had to analyze or evaluate source material. This analysis points to a very different dimension of evaluation to a Bernsteinian classification and framing analysis where the basic question revolves around the extent to which the teacher made the rules for evaluation of learners' performances explicit, enabling their ability to both recognize what was required of them and realize these requirements in practice. The Bloomian analysis is all about the levels of complexity within the message transmitted, the Bernsteinian analysis all about the medium the message is carried within.

Both of these kinds of analysis are important, although they tell us different things. The first points to the explicit and elaborated way the Lincoln teacher transmitted the criteria of assessment allowing for clear recognition of what was demanded along with a facilitation of the ability to realize these in practice. This contrasts with the implicit and restricted ways of the Enthabeni teacher that made it both difficult for the learners to recognize what it is he required and hence even more difficult to realize it in practice. The second kind of analysis points to the hierarchically rich, diverse and complex nature of assessment practices at Lincoln in contrast to the impoverished reliance on fact and memory at Enthabeni and provides clear and measurable analytical tools to reveal this dichotomy. With Bloom and Bernstein combined, complexity of message combines with an analysis of the way the message is transmitted.

It would be unfair to expect of the Bernsteinian research community an elaborate analysis of the structure of the message itself when this has not been their focus to date (although their current intersection with the Hallidayian research community is changing this, see Christie and Martin, 2007). But when one finds them doing an analysis of cognitive complexity without picking up on its rich history in Educational research and specifically in Instructional Design the results are worrying. In Bernsteinian studies such as Morais and Neves (2001), cognitive complexity finds itself split into only two levels – simple cognitive competence and complex cognitive competence – with elementary elaboration on how to recognize them. Rather than picking up on a ready made instrument that has been carefully trialled and tested, building on what the education community had to offer, they created a minor imitation and condemned themselves to an inferior repetition of the same.

## Limitations to the Bloom's analysis

As productive as the intersection of Bernstein and Bloom was in providing us with tools to analyse both the medium of pedagogic transmission and the complexity of the pedagogic message, after completing the Bloomian analysis we were still left with a frustrating sense that we had not got to the heart of the problem in terms of the quality of the message itself. Bloom's taxonomy proved too generic to really get us into an analysis of the message itself. This had something to do with Bloom's initial focus on pedagogic *outcomes*, not the content and process involved in getting to the outcome. The taxonomy was also intentionally kept simple to ensure widespread use. We found Bloom

most useful in identifying the complexity of evaluation, whether these were actual tests, outcomes for a lesson, or questions within a lesson. It was more difficult to use the Taxonomy to work with the actual flow of the lesson itself, of how the message evolved as the lesson developed. A differently specialized tool is needed for such a detailed analysis.<sup>10</sup>

Nor did Bloom give us purchase on how complexity intersected with quality. We found particular examples where the complexity of an assessment task could be identified on a surface level, but a whole range of processes were going on underneath that gave a very different picture. Sometimes an assessment task takes on the form of a higher order task but in reality what it is actually asking for is something that has been rote learnt or can be easily comprehended from a direct reading of the material. This is particularly so in History with the use of source material, which is supposed to give learners the opportunity to analyse and evaluate evidence. However these questions are often simply comprehension questions, or in other cases the source serves a purely decorative function.

An example is a test question that has a picture of the leaders meeting at the Congress of Vienna. However, none of the questions that follow actually require the learners to engage with the source at all. All of the questions simply require learners to recall factual information. The questions are:

1. Why did the great powers meet in Vienna?
2. Name the great powers and the countries from which they came.
3. List three principles followed by the Congress.

The first question appears to be fairly complex requiring understanding of conceptual knowledge. However, looking at the type of answers written by learners, it is clear that this question and its answer has been well rehearsed and should be categorised as Remember factual knowledge.

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<sup>10</sup> Sophisticated tools at this level both exist and are being developed. The Hallidayian community is working hard at tracing how pedagogic content is structured, even getting into its subject specific contexts (Christie and Martin, 2006). The Quantum project is currently developing a sophisticated analytical tool based partly on Hegel's *Logic* to explore the quality and development of knowledge within a pedagogic event. But already existing and well developed tools exist in this area, see Moseley, Baumfield, Elliott, Gregson, Higgins, Miller and Newton, 2005 for a good overview.

But even if a question did require the actual performance of a complex set of analytical skills rather than covering up for simple factual recall, the issue arose of whether the complex skill demanded was relevant to the context of the history lesson. Identifying a healthy range of cognitive and knowledge complexity within a lesson does not mean that the lesson was worthwhile. Complexity and quality, although related, are not joined at the hip. Generic analytical skills are very different to Historical analytical skills, and then even good historical analytical skills can be poorly placed in a History lesson. Bloom gave us no ability to judge the actual pedagogical worth of the skill demanded and performed because he gave us no purchase on the intersection of relevant context with cognitive and knowledge complexity. The specificity of the specialized context and the role it plays in judgements about the worth of the lesson was left to haunt us after both the Bloomian and Bernsteinian analysis had been completed. We still need to go deeper into the pedagogic event.

## Conclusion

In the silly but entertaining *50 Modern thinkers on education* (Palmer and Cooper, 2004), Bloom comes in at 17 with Bernstein at 30 (just pipping Foucault at 31). How these thinkers actually identify and work the pedagogic field, how their theoretical frameworks and analytical tools can be used to build up a coherent research strategy is not discussed. What we have are fifty little empires that die with the originator, fifty different languages that describe the same terrain in fifty different ways, each reaching a height of vision that one genius can reach in a lifetime of work. But if one looks closely enough under these great white men and their individual projects, a different world comes into view, one where whole communities of researchers work across the world on similar pedagogic problems using similar pedagogic tools of analysis and come to similar conclusions that carry some weight. Under the names of Bernstein and Bloom exist thriving research communities engaged in a far bigger project than carrying the name of their father to new generations, they are engaged in attempting to deepen already existing understandings of how pedagogy works in a complex world. The very real danger exists, however, that these communities fail to build on each other and become isolated islands, each attempting to build their own tower to the sky. In this article we attempt to place two working instruments of pedagogic research from two very different research communities next to each other and try to work out how they intersect and allow a more intricate analysis of the pedagogic world.

These two specialized research instruments are highly effective when used in the correct manner under the guidance of their respective research communities and one quickly becomes adept in their employment. It becomes easy to work with them without questioning how and why they work and what it is they can and cannot do. Heidegger called this 'ready to handedness', where an instrument is being used to do something and where paying attention to what it *is* can militate skilful employment. One does not want to be wondering about what a hammer is while hammering unless your thumb holds no value. But when an instrument breaks, or does not work, or loses its usefulness, one develops a 'present at hand' attitude where the bare facts of the instrument present itself for theorization. It is not the primary mode one wants to be in as a researcher, witness this paper engaged in reflections over these instruments rather than discussing the very interesting results that have been gained through their use. Papers by Bertram (2006) and Green and Naidoo (2006) show how these instruments work to a purpose, as do many others in the Bernsteinian and Bloomian research communities. But so long as the attitude of 'present at hand' does not dominate and cripple use but leads to more effective 'ready to handedness' of both instruments, then this paper will not have been a waste of time.

## Postscript

One always has to be careful of seductive narratives that work orders of priority. In this paper Bernstein partly becomes the foil for Bloom, and this can result in it seeming that Bloom has answers to issues that Bernstein did not deal with in any depth. Although partly true, this is not necessarily a fault of Bernstein's, given the need for instruments to specialize. But the order of presentation could have been reversed in this paper, with Bloom's Taxonomy being presented first and Bernstein being presented as one who saw more deeply into the pedagogic medium the message was being transmitted through. This way of writing up the account would have found Bloom enfolded in an ever enlarging conceptual sets of pedagogic categories, starting with instructional discourse and expanding outwards and upwards until the whole pedagogic device had unravelled itself. To end this paper we would like to give some reasons why we chose to present the order the other way around. It has specifically to do with the lack of a sustained tradition of Instructional Design in South African Education Studies within the English Universities. We tended to divide Education Studies into Psychology, Sociology, Philosophy and History of Education, and as useful as such dimensions of

Education Studies were, there was a tendency to lose the internal language of pedagogy itself. It has specifically been Bernstein within Sociology of Education, Piaget and Vygotsky within Psychology of Education, and Dewey/Freire within Philosophy of Education who have provided the language needed to describe educational processes, but mostly ignored within this stellar use was the research tradition of Instructional Design. It is here that one finds a specific focus on the internal mechanisms of pedagogy in their own terms. By ignoring this tradition we have lost the ability to talk intelligently about the actual instructional processes of pedagogy itself, of what its basic variables are as worked out from within the history of our discipline.

But the point behind this lack is not to call for the wholesale reinstatement of Instructional Design. It is a limited tradition only now coming to terms with its own short-sightedness (Reigeluth, 1999), but what it offers is an extended elaboration of the interior world of the smallest of Bernstein's nested Chinese boxes – Instructional Discourse, and that is, after all, why we spend so much time unpacking the bigger boxes in the first place.

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