

EDITED BY J. R. MARTIN,  
KARL MATON AND Y. J. DORAN



# ACCESSING ACADEMIC DISCOURSE

Systemic Functional Linguistics and  
Legitimation Code Theory

Legitimation Code Theory



# ACCESSING ACADEMIC DISCOURSE

Systemic Functional Linguistics and  
Legitimation Code Theory

*Edited by*

*J. R. Martin, Karl Maton and Y. J. Doran*

First published 2020  
by Routledge  
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge  
52 Vanderbilt Avenue, New York, NY 10017

*Routledge is an imprint of the Taylor & Francis Group, an informa business*

© 2020 selection and editorial matter, J. R. Martin, Karl Maton and Y. J. Doran; individual chapters, the contributors

The right of J. R. Martin, Karl Maton and Y. J. Doran to be identified as the authors of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

*Trademark notice:* Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

*British Library Cataloguing-in-Publication Data*

A catalogue record for this book is available from the British Library

*Library of Congress Cataloguing-in-Publication Data*

A catalog record for this book has been requested

ISBN: 978-0-367-23608-3 (hbk)

ISBN: 978-0-367-23607-6 (pbk)

ISBN: 978-0-429-28072-6 (ebk)

Typeset in Bembo

by Apex CoVantage, LLC

# 2

## SPECIALIZATION CODES

### Knowledge, knowers and student success

*Karl Maton and Rainbow Tsai-Hung Chen*

#### Introduction

Why are some students more successful than others? This is a central and enduring question for education. In this chapter we show how concepts from the Specialization dimension of Legitimation Code Theory (LCT) – specifically *specialization codes* – can help to shed light on this issue. At the same time, we aim to illustrate how these concepts can generate powerful explanations as a way into understanding why they are increasingly drawn upon by scholars and educators from systemic functional linguistics (SFL). As the rapidly growing number and diversity of LCT studies reveals, our focus is only one problem for which ‘specialization codes’ can be valuable and our analysis is only one way the concepts can be enacted in research.<sup>1</sup> Moreover, we shall not explicitly discuss how these ideas can complement SFL analyses of academic discourse; for how to bring the approaches together, see Maton and Doran (2017) and Maton *et al.* (2016b); for examples of studies enacting ‘specialization codes’ alongside SFL, see Christie (2016), Hood (2010, 2016), Martin *et al.* (2013, 2014), Vidal Lizama (2017), and Chapters 6–8 of this volume. Nonetheless, the question of student success offers a grounded way of demonstrating ‘specialization codes’ at work on a significant issue and so offers insights into why they are being adopted in SFL.

To do so we draw on a major study that brings together three stimuli to change in higher education in Anglophone countries that remain under-explained. First, the growth in international students attending higher education over recent decades has outpaced studies into the suitability of different pedagogic practices for these diverse students (Leask 2015; Ryan 2013). Educational debate tends to advance forms of teaching and learning as universally valuable or limited; how specific practices may support or constrain learning among specific groups of international students remains under-explored (Byram 2018; Clifford and Montgomery

2014). Second, online learning is viewed by university policymakers as a key area of growth, but there remains limited evidence of positive effects for student achievement (Henderson *et al.* 2016). Third, the literature espousing ‘student-centred learning’ approaches has grown dramatically since the 1990s. Often loosely defined under a variety of names, these approaches downplay direct instruction by teachers in favour of independent learning said to empower students by enabling them to ‘construct’ their own understandings (e.g. Jonassen and Land 2012). Though influential in higher education in Anglophone countries, these claims rest on relatively limited research (Kirschner *et al.* 2006; Muijs and Reynolds 2018; Tobias and Duffy 2009). The study we shall discuss as a means of illustrating ‘specialization codes’ in action brought these three issues together by focusing on Chinese students who were taught online at an Australian university with student-centred pedagogy (Chen 2010).

The study also serves to highlight a problem emblematic of education research more generally to which LCT offers a solution: ‘knowledge-blindness’ (Maton 2014; see also Chapter 3, this volume). Prior to this study, research into Chinese students overseas typically focused solely on the attributes of students. For example, challenges faced by Chinese students were often attributed to their ways of thinking and acting, such as a desire to ‘save face’ (e.g. Leedham 2015; Smith *et al.*, 2005; Zhao and McDougall 2008). In contrast, the knowledge practices with which students are engaging, such as curriculum, pedagogy and assessment, were typically ignored or downplayed. From this perspective it mattered little what students are learning or how they are taught and assessed – they succeed or fail because of who they are or how they think or act. In short, studies analyze only knowers’ ways of knowing and overlook knowledge as an object of study. However, the tradition of work bringing knowledge back into the picture was also tending to become one-sided. As discussed in Chapter 1 of this volume, the later ideas of Basil Bernstein emphasized the significance of ‘knowledge structures’ but at the expense of obscuring the ways of knowing brought by actors. While these ‘coding orientations’ had been a concern of Bernstein’s earlier work (1971), the focus of scholars building on his later concepts backgrounded the issue of knowers.

In contrast, LCT allows analysis to see both knowledge and knowers; LCT concepts bring knowledge practices into view and enable their forms to be analyzed in relation to students’ dispositions. From this perspective, educational experiences (or, indeed, any practices) are an outcome of what the French sociologist Pierre Bourdieu (1996: 256) called ‘the meeting of two histories’ or logics: the dispositions (ways of acting, thinking and being) brought by actors to a social context and the nature of that context itself. Put simply, actors’ practices are shaped by how their dispositions relate to their contexts. Crucially, LCT offers concepts capable of analyzing and relating together all parts of this equation: the dispositions of actors, the contexts within which they are situated, and their resultant experiences and practices. In doing so, LCT can generate powerful explanations of social practice. Before discussing the empirical study of Chinese students, we shall thus briefly introduce LCT and the specific concepts enacted in this research. Chapter 1 of this volume



introduced some of these ideas, but from the viewpoint of the concerns of systemic functional linguistics in the 1990s; here we briefly introduce LCT on its own terms.

## Legitimation Code Theory: Specialization

Legitimation Code Theory or ‘LCT’ is a framework for researching and shaping practice. The framework integrates insights from a range of influences, but most explicitly articulated are its relations with the work of Pierre Bourdieu (e.g. 1996, 2000) and, above all, Basil Bernstein (e.g. 1977, 1990, 2000). LCT extends and integrates these sociological approaches to embrace more phenomena within a more systematic and integrated framework.<sup>2</sup> This theoretical development is, however, always in dialogic relations with empirical research. LCT is a ‘practical theory’ used to explore a host of issues, practices and contexts in education and beyond (e.g. Maton *et al.* 2016a), both on its own and alongside complementary frameworks such as systemic functional linguistics (Chapter 1 of this volume; Maton and Doran 2017; Maton *et al.* 2016b).

In accord with its sociological foundations, LCT construes society as a series of relatively autonomous social fields of practice (such as law, medicine, education, etc.) characterized by distinctive resources and forms of status. In each social field, actors cooperate and struggle, both for more of what is viewed as signs of success and over what defines success. In other words, actors’ practices embody messages concerning what should be the dominant measures of achievement within a field – they are ‘languages of legitimation’ (Maton 2014: 23–42). Put another way, LCT highlights that there is more to what we say or do than what we say or do. For example, if an art teacher takes a group of students to a gallery and discusses the art they see there, the teacher is teaching those students not only knowledge of art but also that art is worth their time and attention, that it is important to discuss art, and that it is important to see first-hand the art they discuss. Similarly, we have not only just given an example, we have also effectively emphasized that giving concrete and simple examples is important when introducing theory. To highlight these two kinds of ‘messages’, LCT makes a distinction between the *focus* of practices (such as knowledge about art) and the *basis* of practices (such as first-hand experience of art). The *basis* of practices is their ‘language of legitimation’ and the organizing principles underlying that basis are conceptualized as *legitimation codes*.

These organizing principles are manifold. Any set of practices has a diverse range of characteristics, such as their complexity, their context-dependence, their emphasis on specialized knowledge or personal experience, how strongly distinct they are from other practices, whether they point backwards or forwards in time, and so forth. Each of these attributes may take myriad forms. The organizing principles that generate the particular forms taken by a specific set of practices are conceptualized by LCT as different species of ‘legitimation codes’. The conceptual framework is structured into a series of ‘dimensions’ (or sets of concepts) that each explore a distinctive species of legitimation code. There are currently four active dimensions: Specialization, Semantics, Autonomy, and Temporality, centred on exploring

specialization codes, semantic codes, autonomy codes and temporal codes, respectively.<sup>3</sup> Different dimensions do *not* refer to different practices but rather explore different organizing principles underlying practices. The same practices are underpinned by all dimensions. How many and which dimensions are drawn on by empirical research and practice depends on the problem-situation (specific questions concerning a particular object of study). Thus the same practices may be analyzed in terms of, for example, specialization codes and semantic codes, to reveal different aspects of the same phenomenon.

Whichever species of legitimation code are explored, there is usually more than one modality of that code active within a specific context and there are typically struggles over which modalities should be dominant. The balance of power among different modalities of codes within a social field shapes what and who is viewed as having more or less legitimacy and thus affects the different horizons of possibility for actors within that field. Changing codes in a social context can change possibilities. Thus, LCT can be described as a ‘sociology of possibility’ (Maton 2014: 3): it provides a way of exploring what is possible for whom, when, where and how, who is able to define these possibilities, when, where and how, and how the impossible can be made possible.

### ***Specialization codes***

This chapter focuses on Specialization, a dimension which conceives social fields of practice as *knowledge–knower structures* whose organizing principles are conceptualized as *specialization codes* (Maton 2014; see also Martin *et al.*, Chapter 1 of this volume). Specialization begins from the simple premise that every practice is about or oriented towards something and by someone. One can, therefore, analytically distinguish: *epistemic relations* between practices and their object (that part of the world towards which they are oriented); and *social relations* between practices and their subject (who or what is enacting the practices). For knowledge claims, these are realized as: *epistemic relations* between knowledge and its proclaimed objects of study; and *social relations* between knowledge and its authors, actors or subjects. These relations highlight questions of: *what* can be legitimately described as knowledge (epistemic relations); and *who* can claim to be a legitimate knower (social relations).

Each of these relations may be more strongly (+) or weakly (–) emphasized and the two strengths together generate *specialization codes* (ER+/-, SR+/-). As shown in Figure 2.1, these strengths are visualized on the *specialization plane*, a topological space of infinite positions but with four principal modalities:

- *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,

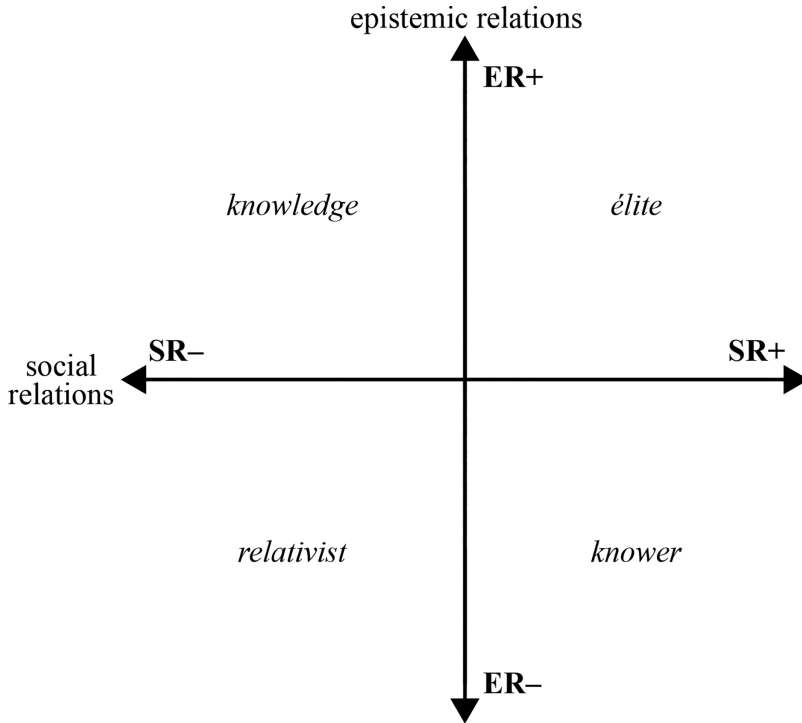


FIGURE 2.1 The specialization plane (Maton 2014: 30)

whether these are 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 measures of achievement embodied by actors’ dispositions, contexts and practices. 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, studies of a large-scale policy initiative in Australian schools (Howard



and Maton 2011; Maton and Howard 2016) show how the policy successfully integrated educational technology into subject areas that matched its knower-code intentions but was less successful in subjects characterized by other specialization codes, where code clashes were evident. An example from beyond education is offered by Martin *et al.* (2014), who show how the dominant code underlying 'restorative justice' practices in Australia matches the dispositions of some young people but not those of others, disadvantaging working-class boys.

The dominant code may 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, research into the low uptake of qualifications in music in English schooling (Lamont and Maton 2010) revealed that the curriculum shifted from a knower code at primary school to a knowledge code during the early years of secondary school, and then towards an elite code for formal school qualifications in upper secondary school. Such code shifts can have profound implications, such as rendering previously successful actors unable to continue to succeed or, in this example, reducing the take-up rate among students of a qualification.

### ***Enacting specialization codes in this study***

The concepts of specialization codes have been widely enacted to explore a host of different issues across the disciplinary map and at all levels of education, as well as in other social fields, including museums (Carvalho *et al.* 2015) and armed forces (Thomson 2014). Here, our concern is with understanding the experiences of a group of Chinese students at an Australian university. As discussed earlier above, in contrast to the one-sided focus on student attributes that characterized existing studies of this issue, we aimed at a fuller understanding of student experiences that embraced: the educational dispositions brought by students; the educational practices characterizing the educational context within which they are studying; and students' resulting educational practices. These represented the three main foci of the study we shall discuss.

First, three focus groups with 16 Chinese students from across the university explored their educational dispositions. The aim was not to characterize Chinese education itself but rather to explore these students' experiences and expectations of education. Second, the study focused on students undertaking postgraduate online units in the Faculty of Education at the university. To characterize their educational context, eight university teachers were interviewed about curriculum, pedagogy and assessment practices on the units, and their study outlines analysed. Third, seven Chinese students studying different online units were each interviewed through a semester an average of four times, for a total of 41 hours, in their native language (Mandarin) about their experiences on online units.

These three foci involved different methods, forms of data and participants. Moreover, when exploring student dispositions, educational contexts and student practices, the study analysed each factor in terms of its construal of curriculum,

pedagogy and assessment. Thus, the study analyzed an array of different issues. One strength of LCT concepts is that they can be used to analyze such diverse objects of study, allowing different phenomena to be related together. However, this requires being clear as to how specific concepts are empirically realized within each object of study. For example, the empirical forms taken by stronger epistemic relations in student interviews may be different to those taken by stronger epistemic relations in teaching materials and, further, they may appear differently in those materials in terms of its curriculum, forms of pedagogy and assessment practices. A key task in LCT is, therefore, to establish the empirical realizations of concepts within each specific phenomenon and to make this explicit in the form of a ‘translation device’ that relates concepts to data.<sup>4</sup>

Table 2.1 is the ‘specific translation device’ developed by Chen (2010) for relating specialization codes to the specific data of the study. Not all translation devices need be as complex (see Maton and Chen 2016). In this case, the table shows, first, that *epistemic relations* are realized as a degree of emphasis on content knowledge (curriculum), teaching of content knowledge (pedagogy) and explicit criteria (assessment); and that *social relations* are realized as a degree of emphasis on learners’ personal experiences (curriculum), personal dimensions of learning (pedagogy) and learners’ self-evaluation (assessment). Second, the device reveals how *stronger* and *weaker* epistemic relations and *stronger* and *weaker* social relations are realized in curriculum, in pedagogy and in assessment, provides indicators for determining whether data exhibits stronger or weaker relations, and offers quotes from the data as examples of stronger and weaker modalities.

Each section is structured so that it can be read as translating both theory into data and data into theory. Reading from left to right shows how concepts are enacted in this particular object of study; reading from right to left shows how data can be conceptualized in terms of strengths of epistemic relations and strengths of social relations. For example, taking the ‘curriculum’ row of ‘epistemic relations’, one can read from the quote in the right-hand column (‘The information in the textbook, decided by the teacher, was what a study unit was all about’) to indicators that can be identified (content knowledge is being highlighted as the determining form of legitimate knowledge) and thence to its coding (stronger epistemic relations or ‘ER+’). The quote thereby illustrates the kinds of data coded as stronger epistemic relations, giving insight into how other examples from the data should be conceptualized. This specific translation device thus enables different realizations of epistemic relations and social relations to be coded so that one can relate the dispositions students brought to the learning context, the nature of that context, and their consequent experiences and practices. We now turn to discuss the findings of the study for each of these in turn.

## Educational dispositions of Chinese students

We begin by analyzing how focus group participants in the study described their experiences of education in China. The aim here is not to generate an accurate

**TABLE 2.1** A translation device for specialization codes and Chinese students' experiences

EPISTEMIC RELATIONS (ER)		SOCIAL RELATIONS (SR)	
Manifested as <i>emphasising:</i>	Indicators of <i>strengths</i>	Example quotes from <i>data</i>	Manifested as <i>emphasising:</i>
<b>Curriculum</b>			
content knowledge	ER+ Content knowledge is emphasized as determining form of legitimate knowledge  ER- Content knowledge is downplayed as less important in defining legitimate knowledge	The information in the textbook, decided by the teacher, was what a study unit was all about.  We show them digital repositories that they need to go to in order to access those readings that are relevant to their context.	SR+ personal experience  SR- personal experience and dimension of learning
<b>Pedagogy</b>	ER+ Procedures for learning content knowledge are explicit to learners and emphasized as determining form of pedagogy  ER- Procedures for learning content knowledge are implicit to learners and downplayed as not significantly shaping pedagogy	[The teacher] extracts the best things from what he or she knows and gives this to you in class, and then offers you instructions on the tasks you need to complete.  The teacher only points out the things you need to read. But as to how to think, how to read and understand, it's your own business.	SR+ Individual learners' preferences are explicitly emphasized as determining form of pedagogy  SR- Individual learners' preferences are downplayed as not significantly shaping pedagogy
<b>Assessment</b>	ER+ Explicit evaluative criteria are emphasized in judging student performances  ER- Explicit evaluative criteria are less significant in judging student performances	When a Chinese child paints the moon blue, the teacher will correct the child, saying that the moon shouldn't be blue.  It's not like learning medicine, you've got to get it right or the patient will die. It's not like that. It's more open to interpretation.	SR+ Evaluation of legitimacy of student performances resides in beliefs of individual learners  SR- Student performances are judged against shared criteria external to the learner
			Example quotes from <i>data</i>
			[Students] actually come with a whole range of background and experience... what they need is a framework to download that.  Online discussion is chaotic, and is like you conduct a survey and everyone tells you their opinions. That's all. It's different from a class.  So negotiate to learn in a way that suits them...it's constructing your own learning in a way that is helpful for you.  Even if your question is brilliant, the teacher still might not answer you because he or she wants to teach something else first.  What's valid for you and what's valid for me are two different things, aren't they?  I am a 'test-taker'. If the teacher doesn't give me a standard, I don't know what to do.

account of Chinese education but rather to reveal the educational dispositions these students brought to the Australian university context. To do so we explore how the students described their prior experiences of curriculum, pedagogy and assessment.

Participants in the study described experiencing the curriculum of what they studied as strongly insulated; for example, Chris stated:<sup>5</sup>

When I studied in China, my feeling was that the information in the textbook, decided by the teacher, was what the study unit was all about... You gain a wide range of knowledge. Every study unit will touch a little on different issues in that area, and maybe the teacher will highlight a couple of things that are more important. The textbook usually covers everything.

(interview 4)

The students felt that learning specific content knowledge was emphasized in this explicit curriculum. Anything beyond the boundary of a study unit, such as other forms of educational knowledge or everyday experiences, was not considered relevant to learning that particular subject content. Emphasis was thus placed on strongly bounded and controlled content knowledge: *stronger epistemic relations* (ER+). In contrast, students rarely considered their lives or everyday experiences beyond educational contexts as relevant to learning, even when prompted. They thus downplayed their personal attributes or characteristics as knowers: *weaker social relations* (SR-).

In terms of pedagogy, the students described their past teachers in China as experts in the content knowledge who possessed the ability to teach that knowledge to students through clear procedures. Such teachers had, according to the students, explicit control over the selection and ordering of content, the rate at which learners accessed this content, and student conduct in classrooms. These practices represent explicit principles of selection, sequencing and pacing of knowledge: *stronger epistemic relations* (ER+). In contrast, students said they were expected to adopt self-effacing roles, such as following the pacing of learning of the class as a whole and only asking questions when sure that doing so would contribute to learning for the whole class. For example, one student described a cardinal rule of classroom behaviour as:

Don't disturb the class. Even if your question is brilliant, the teacher still might not answer you because he or she wants to teach something else first. Only ask questions if the teacher wants you to. If the teacher wants to carry on with the lesson, listen.

(Rachael, focus group 3)

This is to downplay learners as already legitimate knowers: *weaker social relations* (SR-).

Finally, in terms of assessment, students described the basis of achievement in Chinese education as being made very clear to learners. In brief, success was built, they suggested, on effort, concentration and withholding one's own subjective views. Students stated that a significant part of assessment comprised examinations

that required correct, textbook-based answers. To achieve the highest marks, students claimed, one needed to study hard and forego personal opinions that might conflict with standardized answers. The following quote is common of discussion from the focus groups:

When I was in China, I never thought the teacher was right all the time, but I couldn't argue with them. Neither could I argue against things written in the textbook. If I had done so, they would have told me to follow what the textbook said anyway. And if I had written my answers on exams according to what I thought, not the book, they wouldn't have been standard, right answers. That meant I wouldn't have got the marks. I couldn't do anything about it.

*(Chris, interview 1)*

Such emphasis on learners displaying content knowledge and explicit evaluative criteria again describe knowledge as strongly bounded and controlled: *stronger epistemic relations* (ER+). In contrast, downplaying by students of personal views represents *weaker social relations* (SR-).

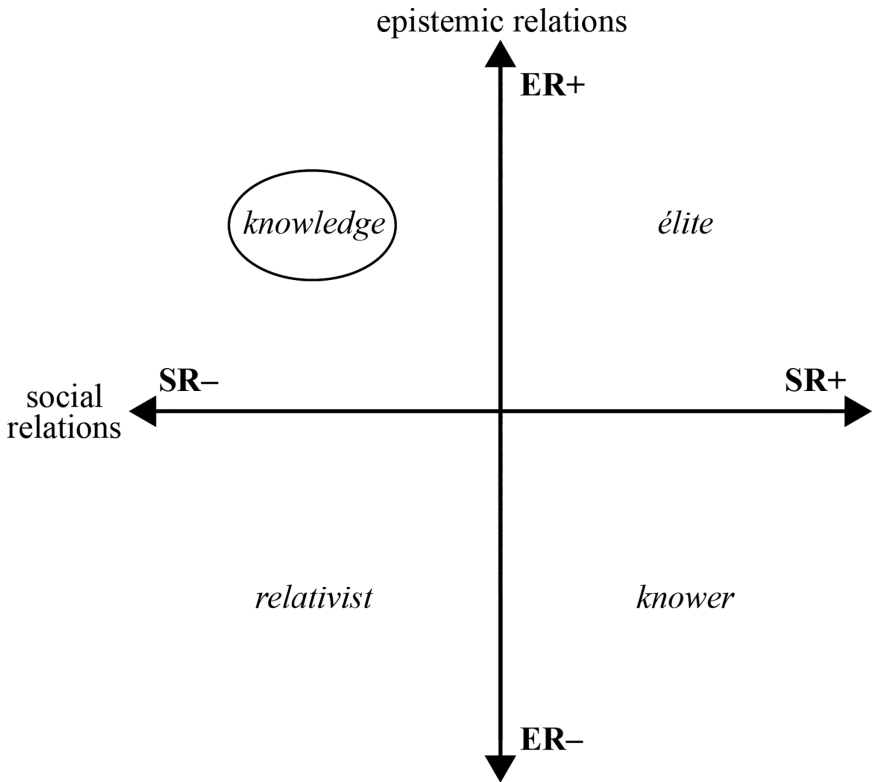


FIGURE 2.2 Educational dispositions of the Chinese students – knowledge code

Figure 2.2 highlights the specialization code of the experiences of education brought by the Chinese students. To reiterate: this is not an analysis of Chinese education but rather of the ways in which the specific Chinese students studying at the Australian university described their experiences. In summary, the students described past experiences of curriculum, pedagogy and assessment as all manifesting stronger epistemic relations and weaker social relations. This represents a *knowledge code* (ER+, SR-), in this case manifested as:

- curriculum that emphasizes content knowledge and downplays personal beliefs;
- pedagogy emphasizing procedures for delivering teachers' specialized knowledge about subject content to all students and which downplay personal or individualized dimensions of learning; and
- assessment with explicit criteria for evaluating learners' understandings of knowledge and that downplay personal views.

### Teaching practices in the online units

The teaching practices Chinese students encountered in their online courses at the Australian university stood in stark contrast to their previous experiences of education. When discussing curriculum, teachers at the Australian university blurred boundaries between subject content in the units for which they were responsible and both other subjects and everyday knowledge. Some participant teachers referred to this characteristic as enabling 'authenticity' in learning. For example, Teacher E explained:

The assignments try to be authentic. Now what I mean by that is we try to situate the assignment in the context in which these people work and live. So if they are a TAFE [vocational college] teacher teaching cabinet-making, then they have to think about how their students are learning that task.<sup>6</sup> If they're a university teacher teaching science, then they have to think about their students learning science ... and they have to think about their own learning as well.

Teachers emphasized that the curriculum aimed to accommodate the diverse disciplinary and personal backgrounds of students. One strategy they claimed would enable this involved encouraging students to treat reading materials as optional resources rather than compulsory content of a study unit. Consequently there was little core content knowledge students were required to learn in these units. Instead, students were expected to make their own decisions about the relevance of readings to their own interests and practices beyond the educational context. Thus, teachers downplayed boundaries around and control over legitimate knowledge in



the educational context: *relatively weak epistemic relations* (ER−). In contrast, teachers saw every learner as already possessing a wealth of legitimate knowledge by virtue of their experiences beyond education. One teacher noted negatively of the university in general:

What we don't often do with our postgraduate students is recognize that they actually come with a whole range of background and experience and baggage and literature, and what they need is a framework to download that.

(Teacher F)

The teachers emphasized that they recognized this background and experience and, moreover, considered students as already legitimate knowers: *relatively strong social relations* (SR+). In addition, teachers stressed that any content knowledge included in their units was always subject to each learner's *personal* interpretations and that the aim of the postgraduate programmes was to assist learners in creating their own understanding rather than teaching them new knowledge.

In terms of pedagogy, the teachers espoused 'student-centred' pedagogies characterized by downplaying teacher control over the selection, sequencing and pacing of knowledge. At the same time, they denigrated 'instructivist' pedagogies that emphasized the explicit teaching of knowledge. Teacher B, for example, described how their view of 'instructivist' teaching served as a contrast to their own pedagogy:

There was very much a temptation to say, 'Okay week 1, read these and we'll have a discussion. Week 2, read these papers and we'll have a quiz. Week 3, read these papers and then your assignment is due'. They'd [other teachers] have a template of 13 weeks or 14 weeks or whatever. For the kinds of learning environments that I create, that's a total anathema. Because if you do that you're moving back into an instructivist kind of mode. So you're saying 'this is what I want you to do this week, and this is what I want you to do the next week'. So it becomes sequential and it's directed by the teacher rather than from the student.

In discussing their relationships with students, teachers often defined themselves as facilitators, most emphasizing that they did not claim to possess expert knowledge of the subject content and thus did not intend to act as a 'guru' or 'sage on the stage'.<sup>7</sup> Instead, some identified their relationships with students as a 'partnership', in which they assumed the role of a 'co-learner' or 'critical friend'. Consequently, the teachers viewed their principal responsibility not as teaching knowledge but rather creating and maintaining an environment that was conducive to learner engagement. In short, the teaching of content knowledge was downplayed: *weaker epistemic relations* (ER−).

Rather than teaching knowledge, the teachers viewed their role as providing minimal guidance and providing online space for discussion among students. They emphasized that it was each student's responsibility to organize their own studies and to make the most of any available support. As one teacher summed up:

I think you need to guide in some way, provide some form of pathway [but] if students don't want to use your pathway let them go their own path, but at least you've provided them with some assistance.

(Teacher G)

For example, the teachers generally believed that, given students were already legitimate knowers, they would most benefit from sharing their personal experiences with other students. Accordingly, they emphasized peer interaction in online discussion that would, they believed, create a learning community among the students. However, student participation in online discussions was often not mandatory in these online units, reflecting the teachers' insistence on student autonomy. This recurrent emphasis on learner choice and self-determined, individual pathways represents *relatively strong social relations* (SR+).

In terms of assessment, teachers used three main forms: what they called 'authentic tasks' that they claimed reflected issues in the real world; projects in which students could choose their own focus; and personal reflections by students. All three methods, teachers argued, required learners to relate educational knowledge to their own real-life experiences. As these experiences could be extremely diverse, assessment downplayed any criteria that might directly compare performances among students. In other words, teachers argued that assessment tasks recognized a wide variety of performances by students as legitimate. As one teacher argued: 'It's not like learning medicine, you've got to get it right [otherwise] the patient will die. It's not like that. It's more open to interpretation' (Teacher G). Explicit evaluative criteria were thus downplayed in judging student work: *relatively weak epistemic relations* (ER-). Instead, teachers valued the ability of students to construct their own personal understanding and to reflect on their own learning; for example:

What I want to know is how much *you*, the student, can make the connections between *your* beliefs and *your* theory, *your* beliefs and *your* practices and can *you* share that with me and justify it.

(Teacher C)

In other words, the student themselves formed the basis of legitimate insight. This is not to say, though, that 'anything goes' – the teachers had a clear sense of the kind of knower they considered legitimate. The ideal learner delineated by teachers was a student who showed enthusiasm about being there and a willingness to explore, take risks and seek help, as well as to participate and share their experiences

in the online discussions. In short, the ideal knower by which the teachers measured student work was independent, self-directed, confident and reflective. The emphasis, therefore, was on specific dispositions of knowers: *relatively strong social relations* (SR+).

As shown in Figure 2.3, the ‘student-centred’ pedagogy the teachers espoused in interviews and enacted in their units of study embodied weaker epistemic relations and stronger social relations. This is a *knower code* (ER-, SR+), realized in this case as:

- curriculum downplaying content knowledge and emphasizing personal experience;
- pedagogy downplaying teachers delivering subject content or structuring student learning, and emphasizing the need for self-regulating learners to create their own understandings; and
- assessment avoiding explicit evaluative criteria and emphasizing that students should evaluate themselves based on their own criteria.

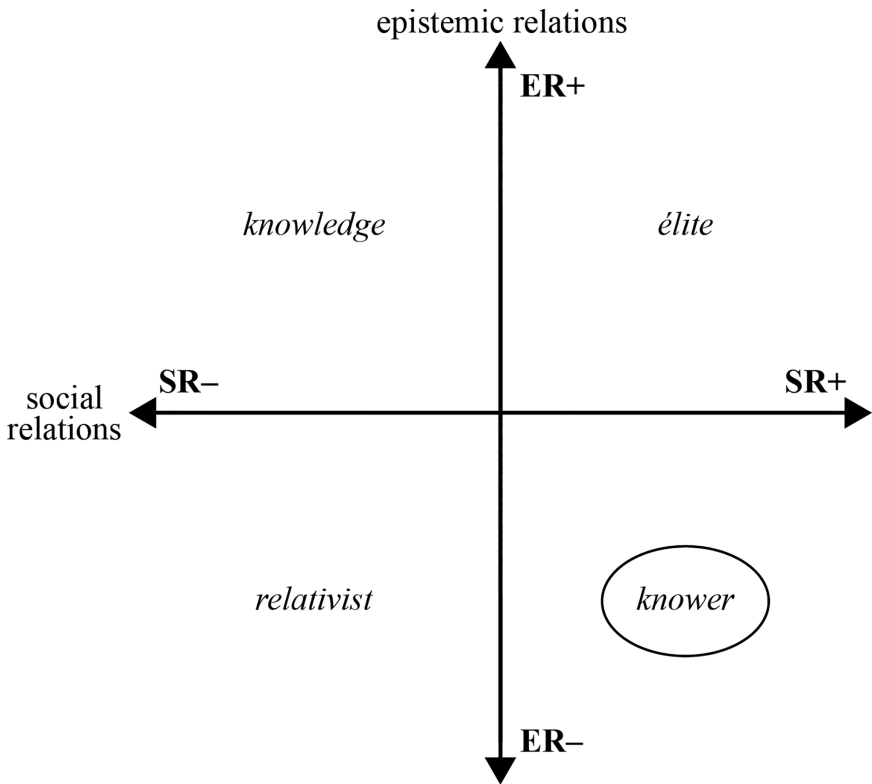


FIGURE 2.3 Teaching context – knower code

There are many kinds of knower code based on the form taken by the ideal knower emphasized as its basis (see Maton 2014: 86–105). In this case, as discussed above, the ideal was a *personalized*, *individualized* and *socializing* knower. In other words, legitimate understanding is constructed by each knower on the basis of their *personal* experiences through highly *individualized* tasks and *socializing* by sharing their perspectives with other students in an online learning community.

## Student experiences and practices

Thus far the analysis has focused on the educational dispositions expressed by the Chinese students as embodying a knowledge code and the teaching and learning practices of the educational context as embodying a knower code. This represents a potential ‘code clash’: the measures of achievement expected by the students are fundamentally different to those demanded by the educational context. They represent, in other words, different ‘rules of the game’. However, this is not to say that the Chinese students experienced the educational context as a knower code. As Bourdieu (2000) argues, one must avoid the ‘scholastic fallacy’ of mistaking analysis conducted with the benefit of conceptual tools for the experience of participants themselves. One must always remember that how actors experience a context is mediated by their dispositions: they see the context through their own codes. We thus now turn to analyze how the students experienced their educational experiences in these units at the Australian university.

Focusing on the case studies of Chinese students reveals that the weaker epistemic relations of the curriculum were not only experienced as weaker epistemic relations but also viewed negatively. For example, the students considered solitary reading as inadequate for helping them learn because they were unsure whether their own understanding and interpretations of the content were correct. One student, for example, summarized the effect of solitary reading as:

There are still so many things that I’m not sure about. It’s not like you ask me something, I can tell you exactly what it is. If you ask me something now, I can only tell you what it is according to my understanding. This is the best I can do, and I don’t think this means I’ve learned well.

*(Vivian, interview 6)*

More generally the form of pedagogy adopted by the teachers was viewed not as enabling but rather as an absence. The space the teachers aimed to provide for already-legitimate knowers to flourish on their own was experienced by these students as a vacuum. Students described how they were provided with reading materials and deadlines for the assessment tasks, but then left alone to learn without guidance by teachers. ‘This type of learning is self-study,’ one student summarized, ‘You read the readings provided for you. Then you think on your own, and then write essays’ (Megan, interview 2). This self-study was often described negatively by

students, as teaching without a systematic plan and without a supporting structure. The following response is typical of many by the students:

I feel that teachers do not teach in online classes. They raise a lot of questions for us to discuss. What do they teach us? They teach us nothing. They ask us to think, but what if I can't think of anything? I can sit there thinking all day and night, not sleeping at all, but I still can't think of anything. So I don't think they are teaching me.

*(Vivian, interview 3)*

Similarly, students expressed considerable concern about a lack of specificity in assessment criteria. Most felt the descriptions of the tasks and requirements were at best 'ambiguous'. One student, for example, argued that students 'are like producers. We produce goods as required. You [teachers] need to give us the standards' (Jennifer, interview 5). The students also often voiced frustration at not being able to obtain clear instructions from their teachers when they approached them for more information.

In short, the students' previous experiences of a knowledge code emphasized the importance of stronger epistemic relations ( $ER+$ ,  $SR-$ ), realized as explicit content knowledge, explicit instruction and visible assessment criteria based on knowledge. They viewed the weaker epistemic relations offered by the knower-code teaching ( $ER-$ ,  $SR+$ ) as a loss of legitimacy. Their experience itself was thus characterized by weaker epistemic relations: a lack of knowledge to be learned.

According to the teachers, their 'student-centred' pedagogy was intended to provide the space for students to express themselves as already-legitimate knowers, i.e. a knower code. However, the stronger social relations that underpin the legitimacy of the knower code ( $ER-$ ,  $SR+$ ) were not recognized as such by the students whose knowledge-code dispositions downplayed social relations ( $ER+$ ,  $SR-$ ). For example, the students did not view their own experiences as relevant to assignments and those students who did attempt to draw on their own knowledge often expressed belief that their experiences were inadequate. Similarly, the students dismissed online discussions with other students as 'pointless' because their peers were not experts in the content knowledge. They did not consider students as legitimate knowers whose personal experiences were valuable for the assessment task. Accordingly, none of the students felt they were part of a learning community in the online environment. They repeatedly stated that they felt as if they were doing the online units alone; for example, one student said he felt like the only student in his class and so doubted whether he was learning at all (Chris, interview 6).

While the students said they longed for a sense of belonging, they all reported lacking sufficient incentive to participate in online discussions. Here again, the Chinese students focused on the absence of stronger epistemic relations: they described online discussions as 'chaotic' and expressed frustration that the

teachers did not provide conclusive comments at the end of a discussion or verify whether the claims made by other students were legitimate. As one student stated:

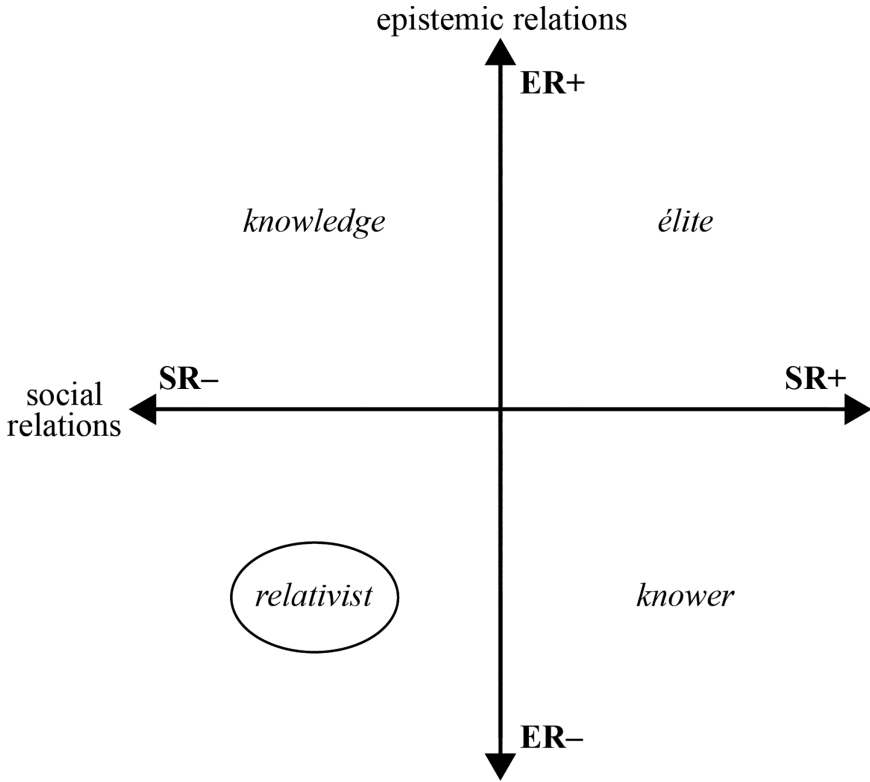
Even if I got a reply from my classmate, it's unlikely that the teacher would post a message afterwards to confirm whether what my classmate said was correct or not. So in this situation... I still don't know whether the answer is correct. I can only rely on my judgement to see if the reply makes sense, or to compare all the replies I get, which is still not definite.

*(Vivian, interview 2)*

In sum, the knowledge-code dispositions (ER+, SR-) of the Chinese students meant that, on the one hand, they were seeking stronger epistemic relations but were disappointed and frustrated by their absence in the knower-code learning environment (ER-, SR+) and, on the other hand, they did not see the stronger social relations of this environment as legitimate. In other words, they recognized its weaker epistemic relations (though not positively) but did not recognize its stronger social relations: they did not view as legitimate using their own personal experiences and sharing these with their peers. The students thus experienced the educational context not as a knower code but rather as a *relativist code* (ER-, SR-): nothing seemed to be the basis of achievement; there seemed to be no 'rules of the game'. As depicted in Figure 2.4, the students perceived a context empty of both legitimate knowledge (weaker epistemic relations) and legitimate knowers (weaker social relations). This relativist code was experienced as a vacuum and, as a result, students reported feeling inferior, insecure, anxious, frustrated, helpless, guilty and depressed (see Chen 2010).

Faced with a perceived lack of 'rules of the game', the students typically continued following their knowledge-code dispositions by adapting practices that had served them well in their previous education in China. Strategies students used to cope with the requirement of using everyday knowledge in their assignments included: ignoring this requirement and preparing assignments as if they were traditional essays; trying to fulfil the requirement by manufacturing superficial links between the content knowledge and their experiences; considering educational knowledge they had previously learned as representing personal experience; or writing essays that 'combined and synthesized', as one student put it (Rita, interview 3), supposedly personal experiences from examples found in the readings. In the online discussions the students reported only reading postings that had attracted feedback from their teachers and said they poured over those remarks intensely for any implications they might have for assessment criteria. The students also tended not to contribute to these discussions themselves. Moreover, despite describing the online units as lacking any clear sense of what was required of them, they continued to state that a successful learner in those units was one who read extensively, conducted a literature review, wrote in an academic style, and demonstrated in their





**FIGURE 2.4** Student experience of teaching context – a relativist code

assignments knowledge that addressed all the issues raised in the teacher's explanation of the assignment topic. In other words, faced with the experience of a vacuum of legitimacy, the students re-emphasized the basis of achievement as embodying a knowledge code: they continued emphasizing stronger epistemic relations and downplaying social relations.

Though understandable as coping strategies, these practices left the students often feeling disappointed and frustrated. In terms of curriculum, using previously learned educational knowledge as personal experience in their assignments was viewed by students as simply recycling old knowledge. This was, they argued, a waste of both their time and the opportunity of studying overseas. In pedagogy, as mentioned above, not engaging with the online discussions left the students feeling extremely isolated and lonely. In assessment, the desire by teachers for students to negotiate assignments was viewed by the Chinese students as reflecting their own failure at understanding requirements. The coping strategies were thus not fulfilling or empowering.

## An invisible knower code

Proponents of ‘student-centred learning’ approaches often describe such pedagogy as if universally empowering. In contrast, the knower-code practices of the teachers in this context were not empowering for the Chinese students who participated in the study. Indeed, the students felt powerless. As discussed above, the students experienced the teaching context as a relativist code, manifested as lacking both content knowledge and a sense of community. This was experienced as a limbo, an emptiness devoid of direction and clarity – a lack of legitimacy. In response, the students adapted their past knowledge-code practices as coping strategies. The result was they did not gain a different educational experience. Despite being overseas, they effectively underwent a more isolated form of their existing educational experiences from China.

At this point we should make clear what we are and are not arguing here. We are *not* suggesting these findings show studying in Australia to be a negative experience for Chinese students. The research discussed here explored a specific kind of teaching and a particular mode of delivery: ‘student-centred’ pedagogy in postgraduate units that were taught online. There are a range of forms of pedagogy and a variety of specialization codes active in Australian education, depending on the subject area, the institution, the teachers and a host of other factors. Moreover, the problem for these students was not necessarily the knower code. There are many contexts within which knower codes are appropriate and many different kinds of knower codes (Maton 2014). One aspect of the specific kind of knower code underpinning teaching practices in this case was that it rendered itself invisible to anyone who was not already a particular kind of knower. As discussed earlier above, students could not see what knowledge they should be learning. In addition, the students could not see how the ‘student-centred’ pedagogy was intended to contribute to their learning or what their teachers expected of them. Although the students may have heard from their teachers or read in the unit outlines a rationale for adopting this pedagogic approach, it remained for them a mystery. They were unable to recognize the required performance in this context. As this suggests, not only was the knowledge invisible but so were the ‘rules of the game’, the knower code itself.

One reason for this invisibility is a rhetoric-reality gap. The rhetoric, as expressed by teachers in interviews, was that the curriculum, pedagogy and assessment allowed each learner to approach tasks in his or her own way – every kind of knower is equal and every form of engagement is legitimate. If this were the case, it would represent a relativist code: anything goes. However, in reality, teachers based their educational decisions on their image of an ideal knower. That ideal was not made explicit to students, but teacher interviews and analysis of teaching materials showed they considered some forms of learner engagement more appropriate than others. The ideal students were capable of personalized, individualized and socialized learning: they were enthusiastic to explore, take risks, seek help, participate online and share their personal experiences with other students. Teachers expected

students to be independent, self-directed, confident in this form of learning and publicly reflective about themselves. This image of students was assumed by teachers to be universally applicable; they believed that all students are like this when given the opportunity. That these attributes of the ideal knower are not shared by all students was not understood. Put another way, the teachers expected students to have very different dispositions to those expressed by the Chinese students who participated in this study. Moreover, the teachers did not make this expectation explicit, for to do so would be to break a key tenet of student-centred pedagogy by setting rules for how learners should engage in their learning.

In short, the stronger social relations underpinning student-centred pedagogy were hidden. For example, a fundamental principle of this pedagogy is that learning does not (or should not) follow pre-determined stages but rather should follow a learner's individual development. This principle contains a hidden expectation: that learners are capable of and comfortable with externalizing their learning activities so the teacher can provide personalized evaluation – it expects students to make their thoughts and feelings available for assessment. In this study, this expectation was manifested as the need for students to participate in as many activities in the online learning environment as possible, to enable the teachers to engage with them as individual knowers. However, online participation was not compulsory. Students were expected to know without being told that maintaining their visibility in the online environment was crucial to success and that this visibility needed to be of a particularly reflective, self-revelatory kind. Thus, those students who already knew the tacit 'rules of the game' fulfilled the expectations of teachers and those students who were the 'wrong kind of knower' (Maton 2004), including the Chinese students, did not recognize what was tacitly required of them.

## Conclusion

Why are some students more successful than others? LCT suggests one reason may be that the legitimation codes characterizing the dispositions of some students match those codes dominating their educational contexts while those of other students clash with their contexts. The study we have discussed enacted the concepts of *specialization codes* to explore the problems experienced by Chinese students in an Australian university. By focusing on relations among codes, the study avoided the one-sided attribution of those experiences to the ways of knowing brought by students and overcame the knowledge-blindness of past research to explore the nature of the curriculum, pedagogy and assessment encountered by those students. The study conjectured that the difficulties experienced by the students resulted from a code clash between their dispositions and those knowledge practices.

By analysing educational outcomes in a relational manner, LCT also reveals that these negative outcomes are not inevitable. The analysis here suggests ways forward that would avoid the code clash. For while dispositions shape the ways actors see and understand their contexts, they may also be analyzed, appreciated and engaged.

This study suggests that if teachers who wish to use knower-code practices make explicit the knower code underpinning their teaching and thus make visible the ‘rules of the game’, then students with knowledge-code dispositions may be able to recognize what is required of them. Furthermore, if teachers also provide support in engaging with the learning environments in the knower-code way they expect, such as through modelling, then students with dispositions of different codes will be more able to realize the kind of practices that enable achievement. In the case studied here, the pedagogic beliefs of the teachers ruled out making these ideas visible or providing explicit guidance. However, the analysis we have outlined offers a strong case for making clear the ‘rules of the game’ for students whose dispositions are different to those of the context. It also provides the tools with which to do that.

This chapter has focused on specialization codes, but research could also enact other species of legitimation code (such as semantic codes) to explore further aspects of these organizing principles. As this chapter has done with specialization codes, each set of LCT concepts can be used to analyse: the dispositions actors bring to a context; the social context within which they are situated; the ways in which they perceive and experience that context; and their practices. Each of these phenomena can be coded and related together to help explain the experiences and practices of actors. Moreover, the resulting analysis can then help inform future practices in ways that enable more students to succeed in a greater diversity of contexts. One can, for example, design pedagogic interventions to teach students how to recognize different codes and realize the kinds of practices each code considers valuable (see, for example, Macnaught *et al.* 2013).

Just as significantly, the concepts of specialization codes can be used to explore and inform numerous other aspects of learning and living, including not only curriculum, pedagogy and assessment but also socialization practices, parent-child interactions, organizational structures, and so forth. As we emphasized at the outset of this chapter, the study we have discussed is far from the only way of enacting specialization codes. The concepts can be used to analyze and shape all kinds of social practice, not only in relation to academic discourse, and are compatible with diverse research methods and in conjunction with other approaches, such as SFL. The concepts are not locked into any specific object of study or method and so allow us to explore and relate together a wide range of phenomena. Using LCT one can thus not only address the vexed question of why some students are more successful than others but also reach beyond education to explore the bases of achievement in all avenues of life.

## Notes

- 1 For LCT studies, see <http://www.legitimationcodetheory.com>.
- 2 Maton (2005, 2018) articulates relations of LCT concepts with Bourdieu’s approach; Maton (2014) extensively relates LCT concepts to Bernstein’s concepts.
- 3 On Specialization and Semantics, see Maton (2013, 2014, 2016a); on Autonomy, see Maton and Howard (2018). For how LCT concepts relate together, see Maton (2016b).

A fifth dimension, 'Density', was outlined in early LCT papers but has yet to be fully articulated – it may become active in the near future.

- 4 See Maton and Chen (2016) for how to create 'specific translation devices' in qualitative research, and Maton and Howard (2016) for how to develop quantitative instruments to analyze specialization codes.
- 5 All student names are pseudonyms.
- 6 'TAFE' is short for 'Technical and Further Education' and refers to tertiary institutions in Australia offering vocational courses in subjects such as hospitality, nursing, hairdressing, carpentry and many others.
- 7 The expression 'sage on the stage' is often used in literature on student-centred pedagogies to denigrate formal teaching methods (such as lectures) and contrasts with being 'a guide on the side' who facilitates students learning by themselves.

## References

- Bernstein, B. (1971) *Class, Codes and Control, Vol. I: Theoretical studies towards a sociology of language*, London: Routledge & Kegan Paul.
- Bernstein, B. (1977) *Class, Codes and Control, Vol. 3: Towards a theory of educational transmissions* (second edition), London: Routledge & Kegan Paul.
- Bernstein, B. (1990) *Class, Codes and Control, Vol. IV: The structuring of pedagogic discourse*, London: Routledge.
- Bernstein, B. (2000) *Pedagogy, Symbolic Control and Identity: Theory, research, critique* (revised edition), Oxford: Rowman & Littlefield.
- Bourdieu, P. (1996) *The Rules of Art: Genesis and structure of the literary field*, Stanford: Stanford University Press.
- Bourdieu, P. (2000) *Pascalian Meditations*, Cambridge: Polity.
- Byram, M. (2018) 'Internationalisation in higher education – an internationalist perspective', *On the Horizon*, 26(2): 148–56.
- Carvalho, L., Dong, A. and Maton, K. (2015) 'Foregrounding knowledge in e-learning design: An illustration in a museum setting', *Australian Journal of Educational Technology*, 31(3): 328–48.
- Chen, R. T.-H. (2010) *Knowledge and Knowers in Online Learning: Investigating the effects of online flexible learning on student sojourners*, unpublished PhD thesis, University of Wollongong, Australia. <http://www.legitimationcodetheory.com>
- Christie, F. (2016) 'Secondary school English literary studies: Cultivating a knower code', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 158–75.
- Clifford, V. and Montgomery, C. (2014) 'Challenging conceptions of Western higher education and promoting graduates as global citizens', *Higher Education Quarterly*, 68(1): 28–45.
- Henderson, M., Finger, G. and Selwyn, N. (2016) 'What's used and what's useful? Exploring digital technology use(s) among taught postgraduate students', *Active Learning in Higher Education*, 17(3): 235–47.
- Hood, S. (2010) *Appraising Research: Evaluation in Academic Writing*, London: Palgrave.
- Hood, S. (2016) 'Ethnographies on the move, stories on the rise: Methods in the humanities', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 117–38.
- Howard, S. K. and Maton, K. (2011) 'Theorizing knowledge practices: A missing piece of the educational technology puzzle', *Research in Learning Technology*, 19(3): 191–206.

- Jonassen, D. H. and Land, S. M. (2012) (eds) *Theoretical Foundations of Learning Environments* (second edition), London: Lawrence Erlbaum.
- Kirschner, P. A., Sweller, J. and Clark, R. E. (2006) 'Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching', *Educational Psychologist*, 41(2): 75–86.
- Lamont, A. and Maton, K. (2010) 'Unpopular music: Beliefs and behaviours towards music in education', in R. Wright (ed.) *Sociology and Music Education*, London: Ashgate, 63–80.
- Leask, B. (2015) *Internationalizing the Curriculum*, London: Routledge.
- Leedham, M. (2015) *Chinese Students' Writing in English: Implications from a corpus-driven study*, Abingdon: Routledge.
- Macnaught, L., Maton, K., Martin, J. R. and Matruglio, E. (2013) 'Jointly constructing semantic waves: Implications for teacher training', *Linguistics and Education*, 24(1): 50–63.
- Martin, J. R., Zappavigna, M. and Dwyer, P. (2013) 'Users in uses of language: Embodied identity in Youth Justice Conferencing', *Text and Talk*, 33(4–5): 467–96.
- Martin, J. R., Zappavigna, M. and Dwyer, P. (2014) 'Beyond redemption: Choice and consequence in Youth Justice Conferencing', in F. Yan and J. J. Webster (eds) *Developing Systemic Functional Linguistics: Theory and application*, London: Equinox, 18–47.
- Maton, K. (2005) 'A question of autonomy: Bourdieu's field approach and policy in higher education', *Journal of Education Policy*, 20(6): 687–704.
- Maton, K. (2013) 'Making semantic waves: A key to cumulative knowledge-building', *Linguistics and Education*, 24(1): 8–22.
- Maton, K. (2014) *Knowledge and Knowers: Towards a realist sociology of education*, London: Routledge.
- Maton, K. (2016a) 'Legitimation Code Theory: Building knowledge about knowledge-building', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 1–24.
- Maton, K. (2016b) 'Starting points: Resources and architectural glossary', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 233–43.
- Maton K. (2018) 'Thinking like Bourdieu: Completing the mental revolution with Legitimation Code Theory', in J. Albright, D. Hartman and J. Widin (eds) *Bourdieu's Field Theory and the Social Sciences*, London: Palgrave Macmillan, 249–68.
- Maton, K. and Chen, R. T.-H. (2016) 'LCT in qualitative research: Creating a translation device for studying constructivist pedagogy', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 27–48.
- Maton, K. and Doran, Y. J. (2017) 'SFL and code theory', in T. Bartlett and G. O'Grady (eds) *The Routledge Systemic Functional Linguistic Handbook*, London: Routledge.
- Maton, K. and Howard, S. K. (2016) 'LCT in mixed-methods research: Evolving an instrument for quantitative data', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 49–71.
- Maton, K. and Howard, S. K. (2018) 'Taking autonomy tours: A key to integrative knowledge-building', *LCT Centre Occasional Paper 1* (June): 1–35.
- Maton, K., Hood, S. and Shay, S. (eds) (2016a) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge.
- Maton, K., Martin, J. R. and Matruglio, E. (2016b) 'LCT and systemic functional linguistics: Enacting complementary theories for explanatory power', in K. Maton, S. Hood and S. Shay (eds) *Knowledge-building: Educational studies in Legitimation Code Theory*, London: Routledge, 93–113.



- Muijs, D. and Reynolds, D. (2018) *Effective Teaching: Evidence and Practice*, Los Angeles: Sage.
- Ryan, J. (2013) 'Listening to "other" intellectual traditions. Learning in transcultural spaces', in J. Ryan (ed.) *Cross-Cultural Teaching and Learning for Home and International Students*, London: Routledge, 279–89.
- Smith, P. J., Coldwell, J., Smith, S. N. and Murphy, K. L. (2005) 'Learning through computer-mediated communication: A comparison of Australian and Chinese heritage students', *Innovations in Education and Teaching International*, 42(2): 123–34.
- Thomson, E. A. (2014) *Battling with Words: A study of language, diversity and social inclusion in the Australian Department of Defence*, Canberra: Australian Government.
- Tobias, S. and Duffy, T. M. (eds) (2009) *Constructivist Instruction: Success or failure?*, Abingdon: Routledge.
- Vidal Lizama, M. (2017) 'Knowledge in your classroom: A model of analysis for specialisation codes in classroom discourse', *Onomázein*, March: 149–78.
- Zhao, N. and McDougall, D. (2008) 'Cultural influences on Chinese students' asynchronous online learning in a Canadian university', *Journal of Distance Education*, 22(2): 59–80.