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# **Knowledge-building**

## Educational studies in Legitimation Code Theory

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**In memory of Basil Bernstein, Pierre Bourdieu and  
Rob Moore**

# 1 Legitimation Code Theory

Building knowledge about  
knowledge-building

*Karl Maton*

## A practical theory

“Data! Data! Data!” he cried impatiently. “I can’t make bricks without clay” (Conan Doyle 1892/1981: 268). Sherlock Holmes thereby declared a desire to neither proclaim without evidence nor assume the facts will speak for themselves. In contrast, research into education and society all too often falls for this false dichotomy of speculation or description. Despite Kant’s famous argument of 1781 suggesting theory without research is empty and research without theory is blind, the two frequently remain divorced or, at best, not on speaking terms. Researchers often seem faced with concepts that make sense until encountering the reality of data and empirical studies that lack explicit conceptual frameworks. Theory remains freely-floating, unable to fully connect with data; empirical descriptions remain mired in minute particulars, unable to reach beyond the specificities of their objects of study. Moreover, this is not the only forced choice faced by researchers of education and society: qualitative or quantitative methodologies, analysing practices or shaping them, generalizability or depth, humanism or science, behaviour or meaning, and so on. Typically presented as jointly exhaustive and mutually exclusive, false dichotomies abound. It is as if above the entrance to the field is inscribed the legend ‘EITHER-OR’ and in crossing the threshold one must leave behind any possibility of ‘BOTH-AND’.

Such dichotomous thinking is deeply debilitating to knowledge-building about education and society. At the level of individual studies it gives rise to segmentation not only between theory and the data it purports to explain or the practice it aims to transform but also between potentially complementary frameworks, and between potentially complementary methodologies for enacting those frameworks. A perceived demand to make monotheistic choices leads researchers to prematurely renounce possibilities for explanatory power. At the level of the intellectual field, dichotomous thinking encourages the proliferation of strongly-segmented micro-fields, each addressing a discrete topic typically defined by various combinations of education sector (vocational, higher, etc.), institutional level (school,

university, etc.), subject area (music, physics, etc.), and disciplinary approach ('sociology of...', 'educational linguistics', etc.). Further, this endemic exceptionalism recurs geographically: each national system, by virtue of some unique characteristic, is held to require its own, strongly-bounded field of research. The resulting fragmented specialisms are often unable to speak to one another, negating the possibility of cumulatively building knowledge across disparate phenomena and through time. In short, disciplinary, theoretical, methodological and substantive sectarianism is driving segmentalism within the study of education and society.

This book contributes to avoiding false dichotomies and overcoming segmentalism by illustrating an approach – Legitimation Code Theory (LCT) – that enables both the exploration of knowledge-building and the cumulative building of knowledge. Since LCT emerged at the turn of the century the framework has evolved into a multidimensional conceptual toolkit (Maton 2014b). Research enacting the framework is growing exponentially.<sup>1</sup> Its integrative potential is illustrated by education, where the theory is serving as a basis for empirical studies:

- into diverse practices (research, curriculum, teaching, learning, evaluation, attitudes, beliefs, identities, etc.);
- across the disciplinary map (from physics to ballet, engineering to jazz, educational technology to journalism);
- in all forms of institution (schools, vocational colleges, universities, etc.);
- at different levels of analysis (education system, discipline, institution, course, classroom, single text, individual wording, etc.);
- across national contexts (African, Asian, Australasian, European, North American, Scandinavian and South American countries);
- with other approaches (including numerous models, systemic functional linguistics and critical realism); and
- using a range of methods (such as qualitative interviews, quantitative surveys and documentary analysis).

As this diversity of topics, complementary frameworks and methodologies suggests, studies enacting LCT are animated less by a command to choose 'either-or' and more by pluralistic engagement with possibilities for generating greater explanatory power. To paraphrase Pierre Bourdieu, social research is something much too serious and too difficult to allow ourselves to mistake rigidity – 'the nemesis of intelligence and invention' – for rigour and thereby deprive ourselves of potential resources (Bourdieu and Wacquant 1992: 227). Consequently, where the segmentation of much educational research affords only a fragmented account of education, studies enacting LCT are building on one another to embrace a growing range of issues (Maton 2014b: 196–217). They speak to each other through the theory. The framework thereby enables the possibility of a more integrated account of education.

LCT is being used not only to interpret the world in various ways but also to change it. Concepts from the framework reveal different dimensions of what Bourdieu called the 'rules of the game': the bases of achievement underlying social fields of practice. Such bases are often unwritten and unspoken, they 'go without saying' in ways that, when accessible only to actors from specific backgrounds, generate social inequality. By making such organizing principles visible, LCT enables these bases of achievement to become accessible to more actors, promoting social justice. They can be taught and learned, or changed. Accordingly, LCT concepts are being embedded, both explicitly and tacitly, within transformed and transformative practice, such as pedagogy and professional development.<sup>2</sup> Furthermore, uses of LCT are not confined to education. Studies are exploring and shaping diverse social fields of practice, including law (Martin *et al.* 2012), museums (Carvalho 2010), theatre (Hay 2014), and armed forces (Thomson 2014). It thus also holds open the possibility of generating an integrated account of society.

### *A guide to Knowledge-building*

The rapidly-growing body of work enacting LCT is helping to overcome segmentalism in understanding education and society – it contributes towards knowledge-building. The current volume, *Knowledge-building*, illustrates how LCT enables such research and practice. Specifically, the book is structured into two main parts that offer complementary insights. Part I represents a kind of 'primer' in using LCT concepts in research and praxis by analysing projects that overcome false dichotomies between theory/data, quantitative/qualitative, theory/practice, and different disciplines. Part II provides a series of empirical studies, within and beyond education, that illustrate the explanatory power of the framework. Together, they offer insights into how research is enacting LCT across a diverse range of issues.

For the reader new to LCT, *Knowledge-building* can serve as an entry point on its own. This chapter introduces the framework and summarizes key concepts used in the book; each chapter briefly defines the concepts being enacted; and an 'architectural glossary' in Chapter 12 describes how concepts interrelate within the framework. Nonetheless, this book also builds on its precursor volume, *Knowledge and Knowers* (Maton 2014b). That volume delineated more of the conceptual framework and at greater length. It also demonstrated how LCT cumulatively builds knowledge by extending and integrating existing ideas within concepts that enable greater fidelity to more phenomena with improved cohesion and economy. However, space precluded extensive discussion there of the processes for putting the concepts to work. As I shall discuss, LCT is a *practical theory* of practice. Concepts can be enacted in empirical studies to engage in genuine dialogue with data and embedded within transformed practices to generate

praxis. In *Knowledge and Knowers* showing *how* this can be done was but touched upon and discussion of studies was necessarily limited. In *Knowledge-building* the processes and products of enacting LCT in research move more to centre stage.

#### *Part I: The craft of LCT*

Part I of this book comprises four chapters in which research practice is foregrounded in reflexive analyses of major studies. They are somewhat unusual in focus, revealing what is typically hidden in published research: how finished products are reached. Moreover, they do so in an unusual fashion. Rather than discussions of method abstracted from research, each chapter reveals how theory, method and data were intimately related within the unfolding context of a real research study. However, rather than descriptive travelogues of the journey of a project, each chapter analyses the practices whereby the research was conducted, drawing lessons for future studies. These chapters thereby contribute to making visible the craft of LCT and making more available the gaze that guides research practice that is appropriately using the framework.

As indicated by their main titles, Part I chapters address how to enact LCT in: qualitative research (Chapter 2), mixed-methods research (Chapter 3), praxis (Chapter 4), and interdisciplinary research (Chapter 5). These issues are concretely addressed through discussion of the processes shaping major research studies into: the effects of constructivist pedagogy on student experiences (Chapter 2); low uptake of school music qualifications and the differential integration of educational technology in classrooms across the secondary school curriculum in the largest one-to-one laptop programme yet conducted (Chapter 3); the creation of mobile e-learning environments for informal learning contexts, such as museums (Chapter 4); and knowledge-building in secondary school History and Biology classrooms (Chapter 5).

At the same time, as indicated by their opening motifs, each chapter discusses how to use LCT to transcend a false dichotomy underlying segmentalism. Chapter 2 charts the processes unfolding through a qualitative research study for creating a ‘translation device’ that enables genuine dialogue between theory and data. Chapter 3 illustrates how to integrate qualitative and quantitative methodologies by tracing the evolution through mixed-methods studies of an instrument that embeds LCT concepts into the heart of quantitative data collection and analysis. Chapter 4 re-analyses the processes underlying the creation of ‘languages of enactment’ that embed LCT within practice to enable ‘informal learning of principled knowledge’. Chapter 5 describes the strategies evolved through an interdisciplinary research project that enacted LCT and systemic functional linguistics in complementary analyses of shared data. I should emphasize, however, that each chapter offers insights beyond its specific focus. For example,

describing how a quantitative instrument was evolved in Chapter 3 reveals characteristics of LCT of relevance to research using any method, and discussing interdisciplinary research in Chapter 5 involves strategies that are applicable to studies using LCT only. Throughout Part I the focus is thus on explicating the craft of LCT, the principles underlying the practical processes shaping research projects, to enable future studies of different issues to contribute to knowledge-building.

#### *Part II: Composing with LCT*

Part II of the book shifts emphasis from processes towards products of research. These six chapters are more than mere ‘applications’. LCT is an explanatory framework rather than any specific substantive account and, as Archer (1995: 6) states, ‘an explanatory framework neither explains, nor purports to explain, anything’. Concepts and conjectures – the framework and outcomes of its enactment within specific studies – are not identical. LCT invites use to generate explanations and such use is anything but passive. As Bourdieu argued:

...just as music may be made not to be rather passively listened to, or even played, but to open the way to composition, so scientific works, in contrast to theoretical texts, call not for contemplation or dissertation, but for practical confrontation with experience; to truly understand them means to activate in relation to a different object the mode of thought they express, to reactivate it in a new act of production, just as inventive and original as the initial one.

(Bourdieu 1996: 180)

LCT is, metaphorically, music made to open the way to composition. Rather than recitals of a score, the chapters of Part II thus offer six examples of composition. They demonstrate the creative nature of research that involves the selection, assembly and enactment of concepts into uncharted waters. This recontextualization of elements of the framework may, in encounters with the specificities of objects of study and mediated through the dispositions of researchers, rework the concepts to capture, where successful, something new but essential for that study. Such shifts in meaning can then ‘speak back’ to the theory, potentially highlighting the need for conceptual refinement or new developments.

The chapters of Part II thus illustrate the active appropriation and reorientation of concepts. At the same time, they exemplify (though do not circumscribe) the manifold diversity of problems, topics, contexts and practices that LCT can be enacted to explore. These chapters explore: how ‘ethnographic’ forms of story-telling can encourage segmentalism in the humanities and social sciences (Chapter 6); the nature of building knowledge through a vocational curriculum, focusing on the example of design at

university (Chapter 7); how English literacy studies cultivates legitimate forms of literary knowers through the years of schooling (Chapter 8); the significance in physics education of understanding the forms of knowledge appropriate to solving specific kinds of problems (Chapter 9); the nature of academic writing in music education, specifically in jazz studies at university (Chapter 10); and the role of tacit pedagogic practices in informal learning contexts, specifically masonic lodges in France (Chapter 11).

Each chapter briefly outlines the concepts being enacted in the research being discussed. Nonetheless, to provide a common touchstone for the recontextualization of LCT by these studies, I shall briefly introduce the framework before summarizing key concepts drawn on in this book.

### Introducing Legitimation Code Theory

What kind of theory is ‘Legitimation Code Theory’ and how does it enable knowledge-building? These questions are intimately interrelated. LCT analyses of research across the disciplinary map are revealing the complex diversity of organizing principles at play in enabling cumulative knowledge-building (Maton 2014b). Lessons learned from these studies are, in turn, drawn upon to improve the framework’s own capacity for building knowledge. Limits of space here preclude extensive discussion of these manifold traits and their embodiment in LCT.<sup>3</sup> As a way into introducing the framework I shall thus focus on the issue with which this chapter began: the false dichotomy between speculation and description that pervades studies of education and society.

One way LCT enables knowledge-building is by bringing theory and data into genuine dialogue. Concepts can be enacted in research into real-world problems to generate explanations that reach beyond any specific context of study. As discussed above, Part I chapters in this volume demonstrate how this is achieved in research practice. Here I shall highlight some overarching characteristics of the framework that make it possible. Put simply, LCT is a *practical theory* in at least two senses. First, LCT is neither divorced from nor reducible to empirical studies. Figure 1.1 develops Archer (1995) to distinguish ‘meta-theories’ offered by ontologies, ‘theories’ embodied by explanatory frameworks, and ‘substantive theories’ generated by research studies. LCT is an *explanatory framework* rather than a

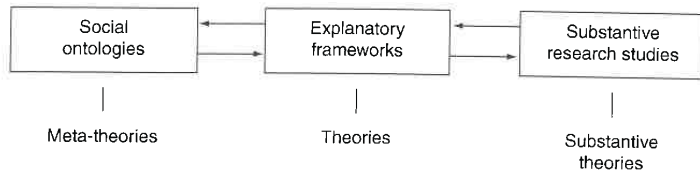


Figure 1.1 Meta-theories, theories, and substantive theories.

meta-theory or collection of substantive theories (Maton 2014b: 14–17). However, as the arrows in Figure 1.1 highlight, LCT maintains dialogic relations with both ontologies and studies. Thus, while engaged in fruitful exchanges with meta-theories (such as critical realism), LCT is a conceptual toolkit and analytic methodology rather than a paradigm or ‘-ism’. Similarly, while LCT evolves in relation to studies, the framework is distinct from their substantive accounts. Thus, LCT is neither overly distanced from nor identical with any specific context of research.

Second, LCT avoids both theoreticism and empiricism. On the one hand, it is designed not for freely-floating theoretical discussion but rather for practical engagement. The theory ‘is not a sort of prophetic or programmatic discourse which originates by dissection or by amalgamation of other theories for the sole purpose of confronting other such pure “theoretical theories”’ (Bourdieu and Wacquant 1992: 161). Rather, the framework develops within and for empirical research into substantive problems. On the other hand, against empiricism, the findings of this research are not locked within those issues. LCT enables research to go beyond endless and ad hoc empirical descriptions to explore the organizing principles underlying practices, dispositions and contexts. The framework allows researchers to get, metaphorically speaking, ‘under the surface’ of appearances. Analyses of their organizing principles can systematically reveal underlying similarities and differences with other practices, as well as change over time. Moreover, the theory is generative. As I discuss below, LCT reveals a particular ‘setting’ of organizing principles underpinning a set of practices as one of a range of possible modalities, each of which could generate alternative practices. It thereby reaches beyond ‘what is’ to ‘what could be’. In getting ‘under the surface’ of appearances to generatively explore possibilities, LCT thereby helps to avoid the context-dependence and segmentalism of empiricist models.

### Bourdieu, Bernstein and beyond

Moving beyond appearances involves both ways of seeing and analytic tools, both a gaze and a conceptual framework, issues concerning both knowers and knowledges. Introducing these two facets also highlights the contributions of approaches central to the development of LCT. The framework draws insights from a range of sources including philosophy, linguistics, physics, anthropology and cultural studies. However, its most directly foundational influences are the sociological theories of Pierre Bourdieu and Basil Bernstein. LCT develops rather than displaces their approaches, albeit in different ways. Though neither neatly divided into nor confined to these issues, one aspect of their legacies is that Bourdieu’s ‘field theory’ illustrates the kind of dispositions or gaze necessary, and Bernstein’s ‘code theory’ models the form of concepts required to overcome segmentalism.

*Beyond Bourdieu's gaze*

Bourdieu repeatedly emphasized the difficulty of moving beyond our sensual, commonsense experiences of the world. These understandings are taken for granted as self-evident, an illusion of immediacy and transparency that naturalizes and essentializes social inequalities (Bourdieu *et al.* 1991). To break from this view, he argued, requires a new way of seeing and thinking:

The task is to produce, if not a 'new person', then at least a 'new gaze', a *sociological eye*. And this cannot be done without a genuine conversion, a *metanoia*, a mental revolution, a transformation of one's whole vision of the social world.

(Bourdieu and Wacquant 1992: 251; original emphases)

This 'new gaze' involves a break with thinking in terms of separate and visible empirical entities in favour of a realist and relational mode that conceives phenomena as realizations of underlying organizing principles.<sup>4</sup> Put simply, this is to view empirical practices as patterned, a particular pattern as one of a number of possible patterns, the constitutive characteristics of a pattern as deriving from its relations with other patterns, and the organizing principles of each pattern and the system of possible patterns as discernible through analysis. More grounded discussions of this mode of thinking are provided in Part I of this volume, and concepts that embody the mode are outlined below. Here my point is to highlight Bourdieu's insistence on the significance of a specialized gaze. This valuably warns against an unthinking, semi-mechanical or shallow application of theory, as if slavishly following a recipe. It foregrounds the *craft* of social science and the need to shape actors' dispositions, to convert a theory into a mode of thinking, acting and being (hereafter 'gaze'), in order to 'master in a practical state everything that is contained in the fundamental concepts' (Bourdieu *et al.* 1991: 253).<sup>5</sup>

LCT integrates this significance of gaze, but goes further to show that dispositions by themselves are not enough for knowledge-building (Maton 2014b: 125–47). A realist and relational gaze is invaluable, but without concepts capable of shaping, enacting and sustaining that gaze, it becomes limited and limiting. This can be explained using Bourdieu's own ideas. Bourdieu described actors' dispositions as durable and transposable: they take repeated and often lengthy exposure to circumstances to create or change. Apprenticeship into a new gaze thus typically requires prolonged experience, immersion in exemplary models, and intimate pedagogic relations with an expert. Accordingly, it may be available only to a few select initiates. Moreover, simply using Bourdieu's concepts is not enough to reshape one's gaze, for they do not embody that gaze: they do not realize his intention to be realist and relational. For example, one cannot analyse the organizing principles of a habitus separately from empirical description

of the practices to which it gives rise. Though 'habitus' is defined as a 'structured and structuring structure' (1994: 170), the forms taken by this structure cannot be revealed. That is to say, the concept does not offer a relational system of generative principles that can show a specific actor's habitus as characterized by, for example, the structure 'X' among a range of possible structures such as 'W, X, Y and Z' (Bernstein 2000; Maton 2012b, 2014b). One can describe the practices to which this actor's habitus gives rise but not the specific form taken by the habitus that generates them. Thus, one cannot get 'under the surface' to systematically describe similarities, differences or changes in habituses. The concept may be defined by Bourdieu in realist and relational terms, but it does not enable realist and relational analysis (and the same can be shown for his other 'thinking tools'). Thus, even prolonged use of Bourdieu's concepts is insufficient to shape, enact or sustain a realist and relational gaze.<sup>6</sup> Unsurprisingly, few scholars have conducted analyses akin to those of Bourdieu – few share his dispositions. Furthermore, another obstacle to knowledge-building arises even when actors do acquire the requisite gaze: the resulting dispositions are again durable and slow to change and thus not particularly responsive to lessons to be learned from different data. Tellingly, once established, Bourdieu's framework changed relatively little. Application to a growing range of topics was not matched by evolution of concepts towards greater generality and complexity.

These limitations can be overcome by recognizing that in addition to being cultivated through apprenticeship, gazes can also be trained through conceptual means. LCT is not only a craft, it is also a science. While the gazes of crafts and arts are typically gained through cultivation, the gazes of science are gained through mastery of knowledge and skills. A key medium here is theory. Thus, where Bourdieu highlighted the need to convert theory into a gaze, LCT additionally converts that gaze into theory. It extends Bourdieu's notion by articulating an explicit, systematic, principled and hierarchically organized conceptual framework. Through providing concepts capable of shaping, enacting and sustaining a realist and relational mode of thinking, LCT thus makes the basis of the gaze more explicit, more democratically available, more responsive to data, and more amenable to change (Maton 2014b: 125–47). This is neither to diminish the significance of gaze nor to reify knowledge. Concepts do nothing by themselves; their potential for knowledge-building is realized by actors. Rather, it is to highlight that a gaze alone is not enough and to foreground in addition the form taken by theory itself.

*Beyond Bernstein's codes*

A framework that models the form required for a realist and relational theory is that developed by Basil Bernstein (1971, 1977, 1990, 2000). In *Knowledge and Knowers* (Maton 2014b), I show how LCT cumulatively

builds on Bernstein's theory by extending inherited concepts to embrace a greater range of phenomena within a systematic and economical framework. Here, I shall simply highlight that Bernstein's approach illustrates how to avoid theoreticism and empiricism. Of particular note are his notion of 'codes' and 'devices'. Bernstein's concept of 'pedagogic codes' demonstrates how to move beyond empirical appearances to explore the organizing principles of dispositions, practices and contexts, in this case as combinations of strengths of boundaries ('classification') and control ('framing'). His model of the 'pedagogic device' then shows how to (metaphorically) dig deeper to explore the mechanism generating those organizing principles. There are thus layers to the framework that move beyond appearances to successively excavate the underlying relational systems of which they are instances and thence the mechanisms generating those systems. However, this is not to abandon the empirical. 'Code' concepts can be enacted in substantive research and what Bernstein (2000) termed 'external languages of description' explicitly translate between those concepts and the specificities of empirical data (see Chapter 2, this volume).

The form taken by this framework is fundamental to the architecture of LCT. Moreover, LCT goes beyond the concepts inherited from Bernstein in a number of directions. First, LCT explicitly broadens the referents of 'codes' beyond the 'pedagogic'. All practices are construed as *languages of legitimation* or claims to legitimacy whose organizing principles are conceptualized as *legitimation codes*.<sup>7</sup> The term 'legitimation' also foregrounds both sociological issues of cooperation and struggles over status, and ontological and epistemological questions of the potentially legitimate nature of practices. Second, LCT inaugurates a fundamental change that enables a more relational framework by reconceiving 'codes' in terms of both typology and topology. Traditionally, 'codes' have been described (using combinations of 'strong'/'weak' classification and framing) as if comprising four boxes for categorizing practices. As I discuss below, LCT realizes the relational potential of this mode of theorizing by redescribing code concepts as axes of Cartesian planes that map out a topological space of infinite possible positions. This foregrounds the *relative* nature of strengths of elements (as 'stronger'/'weaker') in *relation* with other elements as well as enabling a more dynamic view.

Third, LCT deepens and diversifies the 'codes' and 'devices' available to research. Much of Bernstein's framework remained at the tantalizingly suggestive stage of types which, as he stated (2000: 124), are limited in their generative power. Conceptualization of the organizing principles generating such types was limited to 'pedagogic codes' (classification and framing). LCT extends and integrates 'classification' and 'framing' within the broader concepts of *specialization codes* (see below) in a way which also recasts other concepts identified by Bernstein (2000) as landmarks in his framework (see chapters 2–5 and 9 of Maton 2014b). Moreover, LCT explores a series of additional organizing principles, such as *semantic codes* (see below), *autonomy codes* and *temporal codes*, which shed new light on practices. In parallel,

LCT extends Bernstein's 'pedagogic device' to capture the multifaceted nature of the generative mechanism underlying social fields of practices as a multidimensional *Legitimation Device*. I now turn to introduce some of these concepts.

### Specialization and Semantics

LCT comprises a multidimensional conceptual toolkit. There are currently five dimensions: Specialization, Semantics, Autonomy, Temporality and Density. Each dimension comprises a series of concepts centred on capturing a set of organizing principles underlying dispositions, practices and contexts. (See Chapter 12 for explanations of the concepts that together comprise a 'dimension'.) Each set of organizing principles represents a species of *legitimation code*: 'specialization codes', 'semantic codes', 'autonomy codes', etc. Each dimension also identifies a different *aspect* of the Legitimation Device, the means whereby these principles are created, maintained, transformed and changed. In this book, concepts are drawn from two dimensions, Specialization and Semantics, whose principal concepts are summarized in Table 1.1. Space precludes discussing here all their constitutive concepts; see Maton (2014b) for 'structures' and 'devices' and Chapter 12 (this volume) for their interrelations within the framework. Here I introduce the 'codes', 'planes' and 'profiles' of Specialization and Semantics that are central to subsequent chapters of this volume.

Table 1.1 Basic concepts of Specialization and Semantics dimensions

<i>Specialization</i>		<i>Semantics</i>
	explores practices in terms of	
<i>knowledge-knower structures</i>		<i>semantic structures</i>
	whose organizing principles are given by	
<i>specialization codes</i>		<i>semantic codes</i>
	comprising strengths of	
<i>epistemic relations and social relations</i>		<i>semantic gravity and semantic density</i>
	which are mapped on the	
<i>specialization plane</i>		<i>semantic plane</i>
	and traced over time on	
<i>specialization profiles</i>		<i>semantic profiles</i>
	to explore the workings of the	
<i>epistemic-pedagogic device</i>		<i>semantic device</i>
	which is an <i>aspect</i> of the Legitimation Device	



### Specialization codes

The concepts of *specialization codes* begin from the simple premise that practices are about or oriented towards something and by someone. One can, therefore, analytically distinguish: *epistemic relations* (ER) between practices and their object (that part of the world towards which they are oriented); and *social relations* (SR) between practices and their subject, author or actor (who is enacting the practices). For knowledge practices, these become epistemic relations with proclaimed objects of study and social relations with authors or actors.

Each relation may be more strongly (+) or weakly (-) bounded and controlled or, simply put, more or less emphasized as the legitimate basis of practices, beliefs and identity.<sup>8</sup> These two strengths may be varied independently to generate *specialization codes* (ER+/-, SR+/-). As shown in Figure 1.2, the continua of strengths can be visualized as axes to create the *specialization plane*, a topological space with four principal modalities:

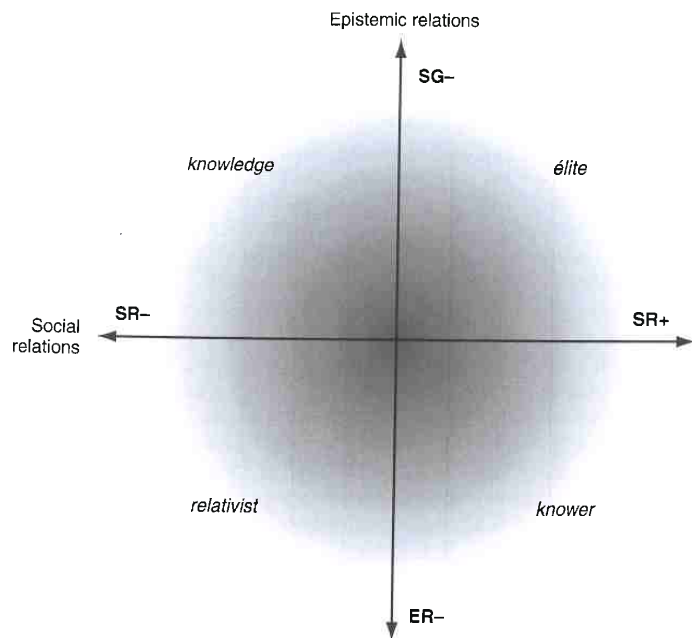


Figure 1.2 The specialization plane.

- *knowledge codes* (ER+, SR-), where possession of specialized knowledge, principles or procedures concerning specific objects of study is emphasized as the basis of achievement, and the attributes of actors are downplayed;
- *knower codes* (ER-, SR+), where specialized knowledge and objects are downplayed and the attributes of actors are emphasized as measures of achievement, whether viewed as born (e.g. 'natural talent'), cultivated (e.g. 'taste') or social (e.g. feminist standpoint theory);
- *élite codes* (ER+, SR+), where legitimacy is based on both possessing specialist knowledge and being the right kind of knower; and
- *relativist codes* (ER-, SR-), where legitimacy is determined by neither specialist knowledge nor knower attributes – 'anything goes'.

Specialization codes conceptualize one dimension of the 'rules of the game' embodied by practices, dispositions and contexts. In the four codes listed above what matters is: 'what you know' (knowledge codes), 'the kind of knower you are' (knower codes), both (élite codes), or neither (relativist codes). A specific code may dominate as the basis of achievement, but may not be transparent, universal or uncontested. Not everyone may recognize and/or be able to realize what is required, there may be more than one code present, and there are likely to be struggles among actors over which code is dominant. One can thus describe degrees of *code clash* and *code match*, such as between: learners' dispositions and pedagogic practices; education policies and subject areas; different approaches within an intellectual field; curriculum and pedagogy of a subject area; and many others. For example, the study re-analysed in Chapter 2 (this volume) explored how Chinese students brought knowledge-code dispositions from past educational experiences to an Australian university context dominated by knower-code practices, creating a code clash with deleterious consequences for the students. Similarly, a major study discussed in Chapter 3 showed that a large-scale policy initiative successfully integrated educational technology into subject areas that matched its knower-code intentions but produced less integrated outcomes in subjects characterized by other specialization codes.

As well as matches or clashes, the dominant code may also change, such as between subject areas, classrooms, and stages of a curriculum (or, for dispositions, through education or over the lifecourse). These *code shifts* effectively change the 'rules of the game'. For example, the school music curriculum in English schools involves shifts from a knower code at primary schooling to a knowledge code during the early years of secondary schooling, and then towards an élite code for formal school qualifications in upper secondary schooling (Chapter 3, this volume). Such code shifts can have profound implications, such as rendering previously successful actors unable to continue to achieve or, in this example, reducing the take-up rate of a qualification.

Such changes need not be categorical – one can also describe *code drift* or change *within* codes (in Figure 1.2, movement within a quadrant of the plane). This highlights a key attribute mentioned earlier above: the

specialization plane embodies *both* a typology of four codes *and* a topology of infinite positions in which epistemic relations and social relations are continua of relative strengths. The concepts are fully relational. Each is ‘stronger’ or ‘weaker’ in relation to other practices (rather than dichotomously ‘strong’/‘weak’). One can thus also analyse processes of *strengthening* and *weakening* relations (ER↑/↓, SR↑/↓) creating code drift and code shift. The tools thereby enable organizing principles of practices to be analysed without effacing the manifold diversity typically found in data. The four codes are not homogenizing categories. A set of instances (of, say, practice) can be represented as a scatter pattern across the plane, showing the diversity of codes present and which code dominates the context. Changes in this pattern can also be plotted through time, tracing changes within and between codes. LCT thereby embraces both complexity and simplicity, both empirical instances and generative principles, and both inter- and intra-category change, within a relational theorization.

LCT is also a generative framework. As mentioned earlier, concepts are not limited to exploring what has been, they can also envisage what could be. Each set of practices can be analysed as a realization of codes whose ‘settings’ can be varied to generate other possible codes that would be empirically realized as different practices. For example, the strongly bounded and controlled educational knowledge and ‘one-size-fits-all’ teaching that characterizes ‘traditional’ pedagogy can be conceptualized as emphasizing epistemic relations and downplaying social relations: a knowledge code (ER+, SR-). Varying the strengths of these relations generates at least three other codes (ER-, SR+; ER+, SR+; ER-, SR-). The empirical realizations of these codes as pedagogic practices can then be generated. Taking a readily recognizable example, a knower code (ER-, SR+) would comprise weaker boundaries around and control over legitimate knowledge and stronger boundaries around and control over kinds of knowers, and is thus likely to be characterized in pedagogic practice by (among other attributes) blurring boundaries between academic subjects and more individualized teaching and learning. Thus, even if ‘traditional’ pedagogy had been the only practices ever experienced, other forms of practice can be generated (such as, in this example, ‘constructivist’ pedagogy). The possibilities are numerous: the specialization plane offers far more than four positions; both epistemic relations and social relations comprise constituent relations that generate different forms of each specialization code (see below); and other organizing principles (e.g. semantic codes) can be analysed. Thus, LCT is a sociology of possibility that embraces the unimagined or obscured.

There is more to specialization codes than can be covered here. Further levels of delicacy include the ‘4-K model’, which distinguishes different kinds of epistemic relations and social relations to conceptualize *insights* and *gazes* (Maton 2014b: 171–95). These concepts characterize different forms taken by specialization codes and enable analysis of their differential effects for issues including knowledge-building and social justice. Chapter 10 (this volume), for example, draws on the distinction between knower codes based

on *cultivated*, *social* and *born* gazes to explore the basis of achievement in student assessments in jazz education. A further level of delicacy in the 4-K model explores different kinds of *lenses* that modify ‘insights’ and ‘gazes’, again with differential effects. Moreover, as Table 1.1 shows, in addition to ‘codes’ concepts, Specialization includes: the *epistemic-pedagogic device*, the generative mechanism over which actors struggle for control that ‘sets’ the comparative values of specialization codes and thus establishes the basis of hierarchies in a social field; and *knowledge-knower structures*, which describe the forms taken by social fields characterized by different specialization codes. Both offer complementary insights into the basis and effects of practice, as illustrated in Maton (2014b).

### Semantic codes

The dimension of Semantics (Table 1.1) explores practices in terms of their *semantic structures* whose organizing principles are given by *semantic codes* that comprise strengths of *semantic gravity* and *semantic density*.

*Semantic gravity* refers to the degree to which meaning relates to its context. The stronger the semantic gravity (SG+), the more meaning is dependent on its context; the weaker the semantic gravity (SG-), the less meaning is dependent on its context. Semantic gravity traces a continuum of strengths with infinite capacity for gradation. One can also dynamize this continuum to analyse *weakening* semantic gravity (SG↓), such as moving from the local particulars of a specific case towards generalizations, and *strengthening* semantic gravity (SG↑), such as moving from generalized ideas towards concrete and delimited cases.

*Semantic density* refers to the degree of condensation of meaning within practices. The stronger the semantic density (SD+), the more meanings are condensed within practices; the weaker the semantic density (SD-), the fewer meanings are condensed. The strength of semantic density characterizing a practice is not intrinsic to that practice but rather relates to the *semantic structure* within which it is located. For example, the term ‘gold’ commonly denotes a bright yellow, shiny and malleable metal used in coinage, jewellery, dentistry and electronics. However, within the discipline of Chemistry it is related to an atomic number, atomic weight, electron configuration, and much more. Many of these meanings involve relations to other meanings as part of compositional structures, taxonomies, and explanatory processes; for example, its atomic number represents the number of protons found in the nucleus of an atom, identifies it as a chemical element, and situates it within the periodic table. Thus, ‘gold’ in Chemistry is located within a complex semantic structure that imbues the term with a greater range of meanings. (Another way of conceiving semantic density is ‘relationality’: the more relations with other meanings, the stronger the semantic density; see Maton and Doran 2015a, 2015b.) Semantic density traces a continuum of strengths with infinite capacity for gradation. This continuum

can also be dynamized to describe *strengthening* semantic density (SD↑), such as moving from a simple symbol or practice towards a more technical concept or complex practice, and *weakening* semantic density (SD↓), such as ‘unpacking’ technical concepts into simpler terms.

All practices are characterized by both semantic gravity and semantic density; what differs are their strengths, which may be varied independently to generate *semantic codes* (SG+/-, SD+/-). As shown in Figure 1.3, these continua of strengths can be visualized as axes of the *semantic plane* with four principal modalities:

- *rhizomatic codes* (SG-, SD+), where the basis of achievement comprises relatively context-independent and complex stances;
- *prosaic codes* (SG+, SD-), where legitimacy accrues to relatively context-dependent and simpler stances;
- *rarefied codes* (SG-, SD-), where legitimacy is based on relatively context-independent stances that condense fewer meanings; and
- *worldly codes* (SG+, SD+), where legitimacy is accorded to relatively context-dependent stances that condense manifold meanings.<sup>9</sup>

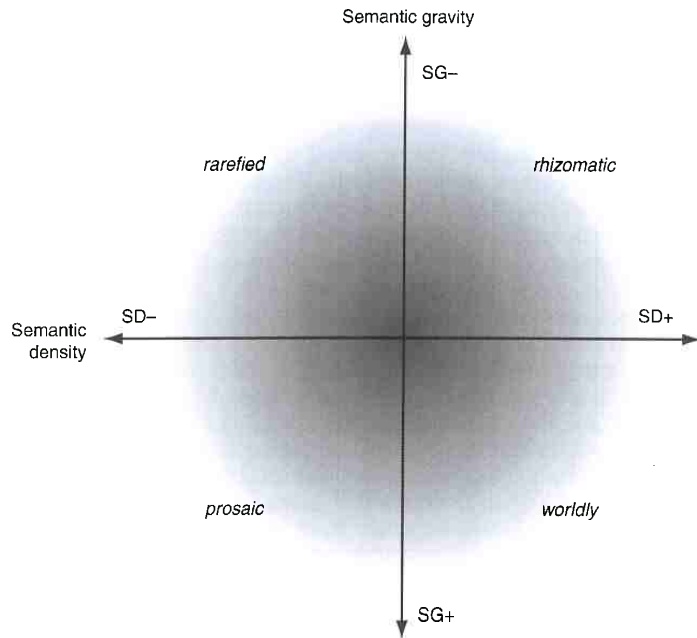


Figure 1.3 The semantic plane.

The capacities of ‘specialization codes’ outlined above are also applicable to these concepts. Semantic codes can be enacted to analyse the ‘rules of the game’, reveal similarity and difference, explore degrees of code clash and match, and show change over time (code shifts and drifts) in dispositions, practices and contexts. They too combine the advantages of typologies and topologies, offering both four principal modalities and an infinite range of positions on the semantic plane (Figure 1.3). Moreover, they too enable the generative theorization of practices that are unrealized empirically or have become obscured. For example, education debates have been dominated by a recurring opposition between ‘theoretical’ and ‘practical’ knowledges. Semantic codes reveal this opposition as a false dichotomy: these forms represent *rhizomatic codes* (SG-, SD+) and *prosaic codes* (SG+, SD-), respectively, and exclude the possibility of *rarefied codes* (SG-, SD-) and *worldly codes* (SG+, SD+). Such blind spots have consequences, such as presenting a false choice to professional and vocational educators between ‘theoretical’ or ‘practical’ curricula (Shay 2013). Using semantic codes highlights that professional and vocational practices can involve not simply context-dependent but also condensed and complex forms of knowledge: *worldly codes* (SG+, SD+). Chapter 7 (this volume), for example, argues that design courses at university move through a series of stages from rarefied codes towards worldly codes. In short, the distinctive organizing principles of professional and vocational practices have been rendered invisible by dominant visions of education. The generative nature of LCT makes the invisible visible and thereby amenable to analysis, in turn allowing these bases of achievement to be explicitly taught and learned.

A further affordance of the concepts is enabled by the analytic method of *profiling* (Maton 2013, 2014a). Tracing the strengths of semantic gravity and semantic density of practices over time (such as the unfolding of an intellectual field, classroom practice, curriculum, or a text) reveals a *semantic profile* and an associated *semantic range* between their highest and lowest strengths. Figure 1.4 offers a heuristic representation of three simplified

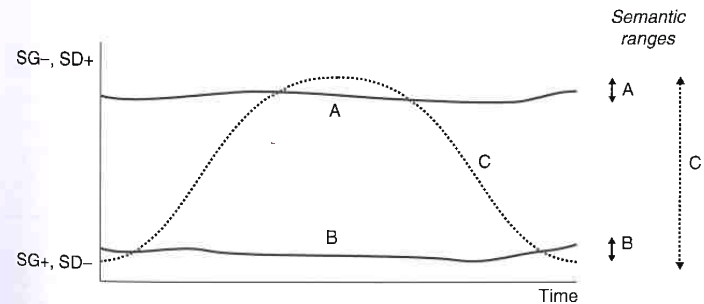


Figure 1.4 Three illustrative semantic profiles.

profiles and their ranges: a high *semantic flatline* (A), a low *semantic flatline* (B), and a *semantic wave* (C). The value of profiling is being illustrated by a growing body of research that is revealing further ‘rules of the game’ for achievement and bases of cumulative knowledge-building across different kinds of practices (Maton 2013). Studies of student work products are suggesting written assessments structured as semantic waves are rewarded across subject areas and levels of education (e.g. Maton 2014b; Wolff and Luckett 2013). They are also highlighting how these can vary over time and across subjects. Chapter 8 (this volume), for example, analyses the changing semantic profiles demonstrated by writing in school English literary studies at different stages of schooling. Similarly, studies are revealing the falsity of viewing academic literacy as either generic or subject-specific by showing how subjects are characterized by semantic waves but with distinctive profiles (Szeneš *et al.* 2015). This method is, however, not confined to analysis of assessments. Studies of classroom practices are revealing the semantic profiles that enable and constrain knowledge-building in different subject areas (e.g. Martin and Maton 2013). Moreover, studies of research are highlighting the debilitating effects of the false dichotomy with which I began this chapter: between a high semantic flatline of decontextualized theorizing and a low semantic flatline of context-dependent empirical descriptions. In contrast, they reveal the potential for knowledge-building of theories that trace semantic waves and embrace a greater semantic range (Maton 2014b).

Profiling can also be used for specialization codes: tracing strengths of epistemic relations and social relations generate *specialization profiles*. Such shared capacities among concepts from different dimensions of LCT raise the question of how the concepts are related. Table 1.1 places Specialization and Semantics side by side because LCT dimensions are ‘simultaneous’: they explore not different practices but rather different organizing principles that may underlie the same practices. Specialization codes and semantic codes can be used together to analyse the same empirical data and offer complementary insights into the same phenonema. For example, Chapter 6 (this volume) enacts specialization codes and semantic gravity to analyse ‘ethnographic’ writing, and Chapter 7 and Chapter 8 enact semantic gravity and semantic density to explore the basis of cultivating a knower code in design and school English, respectively. Similarly, the *semantic device* that ‘sets’ the comparative value of semantic codes, and the *semantic structures* of social fields generated by the interplay of those codes (see Maton 2014b), can be explored alongside their equivalent concepts from Specialization. Conversely, each dimension can be used separately; indeed, each concept can be enacted alone. For example, Chapter 9 analyses student work in physics using ‘semantic gravity’ to reveal a ‘Goldilocks zone’ for context-dependence in student answers: too strong or too weak can lead to failure. The basis of choosing how many and which concepts to enact cannot be legislated in advance – it is a matter of possessing the right gaze, to which I now return.

## Gaze at the future

The explanatory framework of LCT – of which two species of legitimation code have been outlined – embodies depth realist and relational modes of thinking. Concepts embrace but also move beyond sensual appearances to explore their organizing principles, reveal this patterning as one of a range of possible patterns, and excavate in turn their generative mechanisms. Each organizing principle and each patterning are relationally defined. Moreover, they enable studies to conceive practice relationally by bringing together analyses of the legitimation codes of dispositions, contexts and practices (e.g. Chapter 2, this volume). LCT thereby converts a realist and relational gaze into theory and offers a conceptual means of shaping, enacting and sustaining that gaze. However, just as the gaze is insufficient without concepts that enable the gaze, so the potential of those concepts may be unrealized if researchers do not acquire the gaze. Doing so is not simply a matter of learning definitions – it also requires practice at putting the practical theory into practice. As Bourdieu (2004: 40) argued:

The difficulty of initiation into any scientific practice (whether quantum physics or sociology) lies in the fact that a double effort is required in order to master the knowledge theoretically but in such a way that this knowledge really passes into practice, in the form of a ‘craft’, ‘knacks’, an ‘eye’, etc., and does not remain in the state of a meta-discourse about practices.

Such craft work is typically obscured in discussions of both theories and methods. Where it does appear, practices are often couched in vague, mysterious or ethereal terms, as if learned through a magical process of initiation. This book aims to help begin make the craft more explicit. The *modus operandi* embodied by LCT becomes most apparent in the context of substantive studies. Without the questions and data that animate the course of real projects, discussions of method quickly become detached from the everyday practicalities of research. Accordingly, as outlined earlier above, Part I of this volume explicates practical principles of LCT through analysing the development of real projects, and Part II provides examples of results of studies. Together they also demonstrate there is more to the craft of LCT than enacting realism and relationalism. Here I shall briefly highlight three additional attributes, namely LCT as *problem-oriented*, *dialogic* and *conjectural*. These characteristics are related: the centrality afforded problem-situations emphasizes the value of dialogues for explanatory power and highlights the conjectural nature of the resulting knowledge claims.

### *Problem-oriented*

Ensuring the problem-situation – the combination of a specific object of study, research questions and forms of data – remains at the heart

of decision-making is a core principle of LCT. Here inspiration is drawn from Bernstein's call for less allegiance to approaches and more dedication to problems (1977), Bourdieu's strictures against theoreticism and methodologism (1996), and Popper's insistence that 'What matters is not methods or techniques but a sensitivity to problems, and a consuming passion for them' (1963: 95). Theory constructs a problem-situation – without theory, there is an infinite flux of possible data. However, where this relationship is one way and theory entirely defines data in its own image, the resulting ideas become relevant only to that imaginary world (Maton 2014b: 177–84). Thus, key to the craft of LCT is constructing problem-situations in ways that enable dialogue between theory and data, so that each problem-situation can in turn shape the selection, assembly and enactment of concepts in research. This is also crucial for knowledge-building that neither remains locked within nor neglects the specificities of objects of study. One strength of 'legitimation codes' is their capacity to be applied at many levels of analysis to explore diverse kinds of phenomena. However, the concepts are realized differently in each case. Accordingly, as Part I of this volume shows, LCT offers means for mediating between theory and the specificities of each problem-situation, in the form of 'translation devices' between concepts and data (Chapter 2), context-sensitive data collection instruments (Chapter 3), and 'languages of enactment' for relating concepts and practice in determinate contexts (Chapter 4).

Foregrounding problems also guards against theoretical and methodological fetishism. It highlights that one only needs as much theory as the problem-situation demands – not all concepts are required for all substantive studies. Moreover, as Part II chapters demonstrate, the craft of LCT is to begin from real-world issues and engage with real-world data, rather than embroiling the framework in the intellectual gymnastics of theoretical polemics, 'an impotent and sterilizing metadiscourse' (Bourdieu 1996: 180). Real-world data keeps you honest and grounded. Methodologically, emphasizing problems ensures pluralism does not slip into relativism. While studies enacting LCT deny such false dichotomies as qualitative/quantitative, the aim in doing so is not to fetishize multiplicity but rather to generate explanatory power about a problem-situation. As Chapter 3 illustrates, the choice and enactment of techniques must, therefore, always be appropriate to the problem at hand. Accordingly, in discussing how LCT overcomes dichotomies, Part I chapters engage not in theoretical or methodological debates but rather ground discussion of the craft of LCT in real examples of substantive research.

### *Dialogic*

Foregrounding problem-situations underlines the significance to knowledge-building of a dialogic stance. While monologic theories can become extremely ornate, their baroque frameworks are soon dogmatic, narcissistic

and evermore detached from reality. In contrast to inward-looking for theoretical purity, a dedication to problems encourages looking outwards for explanatory power, to other theories, methodologies, objects of study, and data. Dialogue is also crucial for overcoming the false dichotomies that bedevil studies of education and society. To avoid reducing one side of a dichotomy to the other requires respecting the integrity of each side and making explicit how they can be related. Accordingly, as Part I chapters discuss, constructing these relations as dialogic is characteristic of LCT. Developing 'translation devices' enables dialogue between theory and data, and provides a means for substantive studies to 'speak back' to the framework (Chapter 2). Evolving complementary quantitative and qualitative instruments brings the results of different methods into dialogue to strengthen validity and reliability of findings and shed more light on phenomena (Chapter 3). Creating 'languages of enactment' enables dialogue between theory and specific arenas of practice that generates praxis (Chapter 4). Developing processes for bringing analyses using different theories into productive dialogue enables complementary insights to be related, provoking theoretical innovations (Chapter 5). Moreover, in the craft of LCT such dialogic relations are not merely proclaimed tenets but realized as practical strategies for research. For example, Chapter 5 outlines three dynamics for facilitating dialogue between theories within interdisciplinary projects: *zooming* between a bigger picture and more specific cases; *refocusing* between fuzziest and precise analyses; and *alternating* between parallel analyses by each theory and joint analyses. These dynamics provide practical ways to maintain an 'essential tension' between theories being too close or too distant, avoiding tendencies towards monologic reductionism or detachment that often characterize 'interdisciplinary' research.

Dialogue is not confined within studies; it also characterizes the wider community of research enacting LCT. As discussed earlier above, the chapters of Part II illustrate how the framework embraces diverse phenomena, from research to student work, from physics to jazz, and from schooling to university and informal learning beyond education. Rather than each topic being segmented by empiricist models, LCT allows a wider conversation among these studies. Though time and space precluded illustration in this volume, the field of research enacting LCT is wider than a single book and findings from these and many other studies are being brought into relations to help provide a more encompassing and integrated account of education and society.

### *Conjectural and open-ended*

LCT inherits problems and bequeaths problems, for every answer to a question in turn raises more questions. The explanatory framework cumulatively integrates and extends ideas from existing theories to offer concepts that will continue to evolve. Substantive studies enacting those concepts offer

explanatory conjectures open to refinement or refutation. ‘Translation devices’ for relating theory and data (Chapter 2) or practice (Chapter 4) make visible the analytic process, enabling rational discussion and offering conceptual tools for adaptation by future studies. Thus, each paper is neither the beginning nor the end, neither the first nor the last word on its subject. Each forms part of a broader conversation through time, one which builds on the past to offer a contribution to present understanding that is always provisional, and may be built on in the future. The centrality of problems and dialogue thus encourages an open-ended sense of knowledge-building to suffuse the craft of LCT.

Accordingly, this book is but a partial snapshot of a framework and a body of research that are in motion. There is much more to LCT than the concepts introduced in this chapter and there are many more topics and issues addressed by studies enacting those concepts than can be represented in this volume. Moreover, LCT foresees its own repeated refinement, deepening and extension through dialogues with concepts inherited from existing frameworks, substantive studies that reveal new issues to be addressed, and complementary frameworks that shed light on different facets of phenomena. Knowledge claims generated through LCT are thus an invitation to engage, to ‘only connect’, to speak to one another, to join in discourse and deed such that together we become more than the sum of our parts. There is no conclusion to the task of knowledge-building. So, as Sherlock Holmes would proclaim, let us tarry no longer in this chapter – the game is afoot!

## Notes

- 1 To keep abreast of this work, see the LCT website: [www.legitimationcodetheory.com](http://www.legitimationcodetheory.com).
- 2 Pedagogic enactments are less publicly visible than publications but growing quickly (see LCT website). Pedagogic studies are underrepresented here because they were few in number when this volume was first commissioned but have subsequently blossomed (e.g. Blackie 2014; Clarence 2014; Macnaught *et al.* 2013; Maton 2013; Weekes 2014).
- 3 For example, analyses enacting LCT reveal the significance for cumulative knowledge-building of a theory progressing as ‘semantic waves’ with a high ‘semantic range’ (Maton 2013, 2014a, 2014b: 125–47; Chapter 6, this volume), two traits which LCT itself then enacts in both research (Chapters 2 and 5, this volume) and praxis (Macnaught *et al.* 2013). I define these concepts further below.
- 4 Bourdieu uses ‘realism’ variously to refer to different stances. By ‘realist’ I refer not to empiricism but to depth realism that posits a stratified and emergent ontology, such as critical realism (Bhaskar 1975). I add ‘realist’ to Bourdieu’s phrase because ‘relational mode of thinking’ does not make explicit his arguments for exploring the generative principles underlying empirical practices.
- 5 By using the term ‘gaze’ I am building upon Bernstein (2000) and Bourdieu, as well as connecting with the LCT conceptualization of different ‘gazes’ (Maton 2014b). In LCT the term does not imply a restriction to or privileging of the

ocular but rather refers to dispositions underlying ‘know-how’, modes of thinking, acting and being that are commonly referred to variously as ‘feel’, ‘ear’, ‘nose’, ‘taste’, ‘sense’, or ‘eye’.

- 6 Ironically, Bourdieu’s concept of ‘habitus’ cannot describe the organizing principles of the ‘scientific habitus’ he argues is essential for enacting his framework.
- 7 In the name of the framework, ‘legitimation’ is not classifying a subtype of ‘code theory’: LCT is a theory of legitimation codes.
- 8 See Maton (2014b: 31) for a distinction between *focus* and *basis* of practices. For example, knowledge claims may *focus* on a ‘knower’ issue (such as physical experience of pain) but on the *basis* of specialized knowledge (such as a medical report). Specialization codes concern the *basis* rather than the *focus* of practices – organizing principles underlying practices rather than their surface content.
- 9 These terms supersede earlier names for these concepts found in Maton (2014a).