Metalinguistic Knowledge in Instructed Second Language Acquisition: a Theoretical Model and its Pedagogical Application in Computer-Mediated Communication

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DECLARATIONS

I hereby declare that this thesis, submitted in candidature for the degree of Doctor of Philosophy at Trinity College, Dublin, has not previously been submitted for a degree at this or any other university.

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Summary

This thesis has three interrelated aims. The first is to elaborate a model of instructed second language acquisition (SLA) that brings together insights from cognitive research in second language acquisition and from the developmental and learning theories of Lev Vygotsky. The second is to identify the pedagogical implications of this model, and the third is to evaluate this pedagogy as implemented in a computer-mediated communications (CMC) environment.

Chapter 1 subjects existing Vygotskian second language research to a critical assessment and concludes that much of this research is based on an inadequate understanding of Vygotsky's theory. Many investigators have assumed that the theory implies that language learning can be explained in terms of internalisation in communicative interaction; I suggest that this assumption is problematic, and propose instead that more emphasis should be given to the individual-cognitive dimension of Vygotskian theory. I argue further that the role of consciousness is crucial and that this provides an important point of interface with mainstream SLA research.

Chapter 2 reviews the literature on the role of consciousness in SLA, and especially the concept of noticing. A revised version of Richard Schmidt's noticing hypothesis is proposed, based in part on a critique by John Truscott. Annette Karmiloff-Smith's model of representational redescription in cognitive development forms the basis of the model of instructed SLA, which incorporates insights from the discussions of Vygotsky and noticing. According to the model, acquisition of the tacit linguistic competence underlying most performance in canonical situations is unconscious and leads in the first instance to lexical/procedural representations of linguistic knowledge. Conscious metalinguistic knowledge develops separately, but has important roles to play in both language use and learning.

Chapter 3 draws out the pedagogical implications of the model and suggests that tandem language learning (an exchange arrangement involving bilingual learning partnerships) and engagement with written language have important roles to play in any implementation of this pedagogy. It further

assesses the benefits that CMC, and specifically a system known as a MOO (Multiple User Domain, Object-Oriented), might bring to such an implementation.

Chapters 4 and 5 contain an empirical study of tandem learning in the MOO, based on data from a tandem exchange between Fachhochschule Rhein-Sieg, Germany, and Trinity College Dublin, Ireland. Chapter 4 sets out the institutional and pedagogical context and analyses preliminary data relating to participation, interaction and language balance. Chapter 5 focuses on the substantive questions of metalinguistic behaviour and processes in the MOO. MOO session transcripts are analysed under the headings of negotiation of meaning, self-repair, and other-correction, and the success of a prescribed writing/peer-reformulation task in generating metalinguistic dialogue is evaluated. Finally, tentative conclusions are drawn on the basis of online interview data concerning the metacognitive processes that take place in MOO interaction.

The conclusion summarises the thesis and sets out the chief findings and intended contributions to the pertinent research fields. The study cannot claim to have shown that interacting in a MOO brings with it automatic benefits in the form of metalinguistic processes. Rather, the data leads us to the replacement of a simple causal model of the relationship between communications medium and metalinguistic process with a three-part model: a medium may *compel*, *afford* or *provide potentials* for metalinguistic reflection. This model should be applicable also to other applications of computer technology to language learning. Evaluation efforts should therefore include analysis of such applications in terms of these three categories of reflective opportunity, and attempt to identify appropriate kinds of pedagogical intervention that will allow learners to gain optimal metalinguistic benefits from their use of technologies. Finally, the value of the tandem learning framework is clear, but it is essential to match partners as closely as possible in terms of language proficiency.

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Key to Abbreviations

BAICT	Bachelor of Arts (Moderatorship) in Information and Communications Technologies
CA	Conversation Analysis
CALL	Computer-assisted language learning
CLCS	Centre for Language and Communication Studies
CMC	Computer-mediated communication
ESL	English as a Second Language
FHRS	*Fachhochschule Rhein-Sieg*
GE	German (designating a student or students on the German side of the TCD-FHRS exchange)
ICT	Information and Communications Technology
IR	Irish (designating a student or students on the Irish side of the TCD-FHRS exchange)
IRC	Internet Relay Chat
L1	First language (mother tongue)
L2	Second or foreign language
LRE	Language-related episode
MOO	Multiple user domain, object-oriented
NLP	Natural language processing
NNS	Non-native speaker
NP	Noun phrase
NS	Native speaker
SLA	Second language acquisition
TCD	Trinity College Dublin
UG	Universal Grammar
ZPD	Zone of proximal development

Introduction

Recent calls from certain educational theorists for a fundamental re-evaluation of the dominant paradigms in their fields might be characterised as broadly postmodern. Many researchers in the human sciences have been receptive to doubts voiced by cultural theorists concerning the ability of Western scientific method to arrive at universal truth. In educational theory, this feeling has been manifested as a reaction by some against what we might call cognitivism. They see this, the prevailing paradigm, as too narrow; its exclusive focus on the decontextualised mental processes of the individual is for them reductionist, and possibly determined in some measure by the positivist's concern for experimental tractability. As to meta-scientific questions, there have been calls for a reconceptualisation of the nature of scientific enquiry in the human sciences, in particular for a recognition of the interested nature of all science, from the framing of research questions to the assumptions inherent in methodology. As a corollary of this view, and in opposition to the universalist nature of conventional scientific thought, they call for the recognition throughout the research process of the situatedness – social, cultural, historical – and distributed nature of cognition in general, and of learning in particular (Lave & Wenger, 1991; Salomon, 1993).

In applied linguistics too there has been some dissatisfaction with the dominant paradigm (e.g. Dunn & Lantolf, 1998; Lantolf, 1996; Masny, 1996), not surprisingly given the enormous influence on it of Chomsky's brand of universalism. The effect of his influence in linguistics has been to strengthen the belief that the aim of linguistic enquiry, like any natural science, is to identify and study the general and objective (in Chomskian terms, competence) among the imperfection of the specific and subjective (performance). The thrust of linguistics in Chomsky's wake has always been towards idealisation and normalisation. Yet much of what applied linguistics and second language research is about is precisely the kind of data that resists normalisation, what Chomsky dismisses as the mere marginalia of science, the clutter of performance. Sociolinguists, second language researchers and others have

criticised his dismissal of that which doesn't address the (for him) core issue of the nature of innate linguistic competence. But they have also, perhaps to an extent that would not have obtained in the absence of the Chomskian agenda, adopted wholesale controlled experimentation and quantitative methods whose essential purpose is precisely abstraction, normalisation, idealisation, the compartmentalisation of phenomena and the sifting out of potentially 'interfering' contextual factors.

It is against this background, perhaps in reaction to the influence of Chomskian mentalism in the social sciences generally, that interest in sociocultural and sociohistorical approaches to cognition has burgeoned, with Vygotsky as the leading light. Given this growing desire to study cognitive development as socially situated, it might at first glance seem surprising that Vygotsky's ideas have not been drawn upon more widely in the study of language acquisition. But years of conventional research in this area have produced many insights, some seen as substantial and robust, others admittedly tenuous and debatable, as well as a tradition of enquiry that seems by no means exhausted. A shift in the agenda like that apparently entailed by the adoption of Vygotskian theory, or any other social-developmental paradigm, might seem uncomfortably like going back to square one.

My primary interest in beginning this thesis was to explore computer-assisted language learning (CALL): following on from previous research in the Centre for Language and Communication Studies (CLCS) (Little, 1994a, 1996a, 1996b), I intended to examine the learning interactions of small groups gathered at computers. If such a research orientation was uncommon in the broad field of educational computing (but see, e.g., Crook, 1994; Laurillard, 1987, 1993; Littleton & Light, 1999), it was still scarcer in second language pedagogy, the few instances of a collaborative focus including Legenhausen & Wolff (1991) and the above-cited research by Little. Most work in the field drew mainly on mainstream SLA theory (e.g., Chapelle, 1998; Doughty, 1992; Ellis, 1995). It seemed clear that a Vygotskian framework was the natural one within which to explore such tool-focused group processes. However, my examination of Vygotskian approaches to second-language issues led me to question the way in

which this sociocultural perspective was being interpreted and applied. When my research focus shifted to computer-mediated communication (CMC), it quickly became clear that in contrast to the 'conventional' CALL literature, social-constructivist, sociocultural and situated-learning perspectives were among the most influential in the field (e.g., Berge & Collins, 1995a, 1995b; Berge & Collins, 1995c; December, 1993; Herring, 1996; Lamy & Goodfellow, 1999; Warschauer, 1997a, 1997b, 1997c; Warschauer & Kern, 2000; Wegerif, 1998) – but still I was unconvinced by the way in which Vygotsky's ideas were put into service.

The stimulus for the theoretical component of this thesis, then, is the conviction that Vygotsky's work has much to tell us about learning both from the internal (cognitive) and the external (social) perspective, but that his theory, by itself, is too schematic to shed much light on the detailed processes of language learning. It is crucial to base any empirical research into the use of technology in language learning on a well worked-out model of second language acquisition, and research into CMC in language learning seems to me to be basically right in looking to Vygotsky. But Vygotskian theory, I maintain, needs to be allied to cognitive psychology and mainstream second language acquisition research.

These themes form the initial focus of the thesis. Chapter 1 examines the central tenets of Vygotskian theory and critiques the principal ways in which the theory has been applied in second language research. These applications are: (i) the analysis of learner discourse in terms of 'control' functions, which I argue says nothing about acquisition of language and is in many cases scientifically empty; and (ii) the oversimplified application of the construct of the zone of proximal development (ZPD) to language acquisition, which is based in part on an elementary confusion of speech with language and which makes the unwarranted assumption that learning a language is like learning in any other domain.

While most applied-linguistics research drawing on Vygotsky has focused on the notion of learning as a social process, I believe that the individual-cognitive dimension, without which the theory struggles to maintain coherence,

has been neglected or misconstrued. The role of conscious processes is central to Vygotsky, and in Chapter 2, in an effort to find a point of interface between cognitively-oriented SLA and Vygotskian approaches, I explore the debate on conscious awareness in SLA. I look in particular at Schmidt's noticing hypothesis (e.g., Schmidt, 1990, 1993, 1994, 1995b) and at Truscott's (1998) critique of it; then at the role of metalinguistic knowledge and reflection in language learning and use, exploring in particular the broadly commensurable models of Bialystok (1986; 1991a) and Karmiloff-Smith (1986; 1992). These considerations are synthesised in a model of instructed SLA that draws chiefly on Karmiloff-Smith's model of representational redescription. I conclude by showing how this model accords with and completes the Vygotskian view of interaction between endogenous and sociocultural knowledge and assigns a number of functions in learning to conscious metalinguistic knowledge.

Chapter 3 draws out the pedagogical implications of the model, in the process returning to social interactive perspectives, in both the Vygotskian and the conventional SLA traditions. I argue that while L2 input and interaction research as practised especially by Long (1983; 1985) and Pica (1994; Pica & Doughty, 1985) provides an inadequate account of acquisition, more recent work by Swain, influenced by Vygotsky (Swain, 1995, 1998, 2000), offers a fuller understanding of SLA, and one which in its emphasis on conscious reflection on form accords well with the present model. I frame three features of a pedagogy based on these arguments. The chapter then goes on to consider ways in which these features can be operationalised: first I introduce the idea of tandem language learning and discuss its potential. Next, I discuss the role of written language in supporting a metalinguistic focus. Finally, I turn to text-based, synchronous CMC and consider what it might offer language learners in the light of the foregoing considerations.

The empirical component of the thesis is contained in Chapters 4 and 5. The study is on a MOO-based tandem exchange between Trinity College Dublin and Fachhochschule Rhein-Sieg, Germany. Chapter 4 sets out the institutional/organisational and pedagogical context and presents a learning activity, involving writing and peer reformulation, which is intended to foster

deeper metalinguistic reflection than might otherwise arise. I then go on to consider research-methodological issues, presenting a preliminary characterisation of the operation of the exchange in terms of participation and attendance, interactional style and language balance. These measures form the backdrop for the data analysis of Chapter 5, which examines behaviours held to promote or indicate a focus on form, and explores the influence of the communications medium and the pedagogical framework on these behaviours. The conclusion contains synthetic summaries of the chief discussion points and findings of each chapter. I also attempt to identify the research areas to which the thesis may contribute, and finally suggest some areas in which further research will be valuable.

Chapter 1: Vygotskian theory and its application to second language acquisition

1.1 Introduction

Interest in Lev Semenovich Vygotsky's sociocultural theory of cognition and cognitive development (Vygotsky, 1962, 1978) has gained much momentum since the 1970s. The driving force behind his work was the desire to elaborate a theory of human development which, having society and social interaction squarely at its centre, would do justice to the Marxist ideal of a historical science (see citation from unpublished notebooks in Vygotsky, 1978, p. 8). Vygotsky was hence avowedly influenced by the ideology of his place and time, namely, the Soviet Union of the immediate post-Revolutionary period, a time of great intellectual enthusiasm (Wertsch, 1985, pp. 7, 10). Undoubtedly some of the writers that work in the paradigm he established share his Marxist convictions to a greater or lesser extent and assign it a central role in their research (Hood Holzman, 1996; Newman & Holzman, 1993). Yet there is a growing Vygotskian 'school' of psychology which, whatever the social and political convictions of its proponents, sees no need to place the tenets of dialectical materialism at the centre of their thought. Such researchers believe that, as Newman and Holzman (1993) paraphrase the view, 'Vygotsky has made major contributions to the development of psychology […] his work fits comfortably inside the dominant paradigm and can advance, deepen and reform psychological practice as it currently exists' (p. 11).

Newman and Holzman see such a view as a dilution or a taming of the radical Vygotsky; and perhaps it is, historically. But the legacy of formative thinkers often looks quite different to what they themselves expected, or even hoped for. New contexts, new intellectual climates highlight aspects of their work in unexpected ways, sometimes to the detriment of aspects that seemed to them fundamental. My interest, then, is not in doing justice to the historical Vygotsky and his ideological commitments, though it is not feasible to purge his ideas of their Marxist roots. My interest is rather in Vygotsky as he has come down to present-day research. This is not to downplay the importance of

Vygotsky's own writings in favour of recent interpretations, for if, as is doubtless the case, 'today's Vygotsky' is not monolithic, nonetheless a 'Vygotskian' approach surely implies a commitment to certain well-defined views of the world. These are views that have remained to all purposes intact since Vygotsky formulated them. It is these central conceptions to which I will turn first.

1.2 Vygotsky on language, learning and development

Vygotsky founded his theory on the conviction that the essence of human development lies in the modification of what he called the child's natural (i.e., biologically determined) line of development through its intersection with the cultural line of development: 'the history of child behaviour is born from the interweaving of these two lines' (Vygotsky, 1978, p. 46). Those cognitive faculties that unfold naturally are lower-order functions, and are directly environmentally conditioned; Lantolf and Appel (1994a) note that Vygotsky did not provide an account of such functions, but suggest that they include 'input systems (that is, vision, hearing, tactile, and olfactory systems) as well as natural memory and involuntary attention' (p. 5). Higher cognitive functions are defined (Vygotsky, 1978, p. 39) as cognitive functions that are governed by self-generated stimuli, which is to say, signs. They have their origins in the transformation of the lower order functions in the course of the child's social interactions. Vygotsky argued that support from caregivers or more able peers enables the child to perform tasks in advance of her actual developmental level – that, in fact, such assisted performance of tasks constitutes social mediation of higher-order functions which, for the child, are not yet properly cognitive. Speech plays a central part in this mediation: it is through a qualitative shift in the child's use of language that socially mediated activity comes to be internalised as fully cognitive functions.

The most influential account of the sequence of stages through which the child proceeds in attaining autonomy, thereby internalising the higher functions, is that elaborated by Wertsch (e.g., 1979; 1985), who uses the concepts of object-regulation, other-regulation and self-regulation. In the absence of speech-

mediated support from caregivers or more expert children, and not yet having the cognitive capacity to represent decontextualised goals (that is, goals not directly suggested by the environment; Wertsch, 1979), the child is effectively at the mercy of the environment; she is said to be object-regulated, and incapable of carrying out tasks that require abstract representation. Social speech facilitates coordination between child and caregiver in task performance; for example, the child might seek aid and describe her difficulties, and the caregiver might respond with suggestions or describe his actions as he gives practical help. At this stage, the child is said to be 'other-regulated' in relation to the task. Next comes egocentric speech, where the child is capable of performing the task independently, but where she supports herself by 'talking herself through it'. Language is being used not as a means of communication but as a psychological tool, semiotically mediating operations that are still not fully internalised; where speech previously served to influence others, the child now uses it to influence herself:

> When children develop a method of behaviour for guiding themselves that had previously been used in relation to another form of behavior, they succeed in applying a social attitude to themselves. The history of the process of *the internalization of social speech* is also the history of the socialization of children's practical intellect. (Vygotsky, 1978, p. 27; emphasis in original)

The final stage is reached when egocentric speech becomes silent, that is, when it becomes *inner speech*. Hence, egocentric speech is functionally intermediate between social and inner speech, and inner speech, as a 'dynamic, shifting, unstable thing, fluttering between word and thought' (Vygotsky, 1962, p. 149), is a form of verbal thought that functions on a plane short of pure thought itself. Both egocentric and inner speech function as 'instruments of thought' (Vygotsky, 1962, p. 17). The mechanism by which the incorporation of signs into activity transforms the nature of cognitive functioning is described by Vygotsky as follows:

> Created with the help of speech, the time field for action extends both forward and backward. Future activity that can be included in an ongoing activity is represented by signs. As in the case of memory and attention, the inclusion of signs in temporal perception does not lead to a simple lengthening of the operation in time; rather, it creates the conditions for the development of a single system that includes effective elements of the past, present, and future. This emerging psychological system in the child now encompasses two new functions: *intentions and symbolic representations of purposeful action.* (1978, pp. 36-37; emphasis in original)

At this point we can speak of the operations in question being fully internalised, and of the child as being self-regulated in relation to the task, facilitated by either egocentric or inner speech.

The interaction between the social context for learning and the child's individual development is expressed in Vygotsky's concept of the zone of proximal development (ZPD). This he defined as 'the discrepancy between a child's actual mental age and the level he reaches in solving problems with assistance' (1962, p. 103). This notion captures the 'dynamics of intellectual progress' (ibid.) as the less subtle metric of mental age *tout court* cannot (Wertsch, 1985, pp. 67-69, discusses this in greater depth). While Vygotsky's definition is quite precise, this notion has proved to be one of the most productive in Vygotsky-inspired educational psychology, and it has mutated and been recast in many ways. Lave and Wenger (1991, pp. 48-49) distinguish between three interpretations of the ZPD: first, the 'scaffolding' interpretation, which is much as Vygotsky originally envisaged, incorporating the notion of assisted performance. The concept of scaffolding is now associated mainly with Bruner; the term was introduced by Wood, Bruner, & Ross (1976). Second, they identify a 'cultural' interpretation, in which the ZPD is construed as 'the distance between the cultural knowledge provided by the sociohistorical context […] and the everyday experience of individuals'.[1] The two poles in this definition are closely related to Vygotsky's distinction between scientific and spontaneous, or everyday, concepts, where the scientific are those concepts acquired through instruction and the spontaneous are those gleaned directly from everyday experience.[2] In a third interpretation, described as a 'societal' or 'collectivist' one,

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[1] 'Cultural knowledge provided by the sociohistorical context' seems also to have a good deal in common with the conception, adopted by Scardamalia et al. (1994) after Popper, of World 3 knowledge: knowledge 'owned' by the community as opposed to located in the individual mind.

[2] This 'cultural' interpretation is conceptually isomorphic with Vygotsky's explicit conception of the ZPD – both entail a gap between 'subjective' and 'other-constituted' knowledge – and the two are also genetically similar in Vygotsky's understanding. Scientific and everyday concepts eventually reach a synthesis, in the form of mature concepts, through a mutually complementary progression of increasing abstractness of everyday and increasing concreteness of scientific concepts (see discussion below, Chapter 2, p. 95). In the 'scaffolding' interpretation of the ZPD, the internalization of socially-mediated

the ZPD is considered to be the distance between individual actions and collectively generated societal activity (Lave & Wenger, 1991, p. 49).

1.3 Vygotskian approaches to second language research

In this section I will examine the two principal ways in which Vygotskian constructs have been applied in the field of second language learning. It will be argued that while these initial efforts offer an important corrective to narrowly internal-cognitivist approaches, they fail to make the necessary connection between social-interactional and mental processes. The social perspective needs to be wedded to a cognitive model in order to be fully convincing: in the area of second language acquisition (SLA) at least, Vygotskian theory offers a model of learning and development that complements rather than replaces existing research traditions. This follows from the claim that there are central areas of the phenomenon of language to which Vygotsky does not speak at all, and that certain conventional assumptions about language are compatible with the Vygotskian model, despite the fact that this model and conventional SLA research are often portrayed as mutually antagonistic (Donato, 1994). I will also argue that much recent work applying Vygotsky to SLA has a misplaced emphasis, and in certain cases either takes a too superficial view of the implications of Vygotsky or else fails to resolve adequately the tensions between his social focus and the more traditionally internalist approach of mainstream SLA research. Following on from this, I will highlight those areas of second language research where I think Vygotskian theory can best be applied.

Vygotsky had little to say on the subject of foreign language learning;[3] indeed, he had less to say even about the development of the child's native tongue than is often supposed, a point to which I will return below. So the question naturally arises, how does Vygotskian theory 'plug in' to the issues of second language acquisition? What has been the starting point for applications

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functions entails transformation of existing lower-order functions. Both cases involve accommodation of the individual and 'natural' to the socially-mediated and historical.

of Vygotsky to SLA research? A review of the literature suggests that the interface has been accomplished in two ways: first, from the general educational perspective. Vygotsky is taken to have significance for all curricular subjects if he has significance for education at all (e.g., Moll, 1990). In general learning theory, as noted above, the most influential component of Vygotsky's theory has been that of the zone of proximal development, in its original, 'scaffolding' interpretation (e.g., Hedegaard, 1996; Mercer, 1995); it is implicit across much of the second-language literature that the mechanism of 'scaffolding' in the ZPD applies as easily to the second language situation as to any other curricular subject. I will argue below that this assumption is problematic and requires more attention than it has hitherto been given. The second point of interface between Vygotsky and SLA has been the supposition that Vygotsky was concerned with language development *per se*; any of his insights concerning child language development can then be assumed, or demonstrated, to be relevant to second language learning in the same way as would insights concerning L1 deriving from any other theory. I hope to clarify precisely what we can say about Vygotsky's view of the development of language, and arising from this, outline an understanding of the nature of language that is compatible with his theory. On the basis of this it will be possible to specify in what way Vygotskian theory can contribute to SLA theory.

1.3.1 Vygotskian analysis of learner discourse

Before we proceed to examine the way in which the scaffolding/ZPD model has been exploited, it is worth looking at how another, closely related application of one of Vygotsky's concepts, that of regulation, has been deployed in characterising second language discourse (Ahmed, 1994; Antón & DiCamilla, 1998; Brooks & Donato, 1994; Frawley & Lantolf, 1985; Washburn, 1994). Such studies take as their starting point, explicitly or implicitly, the conviction that conventional analyses of second language discourse, based on information-

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[3] The sole passage where he does refer to it is in *Thought and Language* (Vygotsky, 1962, pp. 109-110). This passage draws on foreign language learning by way of analogy, to illustrate a broader point concerning what Vygotsky called scientific and everyday concepts.

processing models of the speaker/hearer and stressing the importance of the linguistic environment, are inadequate in their description of communicative events. This inadequacy arises out of a failure 'to capture how utterances interact with social realities, evoking transformations of the social situation as well as constituting them' (Brooks & Donato, 1994, p. 263). The fatal flaw in the traditional approach lies in its reliance on the conduit metaphor of communication:

> The problem with this theoretical orientation is that it only *superficially* recognizes the influence of the social context on individual linguistic development. More specifically, it claims that although individuals are socially situated, the process of L2 acquisition remains the solipsistic struggle to receive, analyze, and incorporate input into developing linguistic systems. The development of interlanguage grammar remains an abstract, solitary process hidden in the heads of individuals rather than concretely available in the social relationships among learners (Donato, 1994, p. 35)

As a result of this, the argument goes, studies in the traditional mould are too numbers-driven. In their attempts to categorise and quantify specific linguistic features indicative of meaning negotiation (whose purpose is to yield comprehensible input for processing and intake), they fail to capture 'how speaking is used as a strategic tool for cognising and constructing tasks, meaning and shared situational definitions' (Brooks & Donato, 1994, p. 263).

Frawley and Lantolf (1985), in selecting the methodology and theoretical framework for their study, have similar considerations in mind: they wish to 'discuss the linguistic forms of discourse in terms of the roles they play in the *activity of relating a discourse*, not in terms of the forms *as pure forms*' (p. 24; emphasis in original). They report on an experimental study of the discourses of intermediate ESL students in a narration task. The task required the subjects to narrate a story told in six pictures, which were presented in sequence and one at a time. The resulting discourse was analysed and compared with those of advanced ESL learners, native-speaker adults and native-speaker children performing the same task. They examine four aspects of discourse: macrostructure, verb tense and aspect, reference, and affective markers. Let us look at each of these in turn. Phenomena classified under 'macrostructure' are those that involve explicit reference by the speaker to his knowledge of discourse organisation, which is taken to be revealing because 'in Vygotskyan

theory, we would expect the speaker for whom the task is more difficult to begin the discourse by externalising the macrostructure in order to achieve self-regulation; the task must be known before it can be carried out' (Frawley & Lantolf, 1985, p. 26). Under this heading they note naming of characters (in order to 'know the discourse by framing the character'; p. 26); overt questioning of the macrostructure in utterances such as 'What's this?' (which they take to mean 'what should be said at all?'), whether self-directed or addressed to the experimenter, in which latter case it constitutes an appeal for other-regulation (p. 27); and the overt marking of narrative perspective through phrases such as 'I see' and 'we saw'.

Frawley and Lantolf's analysis of tense and aspect relies on the view that the historical, atemporal present is the tense most usually used in narrative discourse. The quantitatively most significant departures from this norm in native-speaker children and ESL students are the use of the past and of the present progressive; these are analysed, respectively, as an attempt to control the task through distancing the events narrated ('The past tense objectifies the events and makes them, thus, *knowable*'; p. 32, emphasis in original), and as the result of object-regulation by the task: '[…] if the speaker is regulated by each frame as an object, then each frame will be immediate and discrete. Hence, the events are narrated in the progressive, which gives immediate events duration.'

In the case of pronominal reference, Frawley and Lantolf note that their non-native subjects appear to use a strategy that was exophoric in nature; i.e., instead of employing full NPs to signal a shift to a new thematised subject and then obeying local, syntactic rules for pronominalisation, they tend to use a pronoun for every thematised subject, regardless of shifts in reference. This is noted to be similar to the behaviour of native-speaker children under the age of about six, but dissimilar to that of older children, who follow native adult-like principles in their pronominalisation strategies. They account for this in terms of object-regulation: the children's narratives are in fact addressed not to an imaginary hearer, but only to themselves. This is egocentric speech, an attempt at achieving self-regulation. The intermediate ESL students and the younger children are object-regulated to the point that each frame of the story is self-

contained, so that the coherence of the narrative breaks down. The use of successive pronouns marks the fact that egocentric speech is being used, and that therefore there is no need to signal thematic shifts, since the theme is already psychologically present to the speaker.

As to affective markers ('Oh!', 'OK', laughter) Frawley and Lantolf note only that 'they are a type of predication and they result from object regulation' and that they 'constitute clear evidence that speakers are addressing no one other than themselves' (p. 39).

So Frawley and Lantolf in each of these four aspects of discourse discern evidence of the pervasive use by the non-native speakers of egocentric speech and, to a lesser extent, appeals for help from the experimenter: appeals, in other words, for other-regulation. They also find this to contrast with the data from adult native speakers, and to be comparable to the discourses of the native-speaker children. From this they draw a number of conclusions:

1. There is a continuity between the second-language learner and the native speaker; they predict that given a sufficiently difficult narration task, adult native speakers too would produce discourse reminiscent of that of the ESL subjects. This continuity is further evidenced by the productions of native-speaker children, which are similar to those of the ESL subjects in salient respects.

2. What have been catalogued as errors originating in various distorting processes (interference, over-generalisation, simplification...) are explicable in terms of control in the Vygotskian sense: the speaker being object-regulated by the task, the speaker attempting to control the task through egocentric speech.

3. They discern a methodological implication: what is being elicited in many experimental communicative tasks, they argue, is not communicative speech, but private (egocentric) speech, with no addressee other than the speaker himself.

4. With regard to communicative strategies, they assert that what they regard as the cumbersome taxonomies of, for example, Faerch and Kasper (1983) can be collapsed into the three Vygotskian control functions (types of regulation), and that these have an explanatory power absent from the strategies literature – an argument which, if accepted, would have profound implications for one of the major areas of applied linguistic research.

There is a ring of plausibility about many aspects of Frawley and Lantolf's interpretations. In particular, on the basis of the data they present, there certainly appears to be a similarity between the intermediate ESL students' and native-speaking children's discourse in the four areas of study, and much of this does indeed suggest private rather than communicative speech. However, there are very serious problems with their method. First, their experimental task is highly artificial, in that it is deemed to be accomplished merely when the subject has produced more or less appropriate utterances for each picture. There is a very large difference between a task like this, whose success is judged by no other criterion than the mere fact of saying something, and a real-world task in which communication has an extrinsic purpose, and in which successful communication and successful task completion mutually entail one another: e.g., if the task is to elicit an opinion from the interlocutor, then communication has succeeded if and only if the interlocutor proffers the said opinion, and the goal of the task is achieved if and only if communication is successful. Even in a classroom setting the experimental task would have at least the dubious extrinsic purpose of eliciting approval from teacher or peers. It is not clear, then, that Frawley and Lantolf's conclusions can legitimately be extended to second language discourse in general, where communication is more goal driven and constrained by social pressures.

Second, and crucially, their argument is seriously undermined by the circularity of their analysis. They present a certain feature – say, use of the progressive – and argue that it appears at a given moment because the speaker is experiencing difficulty and is object regulated by the task. But how do we know that the speaker is experiencing difficulty? Apparently, only because he is using the progressive, which indicates object regulation. No independent standard for gauging the learner's level of control is offered. If their analysis was to have any real validity, it would have to have predictive potential; they might, for example, claim that if an ESL subject makes more frequent than average use of the progressive in the task, he is likely to use more affective markers than average in the same task, or is more likely to employ the exophoric pronominal strategy, and so forth. But the data is not presented in such a way as to allow

identification of the speakers across the four discourse features, and Frawley and Lantolf make few comparisons between these features as used by individual speakers. Indeed, on one occasion when they do, the data rather support the accusation of circularity; they report that a five-year-old used the past tense in the experimental task: 'the child is removing herself from the task of narration because of its difficulty' (p. 35), and hence, by their account, achieving self-regulation. But given a different picture sequence, the same child uses the progressive aspect; their interpretation is that 'the child is object-regulated […] the events regulate the narrator here, and consequently are marked aspectually for this function' (ibid.). Schematically, their argument, in this case and throughout the paper, runs as follows: linguistic feature F is the operationalisation of regulation strategy R; R indicates difficulty level L for the subject at this point in the task; difficulty level L is a predictor of regulation strategy R, and R will be operationalised as linguistic feature F. Thus the entirety of the analysis consists of *a posteriori* interpretation and fundamentally amounts to nothing more than an assertion, supported only by a degree of intuitive plausibility (and sometimes not even by that), that certain linguistic features are associated with certain Vygotskian regulation or control functions.

This is worth pointing out since it is symptomatic of a possible problem with applications of Vygotskian theory generally, a problem that arises not directly out of its basic principles, but rather out of the methodological implications that those principles are sometimes held to give rise to. Frawley and Lantolf themselves give an unambiguous account of what they believe the Vygotskian position to entail:

> […] an analysis must be done of the *actual instances* of discourse *by the individual*. We make no attempt to quantify the results, since Western statistical rhetoric is based on the concept of the mean, which by definition excludes the individual. The individual is of primary importance in Vygotskyan theory, and thus instances of individual discourse are the only legitimate objects of analysis. (p. 24; emphasis in original)

This is an instance of the kind of discomfort with Western science that was identified in the introduction as giving rise to interest in sociocultural theories. However, there appears to be a danger that the arguably healthy adoption of a more critical attitude to strongly quantitative methods might give rise to the relaxation of standards of verifiability, which can lead to superficially plausible

but essentially unscientific claims – unscientific because they inherently preclude the possibility of disproof.

A later study (McCafferty, 1994) was based on an identical task type, but did subject the data to statistical analysis. McCafferty adopted Frawley and Lantolf's features essentially unmodified. His study is on a firmer footing, though, since it involved correlating occurrence of the various features in the speech of individuals with proficiency as established through independent methods. His results, he argues, corroborate the Vygotskian hypothesis that the mechanism of private speech is drawn upon where the speaker has limited control of the task (specifically, where the speaker is less proficient in the language). However, it remains the case that his interpretations of the statistical findings are open to other interpretations; for example, his results show that Hispanic subjects used (i) more forms held to indicate other-regulation, and (ii) more instances of the progressive, than did his other subjects (Asians). McCafferty suggests that this might be due to a cultural-historical factor; but in the case of the progressive, at least, one might equally speculate that 'positive interference' is at work, since the Spanish and English present progressive forms are structurally isomorphic (*be* + present participle / *estar* + present participle). To the extent that his findings harmonise with those of Frawley and Lantolf, his study also shores up their assertions. There are differences, however: one of his principal findings is that past tense may not in fact be a 'robust' form of self-regulatory behaviour. These differences in interpretation underscore the highly subjective nature of simple mappings from types of regulation to specific linguistic forms.

Yet another study, by Ahmed (1994), seeks to extend the work of Frawley and Lantolf by testing their hypothesis that the continuum that they found between the discourse behaviours of non-native speakers and native speaking children would extend also to adult native speakers, given sufficiently difficult tasks. Like Frawley and Lantolf, Ahmed eschews quantitative analysis in this study, but unlike either Frawley and Lantolf or McCafferty, he uses a joint problem solving task to focus on dialogic communication. His paper reports on two dyads, a native speaker/non-native speaker (NS-NNS) pair, and a NS-NS pair. The task requires the subjects to put a set of pictures in logical sequence.

He focuses in this chapter solely on the tense-aspect feature of the subjects' discourse. In his conclusions he expresses support for Frawley and Lantolf's claim that the discourse behaviour continuum extends to adults, i.e., that there is no categoric difference at the behavioural level between non-native and native speakers; but he also modifies their findings by suggesting that

> the form function relation is dynamic […] two different linguistic features (the present progressive and the past tense) can have the same cognitive function. On the other hand, the same linguistic feature in the speech of the same person can serve more than one function […] Thus the schema for the regulatory functions of tense-aspect provided by Frawley and Lantolf […] is not an absolute model for all tasks, even within the mode of narrative discourse. (pp. 170-171)

If correct, this suggests that Frawley and Lantolf's model, however dubious its basis in their study, is now deprived entirely of whatever predictive power it might have had. Ahmed's conclusion seems to imply that even supposing a given type of regulation can be established independently, the modified model fails to predict unambiguously which tense-aspect form (present progressive or past) is likely to be produced; nor can we ascertain from the verb form which type of regulation obtains. But ultimately, and like Frawley and Lantolf's study, the analysis rests in any case on entirely subjective assessment of the degree of control obtaining, supported by circular logic. Let us take an example:

> […]in the next utterance [subject NS1] uses the atemporal present ('he brings the cabbage'), apparently having concluded in his mind that this step in the puzzle has been resolved. The use of the atemporal present thus shows the speaker's achievement of self-regulation by means of his ability to express both distance and immediacy simultaneously. (p. 165)

In the absence of any suggestion to the contrary, we must assume that the proposition introduced by that 'apparently' is supported only by the presence of the atemporal present. If this is the case, Ahmed's analysis amounts to the following: we know the speaker has achieved self-regulation because he has used the atemporal present; we can thus conclude that the atemporal present shows the speaker's achievement of self-regulation.

It is also interesting to note that these kinds of analysis are not after all much more holistic than conventional input studies (e.g. Gass & Varonis, 1986; Pica & Doughty, 1986); both McCafferty's and Ahmed's follow-on studies to Frawley and Lantolf highlight the extent to which it is indeed decontextualised linguistic forms that are at issue in such experiments.

Brooks and Donato's (1994) study employs Vygotskian concepts to focus on speech as it shapes interaction, rather than, as they would argue is the case in conventional input research, using speech data as a quarry from which to extract discrete and seemingly autonomous linguistic tokens. However, it contrasts also with Frawley and Lantolf (1985) and McCafferty (1994) in that it is based on pair or small group tasks, whereas in the picture-story narration experiments, opportunities for interaction were to all intents nil. They present a Vygotskian reanalysis of data from a study that was originally carried out under the auspices of the meaning-negotiation model (Gass & Varonis, 1985; Varonis & Gass, 1985). The study used an information-gap task requiring reconstruction of a completed diagram by two L2 learners, each of whom had a partial diagram not seen by the other. They employ concepts partly indebted to the notion of control functions, or stages of regulation, but deriving in the first place from Ahmed (1988); these are what they call 'instrumental functions of speaking' in dyadic problem solving: speaking as (1) object regulation, (2) shared orientation, and (3) goal formation. The study analyses the subjects' discourse in these terms. Speaking as object regulation they take to encompass primarily 'metatalk' – talk about the task itself and about the discourse. This, they believe, constitutes an effort to control the task through objectifying it in speech. In interactional terms, it serves to initiate and extend the discourse. Speaking as shared orientation refers to the way in which speech is used to establish joint understandings of the problem and joint strategies for solving it. Speaking as goal formation seems to be simply a special case of speaking as shared orientation; it means using speech to make explicit the task's goal – in fact, to construct a goal – which is taken to be a crucial part of gaining control over the task.

Brooks and Donato draw a number of conclusions from their analysis: first, learners do more than simply encode and decode when they interact with one another; they are not simply passive 'input crunchers' (Donato, 1994). Rather, they attempt to control the task jointly and to construct shared strategies and understandings of it. This implies that, second, it is futile to try to coerce students into compliance with one particular understanding of a communicative

task; 'tasks can not be externally defined or classified on the basis of specific external task features […] Rather, tasks are in fact *internally* constructed through the moment-to-moment verbal interactions of the learners during actual task performance' (p. 272). Tasks should be designed so as to emphasise process (of interaction with the language) rather than outcome. Third, tasks should be sequenced; they should be analogous to one another but successively more complex, so that learners can carry over strategies and knowledge from each task to the next, thus progressively building scaffolding for themselves and each other. Fourth and last, language learning should be seen as an active, cognitive process, rather than as a process of rehearsal leading to (presumably passive) acquisition; so learners should be allowed to take control of tasks. Brooks and Donato extract a great deal of significance from their analysis, and it is not in every case clear how their data relate to their conclusions. Nevertheless, they are plausible in the light of Vygotskian theory, and generally commendable from a broader perspective of learner autonomy.

Brooks and Donato conclude their study by claiming to have shown that 'engagement with and control of communicative interactions […] will ultimately benefit the foreign language learner, both in the classroom and in the real world' (p. 273). However, demonstrating benefit is precisely what is missing from the paper; it is at heart descriptive, not evaluative. This study and the other papers examined above all take a step that seems to me important, the step of moving beyond reductionist and quantitative analyses of speech data to qualitative analysis of context, and they put forward conclusions that at least on an intuitive level harmonise with the philosophies of many SLA theorists and pedagogical practitioners concerning the nature of learning interaction. However, in pursuing their descriptive analyses the researchers seem to lose sight entirely of acquisitional processes. Their analysis could apply as readily to native or non-native speech in non-linguistic tasks; they say nothing about how speech-governed attempts to gain control of a task relate to learning a foreign language. I take it that analysis of second language discourse is a sterile enterprise if it does not either shed light on issues, or bear upon theories, of acquisition. Each of these studies draws on the Vygotskian conception of language and learning for

its descriptive framework, but each leaves the crucial question not only unanswered, but even unasked; namely, in what way do the interactional patterns characterised relate to the cognitive processes of learning a language? Whatever the shortcomings of the input/interaction/output studies they seek to supersede, the latter at least are premised on an explicit understanding of SLA: in broad terms, that negotiation of meaning yields comprehensible input that is at least necessary or, in Krashen's version (1985), both necessary and sufficient for the cognitive process of language acquisition. Such studies are criticised for being static in their account of discourse, but the Vygotskian discourse studies cited are static in another sense: they neither describe nor logically imply any dynamic in the learners' knowledge of the target language.

1.3.2 The ZPD, internalisation and first language development

Although they do not *logically* imply any particular model of language acquisition, each of the discourse studies examined above (with the exception of Brooks & Donato, 1994) includes an account of the Vygotskian model of learning and development through social interaction, and hence imply *rhetorically* that their analyses are founded on this mechanism. There is therefore an implicit assumption that this model can accommodate L2 learning as easily as learning in any other knowledge domain. This assumption in turn seems to be based on a reading of Vygotsky in which the child's native language is acquired in the same way as other cognitive functions are acquired, namely through social mediation in the zone of proximal development and consequent internalisation. Indeed, this understanding is expressed unambiguously in Washburn (1994, p. 71): 'For Vygotsky, language is learned first through social speech and then is internalized'.

This is an unwarranted assumption; as noted above, Vygotsky has little to say about, and is only peripherally concerned with, the development of language. The idea that his developmental model encompasses language is, I believe, a misunderstanding based on the confusion of *speech* with *language* in the sense of linguistic competence (whether or not the latter term is understood to

encompass communicative competence).[4] In Vygotsky's model of internalisation of mediated functions, it is *speech* that plays a central role: in attaining self-regulation in a task, the child's social speech is transformed into egocentric speech, which ultimately 'goes underground' as inner speech. But saying that *speech* 'goes underground' is not the same as saying that *language*, being at first socially mediated, is then internalised.

Part of the problem is doubtless that contemporary commentators bring a post-Chomskian view of language to their reading of Vygotsky. As Wertsch (1985, pp. 81-85) has emphasised, Vygotsky's semiotics, hence his understanding of the nature of language, was influenced by the poetics of the Russian Formalist school. Central to Formalist doctrine was the view that literary language constituted a 'code' distinct from that of everyday language, and that this code could be characterised on the basis of form and of function. Like the Formalists, Vygotsky assigned central importance to the notion of function in relation to language.

Vygotsky was not concerned with the nature of language as an autonomous system: he was concerned with how language was used, with its role in human activity and in ontogenesis – hence *speech* rather than language. Vygotsky's interest in form was confined to word meaning: his approach does not incorporate a theory of grammar. Hence a Vygotskian approach to issues of language does not rule out a commitment to the dominant, internalist view: being concerned with different issues, it is compatible with, and potentially complementary to it. It is entirely possible to embrace his functional view while holding fast to the conviction that language has a formal dimension that, innate or not, is abstractly and unconsciously represented, and learned unconsciously by the child. The mistake that many commentators make in trying to apply Vygotskian approaches to second language acquisition is that they overlook the difference in perspective and assume that Vygotskian theory is an alternative to formal cognitive models of language acquisition and representation. But the

[4] In this connection it is interesting to note that, according to Foley (1991), the Russian title of Vygotsky's (1962) *Thought and Language* should more accurately have been rendered as *Thought and Speech*.

Vygotskian account leaves the detail level of acquisition unanalysed; it does not answer the question, How does a formal system as complex as language come to be represented in the mind of the individual? A model of language acquisition must incorporate some understanding of what linguistic knowledge is: Vygotsky's theory implies nothing about this.

Speech, in Vygotsky's sense, is nothing other than the vocal (or, if we include the inner variety, unvocalised) deployment of language competence to a given end. Speech in this sense entails the existence of subjective purpose (e.g., persuasion, story-telling, acquiring information or proffering opinion), which in turn entails that it can be classified in terms of function (e.g., affective or self-regulatory). Linguistic knowledge, on the other hand, encompasses (at least) the underlying, abstract, formal knowledge of the linguistic system, and can best be characterised independently of purpose or function. This is not to argue the Chomskian position that only competence is of true scientific interest; but it seems to me that the failure to make this distinction, which is analogous to the *langue/parole* and competence/performance distinctions, lies at the root of the misconception that Vygotskian theory provides a direct account of the nature of first language development.

It is not clear how such linguistic competence can be socially mediated in the usual Vygotskian sense. Language, manifested in the social context as speech, has a privileged role in the Vygotskian model: it is the semiotic lever that allows existing cognitive capacities to be transformed. The peculiar power of the word is to generalise and abstract, hence to confer consciousness and thereby facilitate self-regulation:

> Just as a mold gives shape to a substance, words can shape an activity into a structure. However, that structure may be changed or reshaped when children learn to use language in ways that allow them to go beyond previous experiences when planning future action. (Vygotsky, 1978, p. 28)

Given this pivotal role, then, it is not at all clear how language could be at once the psychological tool facilitating internalisation *and* the object of that process. In the case of higher cognitive processes, the target activity is *mediated* in interaction, where mediated means *constructed in interaction so as to become shared between the participants*. Speech makes it possible for the target function to be

internalised. Linguistic knowledge, on the other hand, is not *mediated* in this sense but rather *instantiated* and *utilised* by individuals in a social situation. It is not evident that the Vygotskian mechanism of the ZPD is capable of explaining how this linguistic knowledge comes to be internalised.

This argument could equally be applied to the Vygotskian account of interaction in, say, performing sensorimotor tasks such as doing a jigsaw puzzle. High-level components of the process – such as conceptualising the goal, strategic planning and evaluation of sub-task outcome – are effectively 'lent' to the young child by the caregiver or more able peer, and these are unquestionably essential to task completion: if the child does not make these functions his own – internalise them – he will never be able to do the jigsaw by himself. But none of this accounts for the acquisition of the crucial, low-level manual and cognitive skills and capacities that the child needs for task performance, such as distinguishing colours and shapes, and manipulating the jigsaw pieces.

In the first or second language learning situation, the formal aspects of language as a symbol system, the multitude of constraints that apply on every level of linguistic analysis – and to which the native speaker and even the fluent non-native are typically blind – are analogous to those low-level sensorimotor skills and capacities that the ZPD model, in our jigsaw example, does not address. The child learns to set goals, to plan, to focus attention on the task, to evaluate subgoals, and so on. I have suggested that these are 'higher levels' aspects of task performance, and they involve what Vygotsky called higher mental functions. But they are perhaps better thought of as the strategic dimension of task performance. The child also learns – more neutrally, acquires; or at any rate, *has* – the skills of manipulation, colour and shape recognition, and so on. This is the cognitive/sensorimotor dimension of task performance. It seems clear that the strategic dimension can be mediated in social interaction as described above. The cognitive/sensorimotor dimension, on the other hand, cannot. These are capacities that follow what Vygotsky would call the biological line of development. It is also undoubtedly true that social interaction provides the opportunity for the necessary exercise of the child's cognitive-sensorimotor capacities, and a context within which to develop the strategic dimension – a

socially provided context within which the exercise of the child's biologically given capacities makes sense.

In summary, the scaffolding model of learning provides an account of how cognitive and many other skills may be acquired in interaction, but it leaves completely untouched the issue of how phonology and morphosyntax are acquired. It accounts for how we might learn to use language as a tool in cognitive tasks – developmental learning, Vygotsky's primary focus – and in communicative tasks – the pragmatic/affective dimension of first or second language competence – but it does not tell us anything about how we come to assemble that tool to begin with. At best it describes situations in which we are typically exposed to language; it does not clarify how that exposure translates into an internal representation of the language system. It describes how input is typically situated, in the sense of being embedded in social interaction, but fails to answer the question of how input becomes intake, to use the terminology of mainstream language acquisition studies.

A possible confusing factor in the literature is the insistence that language should be seen above all as a system of communication. This it indubitably is, but it cannot perform that function if it is amorphous. Whether or not one believes that the phenomenon of human language has a backbone in the shape of Universal Grammar, each individual human language certainly does have at the very minimum a phonological and morphosyntactic skeleton. The use of language in communication, that is, its purposeful deployment in constructing meaning, is certainly a collaborative phenomenon; but if it is not a system, it cannot be a communicative system. It could not facilitate the construction of meaning if it did not have an objective, essentially non-negotiable structure, a structure with two manifestations: as an individual cognitive competence, and as a socially situated convention, or rather, complex of conventions. The shifts of focus in language development research since the immediate post-Chomskian years – the shift from the syntactic to the semantic to the pragmatic (Bialystok & Hakuta, 1994) – may have corrected an imbalance, but it does not seem to me reasonable to ignore the central role of the systematicity of language. But in confusing language *as it is used* – speech – with language *as it is objectively*

constituted, this is precisely what some Vygotskian theorists of language acquisition have done. Let us look again, for instance, at Donato's (1994) criticism of SLA models predicated on the conduit metaphor of communication (passage cited above):

> [this theoretical orientation] claims that although individuals are socially situated, the process of L2 acquisition remains the solipsistic struggle to receive, analyze, and incorporate input into developing linguistic systems. The development of interlanguage grammar remains an abstract, solitary process hidden in the heads of individuals rather than concretely available in the social relationships among learners. (p. 35)

Perhaps such models do neglect the undeniable social situatedness of language learning. But they are not wrong when they assume that the development of interlanguage grammar *must* proceed partly in the head of individuals, and is *not* 'concretely available in the social relationships among learners'. While the data for acquiring formal aspects of the target language (the input) are obviously to be gleaned primarily in social interaction, the target competence is not *mediated* in interaction, since the target knowledge inheres not in the interaction, but in individual utterances. A conversation, even a language-learning one, does not embody sentence structure; nor does collaborative problem solving embody morphology. Sharwood Smith (1993) has criticised a similar misconception in mainstream SLA; his assumptions and terminology are internalist, but his remarks could apply to Vygotskian models with very little modification:

> the truth of the matter is that the learners do not take in the rule: There are no rules floating about to be grabbed and swallowed up. They take in – rather internalize – examples of the rule that they use to "crack the code". So they in fact create or re-create rule systems on that basis. The only thing that is internalized is raw data (input), which, as the term *raw* indicates, must be processed by the learner and turned into mental representations, that is, knowledge of some sort. (p. 170)

1.4 A Vygotskian view of language development

Hood Holzman (1996, p. 79) rightly notes that most Vygotskian research (i.e., other than in the second language area) does not focus on 'the very beginnings of language or communication', but rather on the role of language and communication in development. We have seen how this crucial distinction comes to be blurred in the SLA literature. But how did Vygotsky view first language development, and indeed the epistemological status of language? On the basis of his work, we cannot say for sure. He was concerned with the effect of speech on practical intellect. How linguistic knowledge is constituted in the

individual's mind and how it comes to be there was not of central concern to him. But we can identify positions on these issues that are compatible with his theory. Let us begin by noting that his model presupposes the independent development both of language and of the ability for basic engagement with the physical environment:

> the most significant moment in the course of intellectual development, which gives birth to the purely human forms of practical and abstract intelligence, occurs when speech and practical activity, *two previously completely independent lines of development*, converge. (Vygotsky, 1978, p. 24; emphasis added)

The claim that language, or at least some fundamental aspects of the language system, develops by means of some innate acquisitional mechanism, even a Chomskian Language Acquisition Device, is therefore entirely compatible with Vygotsky's model. It is worth quoting at length from his account of the 'great discovery', at 18 months to two years, of the symbolic nature of language:

> At a certain moment at about the age of two the curves of development of thought and speech, till then separate, meet and join to initiate a new form of behavior [...] This crucial instant, when speech begins to serve intellect, and thoughts begin to be spoken, is indicated by two unmistakable objective symptoms: (1) the child's sudden, active curiosity about words, his question about every new thing, "What is this?" and (2) the resulting rapid, saccadic increases in his vocabulary [...] If we compare the early development of speech and of intellect [...] with the development of inner speech and of verbal thought, we must conclude that the later stage is not a simple continuation of the earlier. *The nature of the development itself changes*, from biological to sociohistorical. Verbal thought is not an innate, natural form of behaviour but is determined by a historical-cultural process and has specific properties and laws that cannot be found in the natural forms of thought and speech. (Vygotsky, 1962, pp. 48, 51)

It seems to be implicit in this, but nonetheless clear, that Vygotsky might well have been open to the proposition that the early development of language is innately programmed. Nor need the further development of the formal language system (i.e., after the 'great discovery') necessarily be sociohistorically conditioned – though with dawning metalinguistic awareness comes at least the possibility of sociocultural influence on the language system itself. The crux of the argument is that although the moment (or period: Vygotsky draws the line rather too sharply) at which the lines of thought and speech development meet *is not* socially conditioned, nor must we take it to be directly programmed by our genes. It is simply one inevitable outcome of the biological and ongoing development of two distinct capacities, the intellectual and the linguistic. Two

new *sociocultural* lines of development proceed from this encounter: that of verbal thought and that of intellectual speech.

1.5 Conclusion

I have examined two possible interfaces between Vygotskian theory and SLA and found each of them wanting. Learner discourse analysis, though at times intuitively plausible, has been to have little empirical content, and to have nothing to say to questions of acquisition in any case. I have argued that the assumption, explicit or implicit in practically all discourse and other studies, that the Vygotskian mediation/internalisation mechanism can account directly for first language acquisition, cannot be accepted without qualification. I have made a case for the compatibility with Vygotskian theory of an extra-Vygotskian, possibly innatist or even specifically Chomskian, account of first language learning; on the face of it, this would seem to turn us back in the direction of strongly internalist models of language acquisition. But I do not believe that Vygotsky's powerful and eloquent theory falls silent precisely when confronted with questions of language learning. And, as hinted above, though I question the way it has been deployed in second language studies, I would not wish to dismiss entirely the mediation/internalisation model – it is, after all, the key to the Vygotskian view of development. Let us return once more to this model in connection with L2 learning.

To begin with, we must be clear that the existence of an internal 'plane' is axiomatic in Vygotsky's model: there is no claim that higher cognitive functions are wholly played out on the social plane. In that sense, his is not a 'strong' theory of distributed cognition (on which subject see Salomon, 1993). Hence, even with the mediation/internalisation model there are mental processes to be accounted for, and not purely social ones. This is often glossed over; for instance, Nuthall (1999) has it that '[t]he increasingly complex nature of children's thought arises not from any internal development but from the fact that children internalise increasingly complex sociocultural activities' (p. 176). This claim is surely overstated; it can make sense only if we understand 'any internal development' as meaning any *autonomous* internal development;

otherwise, we would surely have to point out that internalisation necessarily *does* implicate internal development. It is, after all, nothing other than a means of such development; so there are mental processes to be accounted for even in relation to internalisation itself. The applications of the model to SLA that we have seen have silently assumed some sort of 'internalist' learning *as a component of* the process. To step back to traditional terminology, input *must* somehow be processed and become available to the individual mind; schematically, we might think of this (without committing ourselves to a linear model) as a 'last step' in internalisation. Alternatively, we might consider that the ZPD/internalisation approach and the cognitive approach are two separate levels of analysis: the ZPD metaphor is an attempt to account for the crucial social setting of acquisition and in a sense *does* provide an account of acquisition, but at a higher conceptual level than the cognitive approach. It is neither meaningless nor irrelevant, but it is not equipped to examine what Tomlin and Villa call 'specific and particular moments of acquisition, with the current utterance in some interaction, [at which level] acquisition must operate' (1994, p. 193). The cognitive approach looks at the question from precisely this level, which is the next step down in the conceptual hierarchy. This is the step that such work has overlooked, and this is where, it seems to me, conventional internalist models can, indeed must, have a role to play.

It is possible to push this line of argument further. Arguably, in assuming without further analysis that language comes to be internalised through interaction in the ZPD, Vygotskian SLA researchers have unwittingly licensed an interpretation whereby the 'last step', individual input processing, takes place by virtue of autonomous, individualistic mechanisms – perhaps even unconscious mechanisms *à la* Krashen. To put it another way, the gap in the Vygotskian model as typically applied to SLA, or the insistence on the model as an alternative to information-processing models, seems positively to *recommend* the positing of implicit learning mechanisms. This vividly highlights the need for a compatible internalist account of how the language code comes to be acquired. And it is precisely in the debate over the role of consciousness that we find a

conception of language acquisition that seems eminently commensurable with the Vygotskian model of learning. This will be the subject of the next chapter.

Chapter 2: Consciousness and metalinguistic dimensions of SLA

2.1 Introduction

This chapter shifts the focus to the mind of the individual. Specifically, we will be concerned with the role in language acquisition of conscious awareness of linguistic phenomena. Two kinds of research are relevant to this matter. The first we can classify simply under the rubric 'consciousness in second language acquisition', and the second under 'metalinguistics'. The concerns of investigators in these two areas overlap, naturally, but research on the two is nevertheless quite distinct. The recent 'consciousness' literature focuses on concepts such as 'noticing', and 'focus-on-form' as opposed to 'focus-on-meaning'. It is firmly rooted in the SLA research tradition, and is specifically interested in the moment-by-moment mental experience of second-language input. It is probably not an exaggeration to say that its primary impetus was the challenge posed by Krashen's provocative proposal that unconscious processes are alone involved in acquisition of the knowledge used in fluent second-language use.

The 'metalinguistics' perspective on subjective awareness of language, by contrast, has its roots in cognitive and developmental psychology and first language acquisition. Terms like 'metalinguistic awareness' usually emphasise mental representation rather than mental process. Hence, where metalinguistics research intersects with SLA research, the point of intersection tends to be the role of metalinguistic awareness as an existing knowledge or capacity, rather than as a player in the real-time transformation of input into acquired knowledge. If these distinctions seem vague, it is hoped that they will gain in clarity as a result of the following critical reviews of the central strands of thought pertaining to these two areas.

2.2 Consciousness and the processes of second language acquisition

2.2.1 The problem of definition

A not inconsiderable proportion of the debate surrounding consciousness concerns whether it is possible even to use the word meaningfully in a

theoretical context. Clearly, in non-technical use it has many possible meanings. A review of some dictionary definitions yields at least the following senses:

1. 'the state of being characterised by sensation, emotion, volition, and thought' (*Merriam-Webster's Collegiate Dictionary*, 10th edition), that is, *consciousness* as a synonym of *sentience*
2. 'the totality of a person's thoughts, feelings, and sensations or of a class of these' (*Oxford English Reference Dictionary*, 2nd edition)
3. the state of being 'awake and aware of one's surroundings and identity' (ibid.), and in particular awareness 'of something within oneself' (*Merriam-Webster's Collegiate Dictionary*, 10th edition)
4. current awareness of particular objects or states of affairs (i.e., consciousness *of*, consciousness *that*)
5. intentionality (*consciously* as a synonym of *deliberately*)

These senses of consciousness are listed above in approximate order of increasing specificity. Sense 1 has to do with the characterisation of things in the world; that is, it is ontological. Sense 2 takes the sentient mind as a given and refers to the contents of such minds: this is epistemological. To the extent that sense 3 refers to awareness 'of something within oneself', it overlaps with sense 2, but in essence it is a changeable property of individual minds: it is a behavioural or clinical category. In sense 4 *consciousness* refers to focal attention, a matter for cognitive psychology. Sense 5 belongs in fact at about the same level of specificity as sense 4; it is also a cognitive psychological property.

Steven Pinker (1997) offers a list of senses that partially overlaps with that given above: consciousness, he writes, is sometimes merely 'a lofty synonym for "intelligence"' (p. 134); otherwise it can mean *self-knowledge* , as reflected in the ability to identify oneself in a mirror – cf. sense 3 above. It can mean *access to information* about oneself – another construal of sense 3. This is also the sense that Eysenck (1990) is concerned with: he equates consciousness with the ability to report on cognitive processes and states. Apart from being of theoretical interest in itself, this is also a crucial methodological issue in cognitive psychology, where the reliability of introspective data is often decisive. Pinker's final sense of consciousness is *sentience*, 'the most interesting sense of all' (1997,

p. 135). The Merriam-Webster definition given in sense 1 above is an attempt to capture this notion in objective terms but, more successfully, Pinker uses impressionistic language in trying to capture the intuitive grasp of this phenomenon: it is 'subjective experience, phenomenal awareness, raw feels, first-person present tense, "what is it like" to be or do something, if you have to ask you'll never know' (ibid.). Consciousness in this sense is closely linked to identity, so we might alternatively think of it, again in Pinker's (1997) terms, as 'the autonomous "I" that we all feel hovering above our bodies' (p. 20).

Obviously the term *consciousness* is anything but meaningless, and some argue that this is precisely the problem with it. McLaughlin (1990a) claims that the word is 'pre-scientific' and carries 'too much surplus meaning' to be useable by researchers. The multitude and vagueness of the definitions set out above might seem to support this view. But it is entirely sensible and coherent to argue that precise definition of terms is not a prerequisite to meaningful discourse; indeed, to insist on it can in fact be counterproductive. Karl Popper (as cited by Magee, 1973, pp. 49-51) emphasised this, pointing out that, firstly, any non-circular definition introduces new terms that in turn require definition, so that the rigorously consistent pursuit of explicit definitions must logically lead to infinite regress. Secondly, even the most explicit and formal of sciences, such as physics, leave many of their fundamental concepts – energy and light, for example – undefined. We might add that some perfectly respectable theoretical entities are at bottom explanatory constructs based on a convergence between theoretical expediency and intuitive plausibility rather than empirically testable reality. The notions of 'consumer confidence' in economics and of 'potential energy' in physics fall into this category and so too, arguably, does consciousness in psychology and related disciplines.

A third argument of Popper's is that imprecision is a useful tool of language: 'The precision of a language depends […] just upon the fact that it takes care not to burden its terms with being precise' (1966, pp. 19-20). It certainly is the case that fuzzy semantic boundaries are the rule rather than the exception in most language, however technical. Norman Hampson (1968) remarks of attempts to capture the essence of the Enlightenment that '[s]uch a

definition would have to include so many qualifications and contradictions as to be virtually meaningless, or else prove so constricting that logic would continually be trying to debar what common sense insisted on including' (p.10). Even in scientific discourse imprecision need be no hindrance as long as it is recognised, and as long as necessary restrictions or clarifications are stipulated as appropriate. Fourthly – a corollary of the previous argument –, scientific definitions are often stipulative rather than informative. We should not, then, expect to discern testable knowledge about the world in a definition of a term like *consciousness*; it is, rather, a kind of shorthand for a concept useful to the argument.

Van Lier (1994), having elaborated arguments closely similar to those set out above, adds that the subjective nature of consciousness may preclude a conventionally positivist approach, but this does not mean it can or should be ignored or circumvented:

> a natural-scientific or causal perspective may never get us closer to what consciousness really means in human terms. Instead, a phenomenological perspective may be necessary which, regardless of what neural or experimental evidence tells us, assigns a central place in our existence to consciousness. (p. 72)

In sum, neither meaningfulness nor conceptual clarity depends on precise definition. Though the term consciousness may be 'a simmering pot of meaning' (as C. S. Lewis, cited by Van Lier, 1994, had it), we by no means relinquish claims to coherence by continuing to employ it. Nevertheless, it does follow from the remarks above that for the purposes of a particular argument we do need to arrive at a working understanding of what we mean. Concurring with Tomlin and Villa (1994, p. 193), we will take it that consciousness may usefully be left intact with its rich set of more or less intuitive meanings, but that certain constituent concepts need more careful pinning down.

Consciousness as sentience need not concern us here, nor consciousness as the totality of one's thoughts, etc.: these are higher-level phenomena that are presupposed by all the other senses. But it is clear that understanding *consciousness* in any of the lower-level senses entails coming to terms with *attention* and *awareness*. These are the constituent concepts of consciousness to which we will

now turn, bearing in mind that the foregoing remarks on definability apply equally to these terms.

2.2.2 Attention and awareness in cognitive psychology

While behaviourist psychology dismissed *attention* as a subjective phenomenon not amenable to scientific investigation, it has become a central concern in cognitive psychology. E. C. Cherry (1953) pioneered research into the phenomenon using the dichotic listening paradigm, whereby participants are presented with disparate stimuli in each ear, one of which is to be attended to (operationalised by vocal 'shadowing') and the other ignored. The participant is typically tested for recall subsequent to this treatment. Research conducted using this paradigm yielded a comprehensive model of attention (Broadbent, 1958) according to which stimuli are held in a short-term store or 'buffer' before being analysed for low-level physical (e.g., acoustic) characteristics. Appropriate stimuli are selected for semantic processing at this point and irrelevant ones filtered out. Various empirical data – for example, the fact that presenting the participant's name in the unattended ear reliably disrupts shadowing – made this model untenable in its original form. An important modification was the attenuated filter model (Treisman, 1964), according to which 'unattended' stimuli are 'turned down' rather than neglected entirely. Further processing of attenuated signals depends on their reaching a threshold level of salience that is usually contextually determined. In this way, a word presented to the (unshadowed) left ear might pass the filter if it is predicted by the linguistic context presented to the (shadowed) right ear. A further significant variation on the filter theme holds that all signals are processed to the point of semantic interpretation before one is selected for further processing (Deutsch & Deutsch, 1963; Norman, 1968; Watanabe, 1980). Hampson and Morris (1996, p. 116) emphasise how radical a model this is, suggesting as it does that we detect and comprehend all incoming stimuli while only a subset of these comes to our awareness.

Filter models represent a rather rigidly structural approach, and none of them accounts for all of the experimental data. Limited-capacity models (e.g., Kahnemann, 1973) offer a more flexible alternative. They forgo separate

filtering mechanisms in favour of an integrated view whereby a pool of cognitive resources is distributed dynamically to tasks in accordance with an allocation policy. Where filtering (or structural) models assume that serial processing systems must be protected from overload by means of filters, capacity models claim that cognitive processors may operate in parallel, but that processing capacity is a limited resource that must be apportioned to competing tasks according to demand. A key characteristic of limited-capacity models is that, in eschewing the filter stage, they undercut the notion that processing escalates sequentially from low-level to high-level analysis. This is the source of their flexibility: the integrated view allows for interaction between data-driven and conceptually-driven processes at all stages. Such a model accounts well for the data that challenged the early-filter models (such as that of Broadbent, 1958), and in addition provides an explanation of how we can carry out practised, skilled tasks simultaneously with certain other tasks, such as conversing while riding a bicycle. If we assume that a well-practised task is partially or wholly automatic, it will require fewer cognitive resources, which will then be available for the more demanding, non-automatic task.

Tomlin and Villa (1994) adopt quite a different perspective on attention, based on the cognitive and neuropsychological work of Michael Posner (e.g., Posner, 1988; Posner, 1992; Posner & Petersen, 1990). They evaluate the above-mentioned models as being too coarse-grained to capture the real moment-by-moment processes of attention. The characterisation adopted from Posner's work represents attention as analysable into three functions: alertness, orientation and detection. These are 'separate but interrelated' (Tomlin & Villa, 1994, p. 190): detection presupposes orientation, and orientation alertness; but alertness does not guarantee orientation, which in turn does not guarantee detection. Further, in this model attention and awareness are distinct, but the former is a prerequisite for the latter. We will further discuss this tripartite model below, in the course of a more detailed exploration of Tomlin and Villa's conception of attention in SLA.

Awareness is a subjective phenomenon. Many discussions of attention – including the filter models and limited-capacity models discussed above – seem

to assume that awareness is the constant companion of attention, or at least of focal attention. For example, Van Lier (1995) uses the terms subsidiary and focal *awareness* of language as synonyms of peripheral and focal *attention* (pp. 2-4). However, if the two were dissociated – if it were possible to attend to a stimulus without being aware of it – the models as described above would still be coherent. Awareness is in this sense 'epiphenomenal', and theoretically irrelevant, in these models. There are those too who make positive claims for such a dissociation: Tomlin and Villa argue that while the various attentional processes are often associated in practice with awareness, this is not a matter of logical or empirical necessity; in short, they believe that attention does not imply awareness. Thus they exclude this troublesome subjective phenomenon from consideration in favour of observable behavioural and neurophysiological factors.

It may be that the question of whether attention and awareness are necessarily associated is not an empirical issue, but a question of how the former is defined. For the time being we will make the following distinction between the terms, without judging whether it is empirically justified: *Attention* will be used to refer to the mechanism or mechanisms whereby certain stimuli come to have a larger share of processing resources than others. This definition holds regardless of whether *awareness*, defined as subjective, moment-by-moment, potentially expressible consciousness, is the necessary product of such selectional processes. We will also stipulate that awareness of a stimulus requires at least some allocation of attentional resources. The term *consciousness* and its cognates should for the time being be understood in the sense of *conscious awareness*.

2.2.3 Consciousness in SLA: An outline of the issues

As Richard Schmidt (1994) suggests, each major historical paradigm in language pedagogy can be identified with a particular view of the role of consciousness in learning. Hence, as he points out, the grammar-translation approach assumed that explicit instruction in target-language rule systems fosters conscious knowledge, which ultimately forms the basis of fluent communication. The

audio-lingual approach emphasised conditioned responses in which conscious knowledge of the contingencies of stimulus-response connections has no causal role; however, its instructional model involves a gradual move, facilitated by drilling, from effortful, conscious production of target structures to fluent, automatic production. The communicative approach assumes 'that learners gain linguistic form by seeking situational meaning rather than by concentrating consciously on linguistic form' (p. 12).

It seems, then, that at the heart of any internally consistent view of language learning must lie a conviction about the nature of conscious processes and conscious knowledge in learning. While in most lay conceptions these convictions remain unanalysed, applied linguists have increasingly brought their attention to bear on the matter. The ongoing discussion in SLA research regarding consciousness has been quite polarised: there is on one side a strong dual-system/non-interface position, as propounded especially by Krashen (1980; 1985; 1994; 1993), and on the other side a cluster of 'interface positions'. The non-interface position can be quickly summarised (e.g., Larsen-Freeman & Long, 1991, pp. 240-44): language knowledge is of two kinds, unconscious and conscious. The former is analogous to or identical with Chomskian competence – it is the basis of everyday, fluent language use. It develops through an unconscious mechanism of *acquisition*, which takes place when conscious attention is focused on meaning rather than linguistic form. The latter is called on only in restricted, specialised situations, and then only for the purposes of *monitoring* language production. Such knowledge is formed through conscious, formal *learning*. The two kinds of knowledge these processes give rise to are utterly unrelated: learned knowledge does not become acquired knowledge under any circumstances. The learning/acquisition distinction delineates two systems with no interface between them. The importance of formal instruction is hence considerably downgraded in this view.

By its nature, the 'interface' side of the debate is a broader church, since there are several ways in which one can logically relate 'declarative' or propositional knowledge (in the sense of consciously learned and consciously accessible knowledge) to 'procedural' or operational knowledge (that which

underlies actual language use). Interface positions include, for example, skills acquisition models (e.g., Johnson, 1996; McLaughlin, 1990b; McLaughlin, Rossman, & McLeod, 1983; Robinson & Ha, 1993), which in effect claim that language knowledge develops along a continuum from declarative to procedural, and Sharwood Smith's (1996) 'virtual input' hypothesis, which upholds the dual system model to a point, but proposes a back-door mechanism by which declarative knowledge contributes to the development of procedural knowledge. Though such writers share the view that explicit instruction plays an important role in SLA (e.g., Ellis, 1990; Long, 1987), a good deal of the literature focuses on divergent views of the precise role of consciousness. There are also significant differences between the conclusions that they draw concerning pedagogy.

2.2.4 The noticing hypothesis

One interface position in particular has become something of a touchstone among the defenders of consciousness in SLA (Truscott, 1998, p. 103), namely, what has become known as the 'noticing hypothesis' (Robinson, 1995b; Schmidt, 1990, 1993, 1994, 1995a, 1995b). In this view real-time attention to formal aspects of input, at the level of conscious awareness, is necessary for acquisition.

Schmidt (1994; 1995b) is concerned that the ambiguity of the term *consciousness* has led to considerable confusion in the literature. He has endeavoured to tease apart the various senses in which it can be used, and has put forward (1994) a number of recommendations for standardisation of terminology so as to avoid the use of 'consciousness' as an umbrella term. These proposals are complementary to the definitions of awareness and attention adopted earlier, and it will clarify matters to set them out here:

1. 'incidental learning' should be used instead of 'unconscious learning' where the criterion in question is learning in the absence of *intention* to learn;

2. 'learning without attention' should be used for learning where there is no allocation of voluntary or involuntary attentional resources;

3. 'explicit learning' and 'implicit learning' are appropriate terms where what is at issue is learner awareness at the point of learning;

> 4. in relation to the explicit/implicit distinction, *knowledge* must be kept clearly separate from *learning*;
>
> 5. explicit *learning* and explicit *instruction* must be clearly distinguished, since neither one entails the other;
>
> 6. in instruction, a distinction must be made between on the one hand 'simple input enhancement techniques' intended to facilitate intake [alluded to above in connection with Sharwood Smith's proposals; cf. also VanPatten & Cadierno (1993)]; and, on the other hand, 'explanation, the provision of explicit rules, paradigms, and the like' (p. 20).

It is worth pointing out in particular that recommendation 2 is a response to methodological difficulties, whereby it is assumed that learning without apparent *focal* attention is the same as learning without *any* attention. Following Tomlin and Villa (1994), Schmidt sees this fallacy as being attributable in large part to certain models of attention, such as some interpretations of the limited capacity model, that are too crude to properly characterise the phenomenon. Schmidt (1994) partially adopts Tomlin and Villa's alternative fine-grained model, which as we saw distinguishes between three components of attention: alertness, orientation, and detection. The model is meant to capture the process of attention as deployed by learners in dealing with individual utterances. Alertness here refers to a generalised preparedness to deal with input. Orientation is enhanced sensitivity to particular features of the input, and entails the deployment of conceptual schemata or plans. With regard to the influence of external factors, alertness is associated with 'the larger affective/motivational context in which learning takes place', and orientation with specific, perhaps instructional mechanisms for promoting detection of appropriate features. Hence alertness can be enhanced through environmental and affective factors associated with motivation, while orientation is promoted through at least some of the means that Sharwood Smith (1991; Sharwood Smith, 1993 -- see below) calls 'input enhancement' – such as repetition, typographic or phonological emphasis, and corrective feedback. But detection is the most local and resource-intensive of these processes; it refers to the 'cognitive registration of sensory stimuli' (Tomlin & Villa, 1994, p. 192). It is the 'key attentional moment' (p. 196), the defining feature of attention in SLA.

Tomlin and Villa distinguish the three components of attention from awareness, as previously noted, and also from the hypothesised generalising

mechanisms that actually process detected stimuli. The latter of these distinctions is a matter of delineation of research interests; the nature of the hypothesis formation system is simply not their focus. The former distinction is more problematic: it makes an empirical claim that detection, and therefore acquisition, can take place in the absence of awareness. Schmidt (1994) agrees that what they identify as detection is the crucial part of the attentional process (as does Robinson, 1995b), but challenges them on the validity of their claims that attentional processes can be dissociated from awareness and that awareness is not necessary for learning.

Schmidt (1995b) includes a review of studies relevant in this regard – Curran and Keele (1993), cited by Tomlin and Villa, and Nissen and Bullemer (1987) – as well as of other pertinent phenomena (blindsight, implicit memory, subliminal perception, learning by amnesics). His most significant conclusions are that (i) the evidence shows small amounts of learning associated with small amounts of awareness, rather than learning with no awareness, and (ii) though detection may be possible without awareness, as evidenced, for example, by blindsight, there is nothing to license the finding that such detection is accompanied by *learning*. On the basis of this analysis, he maintains that no evidence is available that *convincingly* dissociates learning from subjective awareness.

What precisely does Schmidt mean by *noticing*, and what positive claims does he make for it? He refers to it as 'the conscious registration of the occurrence of some event' (1995b, p. 29); we might formulate this as 'awareness of detection', where we understand detection in Tomlin and Villa's low-level sense of sensory registration. This is, for him, to all intents identical with focal attention. Schmidt has consistently and cogently argued in favour of a necessary relationship between noticing in this sense and learning. His original hypothesis – the strong form of the noticing hypothesis (1990; 1993) – was that noticing formal features of input was a *necessary* condition for learning. In later work Schmidt states that we must probably remain agnostic on this matter, since it may not be falsifiable in principle; hence 'it may be wiser to replace zero-point claims (no learning

without noticing) with a modified hypothesis that more noticing leads to more learning' (1994).

An alternative formulation of the noticing hypothesis is that 'what learners notice is what becomes intake for learning' (1995b, p. 20). Let us consider what this says in practical terms about the process of learning a second language. We can best do this by turning to the diary study reported in Schmidt and Frota (1986), out of which Schmidt's formulation of the hypothesis arose. This study examined Schmidt's acquisition of Brazilian Portuguese using a journal of his subjective experience of the process and conversations in the target language, tape-recorded monthly. Notes from the five weeks of formal instruction (out of five months in Brazil) were also drawn on. The tape-recorded evidence of his output was compared against his subjective impressions as recorded in the journal. The result was that there was a considerable match between Schmidt's reports of features noticed in input and what he subsequently produced in the recorded output. The claim is that the features ultimately acquired were available to Schmidt in the input all along, but it was only after a given feature had become salient for him – having been dealt with in the classroom, or for some other reason – that he was primed to notice and thereby acquire it. While the study shows neither that noticing is sufficient for learning (there was some evidence on the tapes that Schmidt noticed some features at least momentarily, though he never subsequently produced them), nor that it is necessary for learning (witness cases of acquired features that were not recorded as having been noticed), it is at least strongly suggestive of a link between noticing and learning. With regard to pedagogy, the implication is that instruction can prepare the student for noticing, and hence acquiring, formal features of the target language.

The noticing hypothesis has informed a great deal of research. Robinson (1995b) proposed a modified model of attention that implicates short-term memory, a component of mind that he regards as neglected in the debate on consciousness in SLA. Recalling that Schmidt's understanding of noticing is detection with awareness or, as I have formulated it above, 'awareness of detection', Robinson's definition is 'detection plus awareness *and* rehearsal [or,

alternatively, elaboration] in short-term memory' (ibid., p. 318; emphasis added). Whether what is involved is simple rehearsal (sub-vocal repetition), on the one hand, or elaboration ('fleshing-out' in terms of existing schemata), on the other, depends on the nature of the task demands. Tasks requiring data-driven processing of the stimulus will result in rehearsal, while those involving conceptually-driven processing draw on schemata (or, presumably, declarative rules) in long-term memory, and consequently entail elaboration of the stimuli. What is noticed may or may not be encoded in long-term memory, depending on the degree of activation.[5]

Short-term memory capacity is considered a measure of cognitive ability, subject to individual variation, so this has an important empirical consequence for the noticing hypothesis, namely, that language learning processes will likewise be subject to individual differences. This runs counter to the dual-system/non-interface prediction, according to which only explicitly learned knowledge (in Krashen's sense) is subject to differential success between individuals. An experiment reported by Robinson (1995a; 1997) tests these predictions. The results support the relationship of learning with awareness at a certain level (defined operationally as awareness at the level of Looking for Rules, one of the treatment conditions), though not for noticing. However, Robinson concluded that learning among subjects in the treatment condition designated Implicit was fundamentally similar to that of subjects in the Explicit condition, and that conscious awareness was implicated in both.

In his overview of implicit and explicit language learning, Nick Ellis (1994) reaches an interim characterisation of the learning process (pp. 15-17) that is quite similar in salient respects to Robinson's model. Among other tentative conclusions he asserts that implicit, associative learning does take place, but only where there is attention (without awareness, by definition) to the input domain in question (e.g., phonology, syntax). Such learning occurs within input systems (i.e., innate cognitive modules in Fodor's (1983) sense). While regularities may

[5] '*Activitation:* A state of memory traces which determines both the speed and probability of access to the memory trace' (Anderson, 1995, p. 449)

be detected, they are low-level and superficial, and hence not transferable to other domains in the way that symbolic representations are (see discussion below of Karmiloff-Smith's representational redescription model). Abstraction, in other words, is very limited at the level of implicit learning. What facilitates *explicit* learning is working memory (e.g., Baddeley, 1986), which takes as input the aforementioned shallow abstractions generated from sensory data by input systems. It is here that noticing and subsequent encoding in long-term memory can take place. Ellis maintains further that anything noticed in this sense is potentially available for both conscious reflection and report. This will be of significance in the model of acquisition outlined later in this chapter.

2.2.5 Instruction and awareness

There is a broad school of thought, drawing strongly on the foregoing considerations, holding that instruction promotes language aptitude indirectly, through preparing the learner to acquire target language features from the input provided by meaning-focused communication. Appropriate pedagogical methods can 'help learners bring order to the input they encounter, facilitate understanding, and boost or support acquisition processes' (Schmidt, 1995b, p. 4). Similar ideas have been expressed by a number of researchers, notably Rod Ellis (1990; 1993) and Michael Sharwood Smith, whose pedagogical proposals concerning consciousness raising, or input enhancement (1991; 1993), are rooted in the view that instruction needs to make target features in the input salient to learners, thus preparing the way for acquisition. They accept that acquisition cannot be affected directly.

The term 'consciousness raising', as used by Sharwood Smith (Rutherford & Sharwood Smith, 1987; Sharwood Smith, 1981, 1991, 1993), 'denotes a deliberate focus on the formal properties of language with a view to facilitating the development of L2 knowledge' (Sharwood Smith, 1991, p. 118). In the same paper Sharwood Smith proposes substituting the term 'input enhancement' because this emphasises what is done to the input rather than what might or might not happen in the mind of the learner: in other words, what one tries to make salient rather than what is in practice perceived as salient (p. 120). He also

stresses that the term encompasses not only external treatment of input – by a teacher, for example – but also naturally occurring cognitive processes by which certain formal features become more salient to the learner. The strategy of paying special attention to the beginning and ending of words, posited by Slobin (1973), is cited as an example of such a process. This point notwithstanding, input enhancement continues to be used to refer mainly to external processes: explicit correction, facial expressions, typographical highlighting, and so on. In practice, then, the focus tends to be on language instruction.

Accordingly, Fotos (1993) stresses that the importance of noticing is that it constitutes the interface between formal instruction and acquisition (p. 387). 'Formal instruction' here means simply institutional instruction, not form-focused instruction: though it encompasses traditional, expository approaches, Fotos has a particular interest in communicative problem-solving tasks that take aspects of grammatical form as their content (see also Fotos & Ellis, 1991). In an experimental study involving two kinds of form-oriented consciousness-raising instruction, *viz.* teacher-fronted grammar lessons and problem-solving tasks focused on grammar points, she found that both kinds of consciousness-raising treatment promoted 'significant levels of noticing the target structures in subsequent communicative input' (1993, p. 400) as compared with non-grammar-oriented communicative tasks. Her results did not point to benefits of grammar-focused tasks over conventional grammar lessons, though she found the former to be 'nearly as effective' as the latter in promoting noticing.

Ronald Leow (1997), in attempting to test the merits of claims for the value of noticing, recognised the difficulty of operationalising awareness, and in particular of identifying potential dissociations between awareness and detection in Tomlin and Villa's (1994) sense. Instead of investigating what Schmidt (1994) calls the 'zero-point' claim – no learning without noticing – Leow set out to answer the question 'How do different levels of awareness of morphological forms in a problem-solving task influence learners' mental representations and subsequent recognition and accurate written production of such forms?' (p. 474). The study involved the use of think-aloud protocols of the experimental task (a crossword puzzle), followed by a (written) recognition and written

production task. He operationalised noticing quite restrictively by requiring either verbal (written or spoken) correction of a targeted form or oral comment on the targeted form. These criteria are sufficient, though not necessary: that is, instances of noticing by subjects, if not verbalised, will not have been captured by the research instrument, but where appropriate verbal behaviour took place the researcher could be sure that noticing had taken place. Instances of noticing thus identified were further classed according to the criteria (a) ± cognitive (or behavioural) change, (b) ± meta-awareness (a report of being aware of the experience), (c) ± morphological rule (a metalinguistic description of the underlying rule). This scheme yields three possible levels of awareness (since (c) entails (b), while the converse does not hold). A qualitative analysis of the protocols suggested that the thinking of those participants with meta-awareness as evidenced by criteria (b) and (c) were characterised more by conceptually-driven processing – e.g., hypothesis-testing and morphological rule formation – than their counterparts who did not meet either criterion (b) or criterion (c). Quantitative analysis indicated that level of awareness correlated significantly with performance on the post-exposure recognition and production tasks.

Leow notes as a limitation of this study that it does not establish whether awareness is *necessary* for subsequent processing of target forms, though as noted above Schmidt (1994) doubts whether it is possible even in principle to meaningfully investigate this strong claim. A more important criticism is that, while Leow persuasively demonstrates a correlation between intake and awareness in the experiment, the question of causality is left untouched. He claims that the study 'provides empirical support for the facilitative effects of awareness in foreign language behavior' (p. 495), but it remains logically possible either that successful acquisitional processes give rise to awareness or that there is a third factor involved which gives rise to both awareness and acquisition, these remaining independent of each other: a hypothetical linguistic aptitude factor, for example.

2.2.6 A critique of the noticing hypothesis

The noticing hypothesis has been an important rallying-point for those who are convinced of the role of on-line consciousness in acquisition. It provides an account that has intuitive plausibility in many ways. It claims that target forms must come to awareness in order to be acquired, but steers clear of a number of consciousness-related claims that have often been criticised: the hypothesis does not insist that the occasion of noticing must be recalled or recallable; nor that target forms must come to be *understood* at an abstract level; nor that knowledge gained directly from explicit instruction directly gives rise to fluent performance; nor, finally, that the learner must *deliberately* attend to particular aspects of the input. If accepted, it is a conception of the acquisitional process that has practical consequences for pedagogy. But as a theoretical construct it is not without its epistemological difficulties.

John Truscott (1998) provides a penetrating critique of the hypothesis on several grounds. He questions the stability of its foundations in cognitive psychology, arguing that the very concepts of noticing and attention, as well as their association with learning, are not well supported by research, in particular since attention has proved difficult to define and observe. Much of the rest of his argument, though subdivided under several headings and carefully exemplified, reduces to a charge of vagueness and hence inadequate testability. Specifically, what kind of entities, at what level of detail, do learners need to notice? If it is simply individual tokens, such noticing can be quickly reduced to merely global awareness of input, and the hypothesis is banal. If awareness of grammatical categories is involved, then this entails a certain level of generalisation and abstraction that goes beyond what seems to be intended by the noticing hypothesis. This applies even more obviously to noticing of rules. Indeed, awareness of rules is explicitly excluded by Schmidt from the category of 'awareness as noticing'; it belongs with 'awareness as understanding', to which the noticing hypothesis does not address itself (Schmidt, 1995b, pp. 29-30). A related objection is that there is no clear conception of language behind the hypothesis, and hence no clear notion of what items must be noticed. It is implausible that the entities of formal linguistic theory come to be consciously

noticed. On the other hand, if only unanalysed, unabstracted forms must be noticed, then the role of awareness is in fact highly limited, and the role of implicit processes correspondingly expanded.

The first of these general objections – that the notion of attention is ill-defined – can be tackled in the same terms as previously used in relation to consciousness: a term that is widely understood need not be rigorously defined, and certainly definition should not constitute a stumbling-block where discourse needs the use of a term in order to proceed satisfactorily. Furthermore, the fact that there are competing *models* of attention is not a sign of disagreement as to the subjectively and objectively observable characteristics of attention; rather, these models are attempts to capture a phenomenon whose outlines are a matter of sufficient consensus.

The second set of objections – that the hypothesis does not define the entities that are the subject of noticing – seems more substantial. Intuitively, however, it seems likely that the precise nature and level of analysis of targets of noticing are subject to individual variation. The key factor influencing the kind of detail noticed might then be the kind and degree of analysis of existing metalinguistic knowledge. For example, an English-speaking learner of Spanish who is grammatically 'naïve', in the sense that he possesses little or no grammatical metalanguage, might nonetheless notice the omission of subject pronouns in Spanish to which he is exposed, simply through the apparent oddness of subjectless sentences by comparison with his mother tongue. This phenomenon might remain unanalysed and unexpressed, but no less salient for that. A learner who has learned a certain formal metalanguage might notice the same but be facilitated in generalising from particular instances of subjectless sentences by virtue of possessing the metalinguistic concepts of 'subject' and 'pronoun'. A linguist might, on noticing such sentences, immediately classify the language as '*pro*-drop' and perhaps anticipate certain other phenomena in Spanish – such as rich verbal morphology – on that basis. Of course, metalinguistic knowledge is unlikely to be stored in a single, uniform conceptual category. One might have some metalinguistic knowledge at a lexical-semantic level ('German words with the separable prefix *um-* often have to do with

transformation'), and other knowledge at a syntactic level ('German sentences commonly start with an adverbial phrase'). So existing knowledge can only *predispose* the learner to notice particular kinds of entity.

Such an interpretation of the noticing hypothesis might seem to imply the possibility of acquisition through what Schmidt calls awareness-as-noticing and also acquisition through awareness-as-understanding; it could also be understood to imply that the two processes are qualitatively similar. The metalinguistically naïve learner in our example notices simply a particular difference between the target language and his mother tongue, and further acquisition is based on that, while the linguist's metalanguage enables her to reach a generalisation in terms of an abstract rule. But there are several problems here. Consider first the naïve learner. He notices the 'oddness' of an utterance, or perhaps the similar oddness of several utterances. Let us suppose he goes on to consistently produce well-formed subjectless sentences in Spanish. What has happened? Clearly, he has generalised from the particular, noticed utterances. If he has done this consciously, then awareness-as-understanding is implicated, and the noticing hypothesis has proved insufficient to explain *acquisition* of this feature. If he has generalised unconsciously, then implicit learning has taken place subsequent to noticing, and has in fact done most of the work; the role of noticing seems considerably diminished. And we must ask, what cognitive mechanism or innate dispositions enabled him to make appropriate generalisations? Are we to assume that 'subject' and 'pronoun' are universal categories, and that it is therefore at this level of grammatical specificity that noticing takes place?

Now consider our linguist, at the other end of the awareness continuum. If she consistently and successfully produces appropriate sentences with unrealised subjects, she may be drawing on conscious, abstract generalisations concerning *pro*-drop behaviour, in which case, first, the linguistic knowledge underlying her performance is not acquired in the sense that we understand it, and second, the key process has been not noticing but subsequent understanding. Alternatively, if *pro*-drop was the level at which she noticed but no further conscious inductive reasoning took place, does that mean that this is the level of granularity at which

noticing must take place? How then can our naïve learner ever hope to master this phenomenon? Yet another possibility is that noticing the subject omission preceded the abstraction in terms of *pro*-drop, and that this was the key moment. But then we are back with the same explanatory problems as we had with the naïve learner.

A final possibility, of course, is that what was noticed was the mere input itself, with no noticing of abstractions at any level – not part-of-speech, nor grammatical function nor Chomskian parameters. But this leads us back to the weakest possible interpretation of the noticing hypothesis: that what is crucial for acquisition is simply global noticing of the input.

This thought experiment suggests another way in which noticing may be relevant. We have seen that in attempting to account for acquisition, we must either posit a universal level of detail at which noticing operates, or else concede, contrary to the spirit of the noticing hypothesis, that implicit mechanisms are crucial, and that they operate differentially across individuals with differing levels of metalinguistic knowledge. The alternative is to stop the analysis before making the step to acquired, implicit knowledge. If we thus confine our focus to the acquisition of *metalinguistic* knowledge, then it is clear that the entities noticed will indeed be dependent on the nature and degree of analysis of existing metalinguistic knowledge. This approach amounts to a modification of the noticing hypothesis, and is precisely what Truscott recommends. His revised version is as follows: 'the acquisition of metalinguistic knowledge is tied to (conscious) noticing; development of competence is not' (1998, p. 124). The foregoing suggestions lead us towards a two-part, cyclical version of this revised hypothesis: (i) noticing contributes to the development of metalinguistic knowledge (ii) existing metalinguistic knowledge predisposes the learner to notice particular kinds of entity in input. This amounts to a tightening-up of the hypothesis through specification of the entities that are noticed.

Let us summarise the outcomes of the foregoing review:

- The term 'consciousness' has multiple meanings; it should not be dispensed with, but the use of more precise subordinate concepts is often advisable.

- Unless otherwise specified, we will use consciousness as a synonym of *awareness*, i.e., subjective, moment-by-moment, potentially expressible knowledge of a fact, or recognition of a stimulus, etc.
- *Attention* is distinct from *awareness*: one may attend to a stimulus without being aware of it.
- Models of the cognitive process of *attention* have included filter models, which imply sequential application of low-level (sensory) and high-level (semantic) processes; and limited-capacity models, which are allow for interaction between sensory and semantic processing and provide a better account of experimental data. Tomlin and Villa's (1994) SLA-oriented model of attention comprises three components: orientation, alertness and detection.
- *Noticing* can be defined as 'awareness of detection'. Schmidt's noticing hypothesis holds that noticing phenomena in second-language input facilitates subsequent acquisition through unconscious processes; more noticing leads to more acquisition.
- The noticing hypothesis is insufficiently precise with regard to the level of granularity at which linguistic entities are noticed. This problem can be overcome if we assume that (i) the of kinds entities that comprise existing metalinguistic knowledge influence the level at which entities are noticed and (ii) noticing contributes to the formation of metalinguistic knowledge rather than to unconscious (Krashen's 'acquired') linguistic knowledge.

What this means for Schmidt's fundamental claim – that what is noticed is what is available for acquisitional processes – depends on the relationship we posit between metalinguistic knowledge and the knowledge underlying fluent performance. I will argue below that metalinguistic knowledge contributes positively to second language learning, but only indirectly and not as a matter of necessity.

2.3 Metalinguistic dimensions of language knowledge and behaviour

It is a defining characteristic of second language learners that, by contrast with children acquiring their mother tongue, they bring some degree of metalinguistic awareness to the task. This observation plays a role in David Little's pedagogical model (e.g., Little, 1997a; 1997b; 1999b; Little & Ushioda, 1998b). Little argues that learners' existing metalinguistic knowledge constitutes a conceptual tool-set that allows them to make at least initial, heuristic generalisations regarding the target language (1998b, p. 12). These approximations may not survive in the long run: they may ultimately be upgraded to, or replaced by, richer analyses.[6] But at the very least they may function as a lever with which to broach the problem of communication in the target language – and engagement in communication, in most imaginable conceptions of language learning, brings its own rewards.

But there are many questions that we must ask of this notion of metalinguistic awareness, the fundamental one being, what precisely do we mean by the term? Further: what kinds of metalinguistic knowledge are there? Little (1998b) speaks of explicit metalinguistic knowledge: is there also an implicit variety? Is metalinguistic knowledge an intrinsic part of all linguistic competence, developing inevitably and in parallel with grammatical, pragmatic, communicative and other aspects? Or does it belong with general cognitive or metacognitive skills? Does it vary in kind or degree across individuals? If so, can it be enhanced in any sense, and how? Most importantly for the purposes of this study, what role does it play in second language learning?

2.3.1 Defining the metalinguistic

Perhaps the most uncomplicated use of the term 'metalinguistic knowledge' is to designate 'knowledge of grammatical terms' (e.g., Ellis, 1993; Fotos & Ellis, 1991). This is more specific than most uses, and less theoretically interesting. It

[6] There are of course theoretical questions as to whether the heuristics are revised or are supplanted, whether this occurs by conscious or unconscious processes, and whether the ultimate representations are consciously accessible or not. We will not address these issues at this point, but the discussions of the models of Bialystok and Karmiloff Smith (below) are pertinent in this regard.

contains within it, though, two important senses that need to be distinguished: the sense of '*language* about language', and the sense of '*knowledge* about language'. The first of these was perhaps the earliest sense of 'metalinguistic' to emerge. In the functionalist system of Roman Jakobson, it designated one of the secondary functions of language. In this sense it refers to the reflexive potential of language that becomes visible in the occurrence of metalanguage, that is, language referring to language. Emile Gombert (1992) identifies this as the linguist's understanding of the term *metalinguistic*. The (functionalist or formal) linguist is not, though, centrally interested in the psychology behind the metalinguistic function, i.e., the knowledge, skills or other mental entities and mechanisms that make it possible for individuals to operate on language itself for purposes that may transcend canonical communicative purposes. Such psychological phenomena are captured in various terms such as metalinguistic skill, metalinguistic ability, metalinguistic awareness, and metalinguistic knowledge. This is the psychologist's use of the term; it is Gombert's theme in his monograph on *Metalinguistic Development* and it is what concerns us here. This linguistic/psychological distinction has methodological importance: *pace* Fotos and Ellis's above-cited definition, we can attribute metalinguistic awareness (psychologist's sense) to an individual even in the absence in that individual of a metalinguistic vocabulary (Tunmer & Herriman, 1984). Until we have looked in more detail at metalinguistic dimensions of language and cognition, we will use the term 'metalinguistic function' not in the linguist's sense, but rather to encompass the various psycholinguistic phenomena in question. That is to say, the phenomena we are concerned with are functions not of language but of mind.

The linguist's and the psychologist's uses of the term intersect in the idea that language users can 'look at expressions as if they were, so to speak, opaque objects to be examined in their own right rather than transparent windows through which we look out upon the world' (Bruner, 1986, p. 125). We have seen that from the perspective of the functionalist, this capability inheres in language itself. For the psychologist or psycholinguist, this reflexive turn is made possible by either a general cognitive skill or an endowment of a specific

language faculty. Further, according to different accounts, metalinguistic ability either emerges naturally in the course of normal language development or, alternatively, is a separately acquired skill that can in some way affect further language development, or even general cognitive development. This last possibility is one that we have alluded to in connection with Vygotsky's view of development, and one to which we will return in the next chapter in particular.

There is no consensus on the precise scope of the psychological / psycholinguistic conception of the metalinguistic, but there is a certain commonality among the glosses that most writers feel it necessary to supply. For Yaden (1984, p. 5), metalinguistic awareness is 'the ability […] to consciously and deliberately reflect upon and analyze the structure of both oral and written language as opposed to merely reacting to its content'. (Yaden is referring to children specifically, but there is no reason not to assume that this understanding extends also to adults.) Similarly, Diaz and Klingler (1991) believe that the term most commonly refers to 'a set of abilities involving an objective awareness and control of linguistic variables, such as understanding the arbitrariness of word-referent relations' (p. 173). According to Sharwood Smith (1993), 'metalinguistic' denotes 'ways in which language and particularly the language system is seen and exploited as an object of conscious attention' (pp. 170-1), and Ridley (1997a) understands metalinguistic ability to involve 'learners reflecting on language in a decontextualised way, for instance when they step back from an utterance or sentence and think about a particular word, or about how it relates to other words and their meanings' (p. 46).

It is clear from such definitions that most writers identify the metalinguistic function with reflection, hence with conscious awareness. But we need to consider also some behaviours and capacities that do not, on the face of it, seem to implicate reflection or awareness, and yet are sometimes identified as metalinguistic in nature. Among these are 'the capacity to detect and correct syntactical violations' (Diaz & Klingler, 1991, p. 173), and 'learners' ability to manipulate or play with words' (Ridley, 1997b, p. 46). Clearly, as Gombert (1992) recognises, even quite young children demonstrate a capacity to operate on language forms that cannot plausibly be linked to consciousness of linguistic

phenomena as formal symbolic entities.[7] Such behaviours include the ability to identify rhyme; to notice that a sentence is ungrammatical; to self-repair; and to identify synonymy. Baron (1997) calls these childhood capacities 'rudimentary metalinguistic skills'; Karmiloff-Smith (1986) identifies them as belonging to the class of 'unconscious meta-processes'. Gombert too prefers to set these apart from behaviours that are clearly conscious, reserving the term 'epilinguistic' for the unconscious, and 'metalinguistic' for the conscious variety. Epilinguistic behaviours occur episodically and operate on particular linguistic tokens as they arise, while true metalinguistic behaviours operate on systematic mental representations and hence involve abstraction from particular tokens.

Another kind of behaviour that is sometimes labelled metalinguistic is that which provides formal linguists with their data: namely, linguistic intuitions. Tunmer and Herriman (1984, p. 14) define these as 'explicit, adult-like judgements about language structure and function', and insist that '[a]lthough linguistic intuitions involve metalinguistic abilities, they must not be equated with them.' A distinction between the spontaneous, episodic judgements of children and the linguistic intuitions of adults appears difficult to justify, however: contrary to Tunmer and Herriman's account, the linguist is not usually interested in an informant's conceptions of 'language structure and function'. The intuitions of adults elicited by linguists typically include judgements with regard to acceptability, ambiguity and synonymy of individual utterances: judgements which, as we have seen, are normally counted among the child's repertoire of epilinguistic behaviours. Nevertheless, the key fact to be drawn from this discussion is that certain linguistic behaviours, in adults and children, may involve monitoring and reacting to the form of utterances, and may even

[7] Indeed, much of the research into children's grasp of the word-referent distinction (a tradition extending at least as far back as Vygotsky and the early Piaget) suggests that young children do not conceive of language as a sign system in an arbitrary relation with the reality it represents. It should be noted, though, that this research may suffer from methodological difficulties, and in particular from confounds caused by children's lack of understanding of the word 'word' (Bowey & Tunmer, 1984, pp. 84-90).

draw on metalinguistic awareness of some kind, but they are not themselves to be identified with metalinguistic awareness.

One further clarification needs to be made. Tunmer and Herriman (1984) claim that while processes of production and comprehension, and the tacit knowledge they are assumed to be based on, are always hidden from conscious introspection, the products of these processes are available for conscious scrutiny. They therefore arrive at a definition of metalinguistic awareness as 'the use of "control" processing […] to perform mental operations on the *products* of the mental mechanisms involved in sentence comprehension and production' (p. 16, emphasis in original). Control processing is conscious and effortful, hence distinct from automatic processing, which is faster, unconscious, and cannot be deliberately bypassed. However, Gombert (1992) points out that Tunmer and Herriman's conception conflates declarative and procedural aspects of the metalinguistic. He argues that it is best to preserve a conceptual distinction between on the one hand metalinguistic knowledge or awareness – a capacity to reflect on the language system and perhaps also aspects of its use – and on the other hand metalinguistic processes that operate in real-time comprehension and production. Such processes include the more conscious monitoring and repair behaviours in the mature speaker-hearer's repertoire, such as carefully rephrasing an utterance that has been misunderstood.

2.3.2 Development of metalinguistic capacity

We have now reached a characterisation of the metalinguistic as encompassing functions of mind, rather than language, and as being conscious in a sense that certain linguistically-reflexive childhood and adult behaviours are not. The latter we call 'epilinguistic', following Gombert. Before we consider the role that metalinguistic knowledge plays in second language learning, and specifically in our revised formulation of the noticing hypothesis, we will focus this characterisation more sharply by considering the genesis of metalinguistic capacities in childhood.

Tunmer and Herriman (1984) identify three stances with respect to the question of development: (i) metalinguistic awareness develops concomitantly

with first language proficiency; (ii) metalinguistic awareness is linked to general cognitive development and emerges in middle childhood (from about five to eight years of age); (iii) metalinguistic awareness emerges as a result of learning to read – an argument that arises again in the next chapter.

The first view might at first glance seem justified by the phenomenon of childhood self-repair. Against this, Tunmer and Herriman (1984, pp. 17-18) argue that self-repairs of various kinds are common in adult speech, and that it is implausible that in these cases conscious reflection is involved, since that would interfere with attention to content. This argument, they claim, applies even more forcefully to children. However, it is not strongly persuasive, since rapid alternation of attentional focus between content and form is entirely possible, at least in the case of adults. Such a capacity remains unlikely in children, though, and it seems best to regard such behaviours as involving a certain monitoring capacity that need not rise to the level of conscious reflection on linguistic form – epilinguistic behaviour as we have called it. A further argument in favour of metalinguistic functions as a necessary part of general language development is based on the claim that the development of competence must require the capacity to monitor and repair utterances. However, this is invalidated by evidence of individuals congenitally unable to speak who nonetheless learn language (Tunmer & Herriman, 1984, p. 19).

A slightly different argument is that the ability to *produce* utterances, as opposed to acquiring linguistic competence, might be linked to the ability to monitor and repair. This view is associated especially with Marshall and Morton (1978), whose claim is that language comprehension/production mechanisms comprise, or at any rate involve, 'mysterious apparati', and that a further mechanism, operating automatically and in an all-or-nothing fashion, monitors output for failure. This is what they call the Even More Mysterious Apparatus (EMMA). Since it is possible that this mechanism might trigger repair automatically, they concede that rather than giving rise directly to metalinguistic awareness, such awareness might correspond to EMMA plus consciousness, or as Tunmer and Herriman prefer, 'EMMA plus control processing' (p. 21). But as Tunmer and Herriman point out, 'awareness of *failure* (resulting from the

operation of EMMA) does not mean the same thing as awareness of *linguistic structure*' (p. 22) – since children's attention is focused not on language structure but on situational meaning and their interlocutor's intention – and reiterate that 'only the latter should be regarded as metalinguistic' (p. 24). Their final argument against this view is that, if metalinguistic awareness develops along with language itself, then there is no clear reason for differential achievement in metalinguistic awareness as compared to uniform achievement in language, and likewise no basis for an account of differences in reading achievement. Gombert (1992, p. 176) puts forward arguments similar to the foregoing, and Karmiloff-Smith (1986) takes issue with the EMMA hypothesis on the grounds that (i) it is not truly developmental: it applies equally to children and adults and provides no account of change, and (ii) it is failure-driven, thus seemingly implying that if no failure occurs during the development of a particular area of the language system, then that area cannot become subject to consciousness. We will see below that Karmiloff-Smith places a fundamental emphasis on success as the basis for cognitive development.

The second possibility, that metalinguistic awareness arises out of the development of general information-processing mechanisms, is the one favoured by Tunmer and Herriman (1984), and to a degree by Karmiloff-Smith (1986; 1992) and Bialystok (1991a). The research reviewed by Tunmer and Herriman (1984) and other contributions in Tunmer et al. (1984), assesses the ability of children to respond to the form of utterances separately to their content. This literature strongly supports the view that metalinguistic awareness increases through the years of middle childhood. Since this parallels the development of proficiency in the first language, it can be hypothesised that a third factor – perhaps a general cognitive change – underlies both. The pertinent cognitive change posited by Tunmer and Herriman is the development of metacognition – the ability to reflect on one's own thought processes and to control them voluntarily. This view, then, amounts to a claim that metalinguistic awareness is a kind of metacognition, rather than a language-specific process or capacity.

2.3.3 Representational dynamics: Bialystok and Karmiloff-Smith

An influential conception of the metalinguistic and its relationship to tacit linguistic knowledge and domain-general cognitive processes, arises out of certain developmental perspectives on cognitive representation. The common core idea of these approaches is that the symbolic representations underlying knowledge in all cognitive domains are subject to processes of development. Non-developmental models, while sharing the information-processing assumptions of the developmentalists, overlook or implicitly downplay the role of such processes. For example, in the Chomskian model language acquisition is conceptualised not as dynamic, partially contingent development, but as ineluctable, teleological maturation. The representational format of language is claimed to be genetically given, and the emergence of a particular language in childhood is simply the fleshing-out of an already highly-structured system. By contrast, developmental cognitivists claim that symbolic representations are subject to restructuring, explicitation[8], and re-representation. These concepts overlap, but the last two in particular imply that the symbolic format in which knowledge of a given kind is represented is not immutable, but changes in the course of development in systematic ways. In brief, and to anticipate the discussion below, 'the metalinguistic' is considered in such models to be at or near the end-point, in the linguistic domain, of processes of representational explicitation that occur in all domains.

Ellen Bialystok's conception of metalinguistic capacities (Bialystok, 1986, 1991a, 1994, 1991b) is rooted in her two-component developmental model of language proficiency. What motivates this model in part is a desire to escape the representation-process distinction (Bialystok, 1991a), which can easily become indistinguishable from the knowledge-skill distinction. Bialystok's view is that, whatever about the utility of this latter distinction at the behavioural level, it has no explanatory use for characterising the cognitive basis of language proficiency

[8] 'Explicitation' and 'explication' are used interchangeably in the literature. Though 'explicitation' seems to be a recent back-formation and 'explication' is etymologically better justified, the former is used in this work to avoid ambiguity and because its relationship with the adjective 'explicit' is more transparent.

(Bialystok, 1990). Instead she distinguishes *analysis of knowledge* and *control of attention*, processing components which are both shot through with certain elements of knowledge and skill. Analysis of knowledge is a process that yields representations of increasing explicitness and abstractness, but it is an off-line process. For simplicity, 'analysis' may refer just as well to the representational outcome as to the process itself. Hence we may talk of *degree* or *level* of analysis just as meaningfully as *mastery of the process* of analysis. The control component is an on-line process: it is responsible for directing selective attention to relevant representations at the appropriate level of analysis during the performance of actual tasks (e.g., communication, or metalinguistic tasks), and for integrating these representations in performance. Such a process is predicated on the existence of the representations provided by the analysis component, and also on 'a set of procedures or strategies for selecting an appropriate focus of attention' (Bialystok, 1991a, p. 120), so in this sense it is not synonymous with or reducible to skill.

Bialystok's characterisation of representational evolution through analysis emphasises two broad levels of representation: the meaning-based, and the symbolic or formal. Language represented at the former level is organised according to semantic categories, relating linguistic entities to the world, and also to each other on the basis of such relationships. Language represented at the latter, symbolic level is organised according to *formal* categories, and it is these representations that underlie metalinguistic performance. The process of analysis comprises the redescription of semantically-organised knowledge along formal lines. Increasing capacity for analysis results in increasing availability of formal symbolic representations. Increased control, on the other hand, corresponds to increased capacity to access and integrate representations in performance.

These processes are held to be independent of one another, at least to some degree (Bialystok, 1991a, p. 121), and mastery of each is a scalar quantity; that is, there are degrees of mastery of control and attention. It is possible in principle to describe an individual's proficiency at a given moment with respect to these orthogonal measures. More revealingly, we can locate tasks in linguistic sub-

domains with respect to their demands on analysis and control. For present purposes, three examples will suffice:

1. Informal, primarily phatic conversation tends by definition towards the formulaic, hence makes few demands on analysis. Neither is there much pressure to access the necessary representations with fine attentional control, since highly fluent speech is not of the essence. So we can characterise such conversation as being low in analysis and low in control.
2. Revision of grammar in informal writing requires access to more highly analysed representations than, say, the kind of spontaneous oral repair that we previously described as epilinguistic. Since there is less real-time pressure to access these representations than in oral conversation, though, a low level of control might be adequate. Grammatical revision of writing, then, is high-analysis, low-control.
3. Returning to the oral domain, Bialystok identifies certain kinds of language use that necessitate highly controlled attentional access to representations that need not show much abstract, formal structure (low analysis, high control). This is the domain of the professionally fluent: the chat-show presenter, the radio disk-jockey. However, the more articulate, as opposed to merely voluble, of such broadcasters require greater degrees of analysis too, in order to fit the utterance more precisely to the thought.

These are admittedly fairly gross generalisations, but they serve to illustrate the hypothesised contributions of Bialystok's processing components to language proficiency of different kinds. The examples are from two different linguistic sub-domains, the oral and the literate. While each sub-domain is amenable to more fine-grained description – so that, for example, drafting a literary text requires higher control and possibly also higher analysis than grammatical revision of a business letter – Bialystok also locates the sub-domains themselves at different points along the analysis and control axes. Hence the writing domain is, all other things being equal, more demanding than the oral domain in terms of both analysis and control. This brings us to the metalinguistic, viewed by Bialystok to be that linguistic sub-domain which requires the highest degrees of analysis and control.

Metalinguistic tasks by definition require attention to form over meaning, and therefore high degrees of analysis (by definition of 'analysis'). Where attention to form is in competition with attention to meaning (as in the case of many experimental metalinguistic tasks), comparatively high control of attention is required in order to pick out the appropriate level of representation (i.e., symbolic rather than semantic). This leads Bialystok to suggest that

> The best application of the term metalinguistic appears to be a group of tasks, or language uses. These would be those uses of language characterized by three criteria: relatively high demand for analysis of linguistic knowledge; relatively high demand for control of processing; and the topic is language or structure.

O'Malley and Chamot (1990) point out that Bialystok's definition of and claims for metalinguistic knowledge, put side by side, are circular. High analysis and control can be associated with metalinguistic tasks either as a matter of definition or as an empirical claim, but not both. This is a valid point, though a small one. It is a prediction of the model that metalinguistic tasks will demand (i) more analysed representations and (ii) better attentional control in selecting from among competing representations, than oral or literate tasks. The prediction is supported by Bialystok's empirical research (1979; Bialystok, 1986). This is not, then, a matter of definition, but an empirical claim, and leaves the criterion of task 'topic' as the sole defining criterion for metalinguistic tasks.

It follows from this model and definition that metalinguistic skills do not constitute a categorically separate cognitive faculty. Rather, Bialystok claims that the metalinguistic capacity lies along the same developmental continuum as other language skills. It further follows that there is a continuum of metalinguistic skills that differ in their demands on analysis and control.[9] For instance, looking at the kind of task typically presented to children for experimental purposes, Bialystok places 'counting words in a sentence' higher on both axes than 'detecting errors'. Equally, the highest levels of analysis and control are not attained by everyone, so not all metalinguistic tasks are

[9] Hence, although we excluded degree of analysis and control from the definition of the metalinguistic, they can remain a criterion for distinguishing, *within* the domain of the metalinguistic, between 'more' and 'less' metalinguistic tasks – between metalinguistic and epilinguistic tasks, for example, the former requiring more, the latter less analysis and control.

necessarily within reach of all. Finally, it should be noted that conscious awareness, though characteristic of metalinguistic tasks, is not unique to them, since it accompanies tasks in the oral and literate domains also (Bialystok, 1991a).

What does this model imply for the role of metalinguistic knowledge in second language learning? First, it suggests that such knowledge is at the high end of the analysis-of-knowledge continuum; it is a linguistic representation marked by an extreme degree of explicitness. The ability to deploy such knowledge in solving metalinguistic tasks depends additionally on high levels of control of attention.[10] Second, the model makes no link between highly analysed linguistic knowledge and the acquisition of unanalysed knowledge – which is where all learned knowledge begins its journey (Bialystok, 1990, p. 47). It therefore does not provide an inherent account of the role of instruction in language learning. Nor does it make a positive claim against such a connection, however, and I will propose such a mechanism below, one that leaves Bialystok's overall conception intact. In anticipation of that, it is worth clarifying a point raised by Hulstijn (1990), concerning the relationship between learned, propositional knowledge of a second language – such as syntactic rules – and degrees of representation. Hulstijn claims that language learning can move from analysed knowledge, in the form of explicit pedagogical rules, to unanalysed knowledge underlying communicative performance, and expresses surprise that 'the Analysis/Control framework does not account for a process that we can observe in almost every foreign-language class' (p. 38). Bialystok points out in response (1990, p. 47) that this confuses the form of a representation – analysed or unanalysed – with its content. Hence, an explicitly learned rule, for all that it comprises propositional knowledge, can only be represented in a relatively unanalysed form to begin with, and can only become more analysed: 'To the extent that these rules are not internalised as analysed knowledge, learners'

[10] A further implication of the model is that, as Johnson (1996) points out, what matters for L2 performance is not only *what* is known or the form in which it is represented – analysis –, but in what situations it can be applied – control. But this is not our current focus.

performance will not be affected by them' (pp. 47-8). Seen in this light, the problem of making a connection between such consciously-learned propositional knowledge and the knowledge underlying language use amounts to the question of how propositional knowledge comes to be internalised as analysed knowledge, if at all. Bialystok seems to suggest that this might be possible, but does not address the matter further. I will attempt to do so below.

Annette Karmiloff-Smith's (1986; 1992) model of language development is essentially compatible with Bialystok's. It emerges from a theory that is broader in scope, aiming as it does to characterise cognitive development in general, and especially the escalation of mental processes to the metacognitive level, a phenomenon she views as quintessentially human. Questions of real-time processing are of less importance to Karmiloff-Smith than to Bialystok: her focus is on what Bialystok calls analysis, rather than on control. She provides a very fine-grained analysis of the dynamics of representational change – what she calls 'representational redescription' – identifying clear-cut levels of explicitness of knowledge.

The principal motivating insight of Karmiloff-Smith's theory is that, unlike other animals, humans routinely go beyond mastery in various behavioural domains. Their cognitive representations come to be objects of attention in themselves, and ultimately individuals develop reflective insight into their behaviour and its mental substrate. Just as, for Bialystok, analysis is contingent and subject to individual variation, so the metacognitive step is not ineluctable in Karmiloff-Smith's view. But where it occurs – and depending on the degree to which it occurs – metacognitive insight facilitates cross-domain application of knowledge that would otherwise remain embedded in procedures and hence inaccessible.

But the emergence of conscious knowledge is not the sole theme of the representational redescription model. Karmiloff-Smith posits at least one level of explicit redescription prior to consciousness: what she terms level E1 (where E is for explicit). Level E1 representations develop, via a process of explicitation, from the lowest-level representations, level I (for Implicit). The significance of explicitation lies in the flexibility that it confers on the cognitive

system, by virtue of producing knowledge of a kind that can potentially be applied across domains. The development of level-I representations is driven by the goal of behavioural success rather than efficiency of storage or flexibility. For this reason these representations comprise, in the linguistic domain, one-to-one mappings between forms and functions, which come to be compiled into procedures, thus providing the basis for fluent performance (Karmiloff-Smith, 1986). But the nature of these representations is such that they are indivisible. To use a metaphor from computer programming (a field to which computational-representational psychology owes many conceptual debts), procedures may be executed as units, but their subroutines are not available to other procedures (Karmiloff-Smith, 1992, p. 20). Furthermore, any commonality across procedures is implicit, in the strict sense of being unidentified and therefore unavailable *per se*. Level-I representations are thus highly redundant.

The individual then goes beyond simple behavioural success, trying to gain control over representations, in the following sense: The meta-process of explicitation identifies and marks information shared by procedures in a domain, generalises across them and creates representations *of the generalisations*. There is therefore a trade-off between increased robustness and flexibility, on the one hand, and loss of detail, on the other. Though explicit in the sense described, E1 representations are no more available to introspection than those at level I. Hence, explicitness and inaccessibility are characteristic of level-E1 knowledge.

This level of unconscious explicit knowledge provides a natural account of the phenomenon of U-shaped development, of which a typical example is the acquisition of irregular morphology in English. Children may produce target-like past-tense forms such as 'brought' and 'saw' before going through a stage of over-application of regular verbal morphology, resulting in aberrant forms such as 'bringed' and 'seed'. These forms ultimately disappear as the appropriate irregular forms reassert themselves. For Karmiloff-Smith, this and similar phenomena from the linguistic and non-linguistic domains are explained by the restructuring of the representations underlying performance. The account runs broadly as follows: early item-specific, minimally abstract, procedural representations (level I) underlie the seemingly precocious production of

appropriate irregular forms. Redescription results in the emergence of new representations that are more general and abstract, and in that sense more explicit. In short, a category-sensitive rule emerges where previously there was none (level E1). However, in struggling to develop and control stable E1 representations, the child resorts as a 'cognitive processing prop' (like finger-counting and rehearsal; Karmiloff-Smith, 1986) to over-marking of the output, making verbally explicit distinctions that are, in adult language, either unexpressed or expressed through multiple form types. In the case of irregular morphology, this is manifested as initial overapplication of the rule. Increased control over the new representations – analogous, presumably, to 'control' in Bialystok's sense – frees up capacity for the fine-tuning of the rule's scope through comparison with input. This results in the eventual re-emergence of the appropriate forms. Though early and mature behaviours are externally identical, they are the outcome of linguistic knowledge in two different formats: earlier output was based on level-I representations, later output on the more abstract level-E1 representations.

There are further levels of explicit representation, called E2 and E3. Level E2 is distinguished from E1 by accessibility to consciousness, while level E3 is in addition available to verbal report. Level E2 has not been the focus of much research. Its presence in the model is motivated primarily by the need to account for consciously-accessible representations that remain in the same format as their level-E1 counterparts rather than being linguistically encoded: e.g., kinaesthetic, visual or spatial (Karmiloff-Smith, 1992, p. 23). Level-I information is embedded in procedural representations – which are necessarily domain-specific – while level-E1 representations, though explicit and general, are also supposed to subsist in a domain-specific format. Level E2/3 representations are thus held to be the prerequisite for cross-domain accessibility, hence for analogical reasoning and creative problem-solving. And, of course, E2/3 representations of language are the basis of metalinguistic performance. Karmiloff-Smith's model can be represented diagrammatically as in Figure 1:

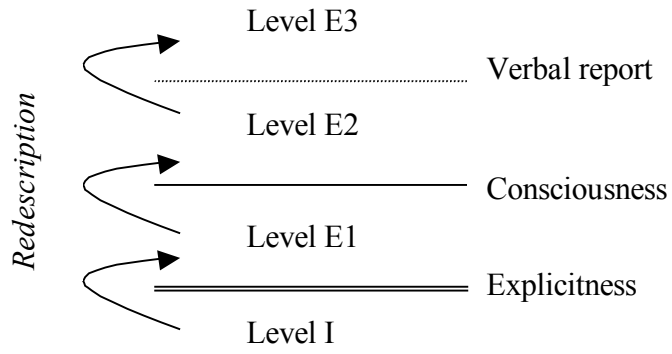

Figure 2.1 Karmiloff-Smith's (1986, 1992) representational redescription model

Some further points about the representational redescription model deserve mention. First, it is not a theory of developmental *stages*, but rather of recurrent *phases*. The transitions between levels of explicitness take place recurrently within cognitive 'microdomains' – subdomains of subdomains – not globally across the cognitive system. Hence, for example, certain lexical microdomains may be represented at level I at a given moment, while others are at level E1 or even E2/3. Second, more explicit representations do not replace less explicit ones; redescription is additive, not obliterative. Similar knowledge may be maintained in several different forms.

Third, the transition between levels I and E1 are not driven by external pressures and are insensitive to input. Redescription at this level is an endogenous process that is assumed to occur off-line and of its own accord, rather than on-line and at the behest of either new information or a problematic task confronting the individual. This point applies also to the equivalent process in Bialystok's model, the analysis component. By comparison, attention to external stimuli is characteristic of the first phase of representational formation, in which procedural representations are built, and the third phase, where E1 representations are fine-tuned by reference to input.

Finally, Karmiloff-Smith concedes the possibility that knowledge can be directly encoded at the E3 level – that is, a linguistically-expressed proposition can be taken on board as-is, presumably encoded in long-term memory (Karmiloff-Smith, 1992, p. 23). These points will be significant in our attempt

(below) to outline a model that gives due weight to both instruction and endogenous development in language acquisition.

These models give us robust and well-specified conceptions of knowledge acquisition (Karmiloff-Smith); the dynamics of change in knowledge representations (Bialystok, Karmiloff-Smith); and the role of attentional control in performance (Bialystok). Among their specific contributions are a view of metalinguistic performance as being developmentally continuous with other kinds of language use; clarification of the difference between explicitness and consciousness; and the integration of language development within a framework of cognitive development generally. Finally, it seems to me that Bialystok's and Karmiloff-Smith's developmental perspective on mind is highly commensurable with Vygotsky's 'genetic' approach to psychological explanation, and in particular with his ideas on conceptual development. I will explore this below, arguing further that models of representational change are also compatible in many particulars with Vygotsky's view of the interaction between socioculturally mediated knowledge and internal development.

Crucially, neither of these complementary models precludes innate predispositions towards language learning, or even innate *ideas* or conceptual structure with regard to language:

> I consider language acquisition to be in part determined by innately given linguistic constraints and subsequently in part by general processes of representational explicitation, particularly with regard to lexico-morphology. (Karmiloff-Smith, 1986, p. 100)

The qualified restriction of the model to lexico-morphology in the above quotation suggests that perhaps we need to assign a greater role to innate constraints in the case of syntax than in the other levels of linguistic analysis. But at what point in a developmental model would innate constraints operate? Bialystok's model does not allow us to specify a particular point, since it emphasises continuity rather than discrete phases. However, we can attempt to fit innate constraints – effectively, Universal Grammar – into Karmiloff-Smith's model.

Level I is defined to be minimally general, and procedural in nature. This is incompatible with the nativist view of declarative, parsimonious structural specification. Encoding of linguistic forms at this phase (phase 1) must surely be

driven by processes that are associative and yield shallow outputs. They would be constrained by only the most low-level linguistic predispositions – e.g., the innate ability to distinguish and pay preferential attention to linguistic signals among the mass of acoustic input; and perhaps phonological categorisation. This is implicit learning very much in the mode characterised by Nick Ellis and discussed above (p. 43).

Clearly, the influence of innate ideas must precede the point at which consciously accessible representations emerge (E2/3). Innate structures, then, seem most likely to apply at Karmiloff-Smith's phase 2 and possibly 3 – that is, redescription of I-representations at level E1, and fine-tuning and consolidation of E1 representations. Principles and parameters in the Chomskian sense would constrain the kind of linguistic generalisation to be sought and made explicit. While similar redescriptional processes operate in other domains, they would be subject to their own domain-specific constraints. This leads us to a characterisation of representational redescription / analysis as being domain-general in function, but domain-specific with regard to the constraints on its inferences. It further implies that the child's language competence, in the Chomskian sense of Universal Grammar as 'filled out', parametrised and tuned by L1 input, only begins to develop *after* the child's first communicative linguistic utterances, which are underpinned by comparatively unanalysed, level-I representations. And it implies that the domain-specific encoding of level E1 is what formal linguistics describes, if we accept that it does in fact describe something psychologically real.

Let us summarise the conclusions of the chapter thus far. We have examined Schmidt's Noticing Hypothesis, and recast it along lines suggested by Truscott (1998). The effect of this is to suggest that attention with awareness during language use is implicated in the development of metalinguistic knowledge, but cannot be shown to be necessary for the conversion of input to intake. A weaker implication of the reformulation is that unconscious processes do after all have a considerable role to play in the acquisition of L2. This is the on-line perspective on consciousness – conscious processes as they operate within normal input-output relations, to use Karmiloff-Smith's terms.

We then turned our attention to conscious awareness of language form from the off-line perspective: the question of metalinguistic awareness. We conclude that there are degrees of metalinguistic awareness, evidenced by variability of individual performance across a range of tasks that have language as their focus. This is best accounted for by developmental models that stress the dynamic nature of the representations underlying performance. Such models do not preclude that innate attentional predispositions, and possibly even innate conceptual structures in the Chomskian mode, constrain the operation of the processes of analysis/redescription within the language domain. Since these models focus on naturalistic child development, they are not primarily concerned with the role of instruction. The following section attempts to elucidate the interface of socioculturally-mediated knowledge with the models discussed above.

2.4 Towards an integrated model of instructed SLA

Schmidt's Noticing Hypothesis is driven by L2 pedagogical concerns. Bialystok's model of language processing and Karmiloff-Smith's model of representational change are focused primarily on child development. The difference in perspective parallels a difference in the place given to conscious knowledge in language learning. For Schmidt, conscious knowledge is a prerequisite for learning a second language. For Bialystok and for Karmiloff-Smith, consciousness of language form is a possible but not inevitable outcome of developmental change in the first language. We have seen that most second language pedagogies are based on a tacit understanding of the relationship of consciousness knowledge to proficiency. Therefore a great deal of discourse in SLA theory is based on the question of this relationship, at least tacitly. Johnson (1996) reduces the various models to two broad stereotypes: PRODEC (procedural knowledge precedes declarative knowledge – see discussion of this and related dichotomies below) and DECPRO (declarative knowledge precedes procedural). In the developmental models, we have accounts that might potentially be adapted to second language learning; they involve what Johnson would call PRODEC. Yet formal instruction in most disciplines assumes there is

a movement in the opposite direction – Johnson's DECPRO – and it seems counter-intuitive to suppose that instruction has no substantial bearing on the course of learning. This conviction is reflected in second language pedagogy too: most teaching approaches have involved early *presentation* of grammatical explanation, and arguably such an approach is covert in some ostensibly communicative pedagogies (see Prabhu, 1987). But there have been exceptions to DECPRO approaches, which we can by no means discount. Among them are Krashen and Terrell's 'natural approach' (1983), Prabhu's procedural syllabus (1987) and Dam's learner autonomy-based pedagogy (1995). In the rest of this chapter I will attempt to outline a model that accounts for the seemingly bi-directional relationship between conscious and unconscious knowledge. From this we will derive pedagogical principles that will form the basis of the empirical section of the thesis.

2.4.1 An explication of some dichotomies

The literature is peppered with a set of dichotomous terms relating to knowledge and consciousness that are used with varying degrees of precision. These terms occasionally shade into one another, sometimes they collapse together entirely, still other times they are distinguished in idiosyncratic ways that make comparisons across models difficult. The dichotomies I have in mind are the following:

conscious	vs.	unconscious
explicit (knowledge or learning)	vs.	implicit (knowledge or learning)
declarative (knowledge or memory)	vs.	procedural (knowledge or memory)
knowledge	vs.	skill
competence	vs.	performance

Table 2.1: Problematic dichotomies relating to knowledge and consciousness

Some of the terms within each column are often taken to be synonymous; e.g., 'conscious' and 'explicit', or 'skill' and 'procedural knowledge'. My view is that there are logical connections among such concepts, but that they belong to

distinct levels of analysis. Specifically, I will attempt to distinguish between behavioural and cognitive-representational levels of analysis and to categorise the terms accordingly. This should make for clarity in the subsequent discussion, but in addition it should lay the groundwork for the model to be elaborated.

The question of consciousness has been discussed above in some detail (pp. 31 ff.). To recapitulate, some of the possible senses of consciousness are sentience; wakefulness; identity; and intentionality (in the general sense of deliberateness, not the epistemological sense of 'aboutness'). The sense used in this work is that of 'conscious awareness', i.e., current or potential awareness of internal or external states of affairs or stimuli. This is the quintessential irreducible subjective phenomenon, and it defies empirical demonstration or explication. Nonetheless, it has been argued above that it is difficult to get by without it (see also G. Mandler, 1985).

Explicit/implicit and declarative/procedural in particular are sources of much confusion in the literature. R. Ellis (1993) provides a good example of such confusion. He uses 'explicit' and 'implicit' knowledge as synonyms of 'conscious' and 'intuitive' knowledge, a usage that is not uncommon but, I will argue, redundant. He further maintains that 'procedural' and 'declarative' relate to yet another dichotomy, that between controlled and automatic processing (McLaughlin, 1990b; Posner & Snyder, 1975; Shiffrin & Schneider, 1977). He associates the implicit/explicit dimension with Bialystok's analysis component – perhaps accurately so, excepting his insistence on absolute identity between explicitness and consciousness – and, less defensibly, he links the procedural/declarative parameter to her control component. This leads him to claim that not only is there explicit, declarative knowledge and implicit, procedural knowledge, but there are also implicit-declarative and explicit-procedural varieties. Exemplars of this last category include 'conscious knowledge of learning, production, and communication strategies' (Ellis, 1993, p. 94, Fig. 1). I will argue below that this is a fundamental misunderstanding, arising from confusion between representations and their contents.

We turn first to Ellis's use of 'explicit' and 'implicit'. Ellis is just one of very many SLA researchers who use these words as synonyms for 'conscious' and

'unconscious' respectively. This probably derives from the use of the terms in verbal memory research to refer to distinct kinds of processing in verbal tasks (Mandler, 1998, p. 267). For present purposes it is more useful to fall in with the understanding of the terms that emerged from the foregoing discussion of developmental models of mental representation, in particular that of Karmiloff-Smith. In this usage, implicit and explicit are properties of representations. The implicit is that which is not represented *per se*, that is, in its own terms. Implicit knowledge comprises as yet unidentified generalisations across data. To use an analogy, knowledge is implicit in task-specific procedures in the way that meaningful generalisations (knowledge items) are implicit in an uncollated pile of survey forms (raw data). Such knowledge is 'smeared across' independent, encapsulated instances (to adapt a metaphor from Pinker, 1997, p. 130). Explicit knowledge emerges through a process of identifying generalisations and representing them independently – in the way that a report on a survey draws out relevant abstractions from many individual responses to survey questions.

There is a sense in which implicit knowledge is only apparent knowledge. In Karmiloff-Smith's view, it consists of isolated procedures that give rise to behaviours which, taken together, *appear* to be rule-governed and knowledge-based. What then are procedures? Do they warrant the status of knowledge? The consensus in information-processing psychology is that they do, but that procedural knowledge must be distinguished from declarative knowledge. The former is often glossed as knowing-how, the second as knowing-that. Canonical examples of procedural knowledge include the ability to drive, play an instrument or tie one's shoelaces. The paradigm case of declarative knowledge is historical knowledge, such as knowing that the Titanic sank in 1912. The strongest evidence for the validity of this distinction comes from research on memory in amnesic patients showing that skills and the ability to acquire skills may persist in amnesics while retention and learning of propositional facts diminishes or disappears (Cohen & Squire, 1980; Parkin, 1987).

Note that these kinds of characterisation are expressed in behavioural terms. At this level of analysis, it seems clear enough that the two phenomena deserve to be distinguished. It is less clear to me that they have enough in

common to warrant putting them together in the category 'knowledge'. The fact that they are considered to be two varieties of a single natural kind might arise from the non-technical usage of the verb *know* in English and its equivalents in other languages. But in fact, even in general talk we often discern a need to use alternatives to *know* and its cognates: typically, *ability* and *skill*, or other linguistic means. For example, one might understand from training manuals how to land a plane and therefore claim accurately that one knows how to land a plane. But more precisely, never having sat behind the controls, one would prefer to say that one knows how an aeroplane is landed. One may thus have even quite thoroughgoing declarative *knowledge* of the process of landing a plane, but not have the corresponding *skill* in any degree at all. There seems after all no *prima facie* reason to suppose that these are in any way similar things, other than the trivial fact that they are both more-or-less stable, persistent properties of an individual. At the behavioural level, then, the distinction seems to be not one of different kinds of *knowledge* as it is commonly understood, but one between knowledge and skill. I will therefore avoid the terms declarative knowledge and procedural knowledge, substituting knowledge and skill respectively for the behavioural phenomena in question.

It should also be noted that this behavioural knowledge/skill distinction is itself not as clear cut as the canonical examples would have us believe. Wolff (1995), challenging Anderson's (1983) skill acquisition model (see discussion below, p. 84), points out that while one may know that the Battle of Hastings was fought in 1066, no amount of practice will turn this into a skill. Practice may make it more accessible, but it remains merely propositional knowledge. But the situation becomes muddier when we consider propositional knowledge of *how* to do things (what Ellis misleadingly calls explicit procedural knowledge – see above), such as the example of landing an aeroplane – or, of course, propositional knowledge of language rules. Frequently such knowledge of rules precedes the development of skill, and models such as Anderson's claim that in these cases the connection is causal: knowledge is converted into skill through practice. Wolff's argument, focusing as it does on only the most clear-cut exemplars, fails to address such cases. Furthermore, there are many instances of

behaviours that do not fall neatly into either the knowledge or the skill category. Consider knowledge of the days of the week. If we can say that Friday comes after Thursday, is this knowledge? Or is our ability to state such a proposition actually based on our skill-like ability to recite the days of the week in order? If an individual can report that there are thirty days in June, this seems to be a clear case of propositional knowledge. But should we still call it propositional knowledge if the individual must sub-vocally recite the 'Thirty days hath September…' rhyme in order to arrive at the proposition? The ability to recite the rhyme seems like a practised skill. In these cases – instances of mnemonic strategies – behaviours that seem to the observer to be manifestations of propositional knowledge, are in fact accessed through skilled behaviour. Finally, there are cases where behaviours seem to rely on a mix of propositional knowledge and automatised skill. To return to aviation, many piloting procedures, and especially emergency procedures, are highly practised and ought to be highly automatic in their execution. If an engine fails, after all, the pilot should not have to reflect for too long on the available possibilities. But it is part and parcel of such procedures to call on propositional knowledge: of the location of nearby airports, quantity of fuel remaining, emergency radio frequencies. There are also within emergency procedures borderline cases like the ones we have just considered: the reciting of checklists and other mnemonics.

These are complex, high-level tasks. Naturally, it is possible to isolate simpler behaviours that are unambiguous instances of skill or of knowledge. But since our focus is language, it seems more ecologically valid to focus on complex tasks. The point of the foregoing examples is, first, that in real-life task performance or problem solving, the knowledge/skill distinction is not always clear-cut; and second, that describing a behaviour as skill or knowledge does not necessarily tell us anything about the kind of mental entity underlying the behaviour. In particular, it should be emphasised that these remarks certainly apply to most or all kinds of authentic language use.

If we consider it in cognitive terms, though, the declarative/procedural distinction looks clearer, at least in principle. The terms are well established in

computer science, where they refer to different kinds of representation: '*procedural representations* […] embody knowledge in the program and *declarative representations* […] emphasize the structure of the stored knowledge' (Winograd, 1983, p. 18, italics in original). The distinction is close to that between program and data. Similarly, in formal syntax, and in particular in the more computational schools of analysis, a distinction is made between formalisms like that of Chomsky (1965) that rely to some extent on processes (such as transformations) applied in serial fashion, as against formalisms like Head-driven Phrase Structure Grammar (HPSG) that use proposition-like constraints which apply in parallel to linguistic objects (Pollard & Sag, 1987, 1994). So if we look deeper than the behavioural level, we find that the terms in question are better defined than one would believe from the applied linguistics literature. We also find that the concept of procedural representation (as emerges from Winograd's quote above, for example) contains within it a concept of implicit knowledge very much like the one we arrived at above. Accordingly, I will reserve the terms declarative and procedural for kinds of mental representation.

We can now explain more fully the nature of Rod Ellis's confusion. Recall that he considers 'conscious knowledge of learning, production, and communication strategies' to be instances of 'explicit procedural knowledge' (Ellis, 1993, p. 94, Fig. 1). Ellis's examples are in fact instances of knowledge about skill. We have seen that procedural and declarative most naturally refer to kinds of representation, not to behaviours. Knowledge of, for example, communication strategies, is simply declaratively encoded knowledge whose *content* relates to skills, just as it might relate to historical facts or to classical architecture. Mandler stresses that procedures are encapsulated, that is, not accessible to consciousness. People may reflect on and build theories about the procedures that they carry out, but these are based on observation of the operation and outcome of the procedures from without, as it were. They cannot look inside the procedures *in medias res*. To reflect on procedures is to bring the conceptual (declarative) system to bear on sensorimotor (procedural) information (Mandler). Thus Ellis's examples of 'explicit procedural knowledge', such as learning, production and communication strategies, are actually only

theories of procedures. As such, they are probably highly schematic approximations. We will return below to the role of such theories in learning.

2.4.2 Inferrable representations and observable behaviours

The foregoing discussion leads us to view procedural and declarative as constructs referring to kinds of mental representation; implicitness and explicitness of information as properties of such representations; and knowledge and skill as fuzzy categories referring to observed behaviours. How then do knowledge-like and skill-like behaviours map onto procedural/declarative representations? Even where these analytic levels are held distinct in the literature, a simple procedural-to-skill, declarative-to-knowledge mapping is often taken for granted. And it is probably true that procedural and declarative representations, respectively, underlie the most unambiguous kinds of skill-like and knowledge-like behaviours. The foregoing discussion suggests that for complex tasks, including much language use, the relation is not so clear-cut.

It was suggested above that mnemonics are skill-like behaviours, but no commitment was made on the question of whether the underlying representations are declarative or procedural. It is at least clear that mnemonics may underlie the verbalisation of propositions. If mnemonics are in fact encoded as verbal procedures, then this is a case of procedural representations providing the basis for knowledge. It is true that in some cases mnemonics may be no more than retrieval strategies, i.e., that the target proposition has a separate declarative representation to which a mnemonic guides access. But in other cases it is plausible that a mnemonic wholly embodies propositional knowledge. To take an analogous phenomenon from a non-verbal domain, the propositional knowledge that jar-lids open anti-clockwise is for many people extracted in real-time from the suppressed execution of the motor procedure of opening an imaginary jar. But once extracted, this knowledge can be separately represented and encoded declaratively in memory. It is then available for generalisation to other situations: perhaps to working out how to open similar devices in different orientations. Such considerations are analogous to those supporting Karmiloff-Smith's hypothesis that procedural representations

underlie early morphological accuracy in children, while declarative representations underlie much of mature performance, which by its nature is more flexible. This claim, then, is that procedural representations may facilitate access to propositional knowledge. Furthermore, propositional knowledge based on declarative representations may feed into skill-like behaviours, making them more flexible, as the aviation examples suggested. Indeed, such embedding of propositional knowledge inside skilled behaviour may be the rule rather than the exception. In such cases, declarative representations 'plug in' to performances that are based mainly on procedural representations. In fact, the procedural representations in question may comprise templates with slots that must be filled by declarative representations of propositional knowledge in order to function correctly in a given situation.

In summary: (1) procedural representations underlie paradigm cases of skill and declarative representations underlie paradigm cases of knowledge. But (2) in most real-life tasks – including language use – the knowledge-skill distinction is not so easily drawn. And (3) the mapping between procedural/declarative and skill/knowledge is not simple. This is because procedural representations may facilitate on-line creation of propositions, and declarative representations may be called upon by procedures.

The computational-representational paradigm provides us with quite a clear idea of what declarative representations are comprised of: they are constellations of symbols which can in turn be modelled using formal symbolic-notational systems, such as those of linguistic theory. But what precisely are procedural representations? What do they look like? Karmiloff-Smith (1992) suggests that they may take the form of connectionist networks (McLelland & Rumelhart, 1986; Rumelhart & McLelland, 1986). Mandler characterises such networks as subsymbolic: symbol-like entities are emergent rather than represented in the true sense. There are no memory addresses or similar components in which symbols might be located. Nor is there any other simple one-to-one mapping between system properties or components and signifiers. Rather, properties and associations are implicit in a network of nodes and differentially-weighted

connections between them.[11] Alternatively, procedures might be accounted for through a dynamic-systems model (Thelen & Smith, 1994). In dynamic systems theory process is all: knowledge is no more than 'a pattern of activity over time' (Thelen & Smith, 1994, p. 39; quoted in Mandler, 1998, p. 257). In this it resembles connectionism, but it eschews the effort after systemic stability that is the kernel of learning in a connectionist network (Mandler). Yet a third possibility is that procedures are best modelled as production rules, as posited by Anderson (1983; 1995) (see p. 84). These consist of sequentially-applicable actions, each contingent on conditions expressed as goals (e.g., '*If* the goal is X, *then* Y'). Such rules are symbolically represented.

The question of the nature of procedural representations is perhaps more problematic for language than for other domains. Perceptual capacities such as object recognition or categorisation are handled rather well by connectionist models, on available evidence. But language is itself a symbolic system, and therefore, at first glance at least, most naturally modelled in a language-like symbol system; and modelling procedures symbolically seems a clumsy solution. For our purposes, however, it simply does not matter a great deal how procedural representations are best modelled. What matters is that we are in a position to characterise them functionally. This we can do as follows: Procedural representations are encapsulated; goal-oriented; highly context-bound, and capable of rapid execution with minimal attentional resources. Further important properties are that they are inaccessible to consciousness, and that they embody information implicitly.

But this highlights a more pressing question, which concerns not the *format* of procedural representation of linguistic knowledge, but the *content* of such

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[11] Indeed, the connectionist school has proposed that neural networks might by themselves provide an adequate account of the human language faculty. Steven Pinker is one of many authors who have provided cogent critiques of such models (Pinker, 1997; 1999; Pinker & Prince, 1988), based on their inability to account for some of the basic properties of language (e.g., quantification). But it may be that for highly routinised, context-bound and stereotyped uses of language, including the early utterances of young children, connectionist models are descriptively adequate. These kinds of language use are returned to below.

representations. Since the Chomskian revolution, we have a clear notion of what symbolically represented linguistic knowledge is like. I have suggested that it is the same kind of mental entity as Karmiloff-Smith's level-E2 representations of language. It is more difficult to imagine how language could be represented at level I – that is, procedurally. What kinds of language behaviour are underpinned by procedures?

In Wolff's (1995) perspective, declarative knowledge refers to static knowledge on the grapho-phonemic or lexico-semantic levels. Procedural knowledge, in his view, plays two kinds of role. First, it 'manages' the deployment of declarative knowledge. For example, in language comprehension, it controls the retrieval of appropriate phonemic representations on the basis of phonetic stimuli and it oversees the conversion of graphemes into phonemic representations. In productive use, it is responsible for utterance planning, and it also fits appropriate lexical items to the slots in subcategorisation frames. Second, it acts as an interface between linguistic and world knowledge: it calls up the appropriate concept on the basis of recognised words. Hence, procedural knowledge-as-interface underlies top-down comprehension strategies such as inferring unknown word meanings from context, and elaborating textual meaning by supplying underlying assumptions. Wolff sees declarative linguistic knowledge as being in a domain-specific format, while procedural knowledge consists of general cognitive capacities.

The difficulty with this perspective is that it conflates two kinds of mental operation that are better consigned to separate levels of analysis. The first kind of operation (Wolff's 'management' function) involves unconscious operations on representations. Such operations are data-driven and correspond to the computations of information-processing (computational-representational) theory; to the 'rules' of Chomsky's *Rules and Representations* (book title: 1980); and, in some cases, to what Karmiloff-Smith calls 'metaprocedures', such as those responsible for the restructuring of representations. These processes are key constructs in such theories, and are not held to underlie observable behaviours directly. They are operations on *formal*, as opposed to semantic, representations (cf. Bialystok's distinction between representational levels, p.

60). The second kind of operation, what Wolff calls the 'interface' function, relates to real-world and conceptual knowledge. These involve top-down strategies of reasoning; they may well be accessible to consciousness, and are far closer to behaviour than the abstract computations of the 'management' function.

It seems clear that we are concerned with procedures in the second sense. Our procedures, in keeping with Karmiloff-Smith's approach, are not operations on representations, but are themselves a kind of representation. They may give rise directly to behaviours, but they may also be implicated in the retrieval or even the encoding of propositional knowledge. Procedures in this sense contain information about language in a highly redundant, implicit form, and can give rise to linguistic behaviours. What kinds of linguistic behaviours, then, can be underpinned by such procedures? Presumably the answer is, at the minimum, the most inflexible and context-bound kinds. The most obvious examples are the early words of young children. It is probable that when a 12-month-old child says 'bye', for instance, this is simply a verbal gesture, tied to the leave-taking situation as inextricably as the accompanying wave of the hand (Adamson, 1995). Adult speech, though, also contains many utterances that are as stereotyped and context-bound as those of infants, including, but not confined to, social rituals such as greetings and leave-taking. We might also include verbal mnemonics: rote recitation has many characteristics of highly automatic behaviours, and verbal mnemonics are a kind of recitation.

But in addition to these kinds of highly inflexible utterance, Karmiloff-Smith counts much more creative instances among her examples of procedurally-based (level-I) language use. How can these be accounted for within a procedure-based account of language proficiency? Pawley and Syder (1983) have argued that even within creative, open-ended adult speech there are a great many prefabricated chunks, some more or less immutable, like many idioms, others with a degree of inherent flexibility. They draw on these to explain what they see as the puzzles of native-like selection and native-like fluency: the fact that native speakers with great predictability choose certain relatively inflexible grammatical formulations (idioms, roughly) over other

semantically equivalent grammatical formulations to express meanings, and the fact that they do so with great speed. Pawley and Syder believe that the use of prefabricated chunks is of much greater significance in performance than has generally been recognised.

However, they regard these chunks as 'lexicalised sentence stems' – and the lexicon is surely the declarative storehouse *par excellence*. Furthermore, there is room for doubt as to whether verbal mnemonics are underpinned by procedural or declarative representations. Perhaps they too are stored in long-term declarative memory? Where does that leave Karmiloff-Smith's level-I representations, which she repeatedly holds to be procedural in nature? My view is that highly formulaic utterances have certain properties typical of procedurally-represented behaviours: they are automatic (to varying degrees: linguistic exclamations of pain (English 'Ouch!', German 'Aua!', etc.) are almost reflexive, while recitation is at least consciously initiated); they are structurally inflexible (idiomatic sentence stems have severe transformational constraints: *He [kicked/had kicked] the bucket*, but not **The bucket was kicked*); component parts of formulaic utterances tend to be accessible only through 'running' the whole utterance as a routine (it is usually necessary to recite the first line of a rhyme in order to access the beginning of the second). But it is difficult to imagine that such linguistic procedures incorporate within them all the required lexical material, so that the production of a sentence stem, the utterance of a greeting or the recitation of a mnemonic is an entirely self-contained sensorimotor routine, with no access to information in the lexicon. Even in the case of children's speech, there must surely be some kind of stable representation of words and proto-words, perhaps in an embryonic lexicon.

However the case may be for infants' language, if sentence stems were represented as completely information-encapsulated procedures in mature language, there would be an astonishing amount of redundancy. It therefore seems to me that early, minimally-analysed knowledge (Bialystok) or level-I representations (Karmiloff-Smith) – must have access to the lexicon. If this is the case, such knowledge still has all the characteristics that the representational-developmental models claim for it: it is minimally flexible; it is semantically

organised; any structural commonality is implicit and inaccessible. We must consider them to be not merely procedures, but procedures in some kind of two-way interaction with the declarative system of the lexicon.

There has been a rise of interest in lexical approaches to pedagogy in recent years (Lewis, 1993; Little, 1994b; Nattinger & DeCarrico, 1992), fostered by a growing conviction, at least among certain researchers, that the lexicon is a key factor in language performance (Moon, 1998; Nattinger, 1988; Pawley & Syder, 1983; Peters, 1983). Widdowson (1989), to take just one example, makes a strong case for viewing lexis as in fact pre-eminent over syntax where performance is concerned, arguing that

> [if one accepts Widdowson's interpretation of the literature,] then communicative competence is not a matter of knowing rules for the composition of sentences and being able to employ such rules to assemble expressions from scratch as and when occasion requires. It is much more a matter of knowing a stock of partially pre-assembled patterns, formulaic frameworks, and a kit of rules, so to speak, and being able to apply the rules to make whatever adjustments are necessary according to contextual demands. Communicative competence in this view is essentially a matter of adaptation, and rules are not generative but regulative and subservient. (p. 135)

There is a slightly different view, one more in line with the models discussed here, whereby lexis and syntax feed into one another in recurrent cycles. Skehan (1996; 1998) is just one of a number of people who suggest that initial first-language acquisition might be lexical, with a subsequent syntacticisation of chunks. He further maintains that syntactically-generated utterances may be *re*-lexicalised. He argues for a dual-coding model of processing:

> When accessibility and time pressure are paramount, a lexical mode of communication will be relied upon, which draws upon a capacious, well-organized, and very rapid memory system. In contrast, when exactness or creativity matter, analysability, and a concern for form, for syntax, and for planning, will predominate. (Skehan, 1996, p. 42)

There is no need to labour the similarities between such an understanding and the representational redescription / analysis-control models. The essential point to emerge from this discussion is that with this lexically-enhanced understanding of what unanalysed linguistic knowledge comprises, we can hold to our argument that a great deal of adult language performance is underpinned by level-I representations.

2.4.3 Integrating sociocultural and endogenous knowledge

Mandler notes that in a symbol system, '[c]onceptual knowledge […] can in principle be learned in a single episode and recalled at a later time' (p. 300), but that '[a]lthough it is easy to add new facts [in a symbol system] via language, there is no obvious way for most such systems to learn information on their own or to generalise their experiences' (p. 258). The models of representational dynamics that we have examined – Bialystok's and Karmiloff-Smith's – can be read as attempts to address this problem of endogenous learning within symbolic systems. Analysis and representational redescription account for the apparent emergence of new knowledge from existing information.

But we are concerned in this study with pedagogy, and pedagogy is centrally concerned with the relationship between cognitive change and knowledge provided from without, in pre-digested form as it were. So we need now to examine the other aspect of the learning process: the internalisation of knowledge communicated through instruction, which I will henceforth refer to as sociocultural knowledge. I will argue that internalisation entails complex, cyclical interaction between such knowledge and existing, endogenous representations.

One of the most often-cited cognitive models of learning is that of skill-acquisition. Motor skills in particular are the paradigm case of cognitive change initiated by the inculcation of sociocultural knowledge. We are told how to drive a car, we practise under the guidance of an instructor, and eventually we can drive with a minimum of awareness of the skills and subskills we learned and practised so painstakingly. What makes learning experiences like these so attractive to theorists is the clear-cut nature of the starting and end points. Initial instruction is clearly expository and propositional in nature, and the learner's eventual knowledge is evidently internalised to a high degree, since it can be put to use with little or no reflection.

The most influential model of skill acquisition is that of John R. Anderson (1983; 1995). In his model skills are acquired in three stages. In the first, the cognitive stage, propositional knowledge concerning the skill is committed to long-term memory. In early trials, the task is carried out under the conscious

guidance of this declarative knowledge. The second stage, called the associative, involves the conversion of this propositional knowledge into procedures which can be described by production rules ('If goal is *X*, then do *Y*'). This conversion is known as 'proceduralisation'. The final stage is the increasing automatisation of the procedure, such that it can be carried out with greatly increased speed and accuracy.

Anderson's model has been drawn on by second language researchers such as McLaughlin (1983), O'Malley and Chamot (1990) and Johnson (1996), and seems to provide an account of the processes involved in stereotypical learning experiences. But there are problems with the model as applied to second language learning. The first and broadest criticism, outlined earlier (p. 75), is that normal language use is such a diverse, multi-faceted phenomenon, involving so many different kinds of cognitive, perceptual and motor capacity at so many different levels of analysis, that to label it a skill along with tying shoelaces and driving cars seems rather to oversimplify matters. The next two criticisms, which are related but distinct, I label the problem of coverage and the problem of granularity. Skill acquisition models cannot easily account for the fact that proficient learners apparently come to store discrete items of linguistic knowledge without ever having encountered corresponding discrete propositions. For example, a proficient non-native speaker of German may be able to predict the gender of new nouns with notable accuracy, without ever having encountered more than a handful of propositional generalisations of highly limited applicability pertaining to form-gender correspondences. Another area where ability may exceed that predicted by exposure to propositional knowledge is noun compounding in German, a process whose rules elude explication even by linguists. These are examples where acquired ability exceeds pedagogical coverage. The final deficiency of skill acquisition models relates to the granularity of sociocultural knowledge as against that of internalised procedural knowledge. The former is typically coarse-grained: in the very best cases it can take the form of reliable generalisations which can be fully specified by pedagogical rules. But there is much in linguistic performance that is not discrete, categorical and all-or-nothing, but nuanced, continuous and fluid. The

phenomena I have in mind here are mainly from the pragmatic domain. Pragmatic information may be encoded through suprasegmental phonological features such as intonation and stress, syntactically encoded through phenomena like topicalisation, or lexically encoded through particles such as the German *doch*, *schon*, *wohl* and so forth. In contrast to noun compounding and gender assignment, there are no categorical right or wrong solutions to the encoding of pragmatic information in these ways. There is only a continuum from 'appropriate' to 'inappropriate'. Sociocultural, propositionally-encoded knowledge can at best provide exemplars and rules of thumb. Accordingly, proceduralisation of declarative knowledge cannot easily account for the emergence of proficiency in these subtle aspects of language use. In the case of both the coverage and granularity issues, the problem is that procedural output exceeds declarative input. A model that entails no more than knowledge conversion and fine-tuning cannot account for this.

For these reasons it seems implausible that knowledge mediated through instruction, in any domain, is in any simple sense *converted* into the procedural representations that underlie fluent performance. And yet one would surely not wish to claim that instruction has no bearing on skill acquisition. In the linguistic domain, though it would be simplistic to reduce language proficiency to a skill and nothing more, we must nonetheless account for the development of highly automatic performance. On the other hand, we must capture the fundamental insight of developmental models: that human beings transcend successful performance to develop knowledge representations that are consciously accessible and highly flexible in their application. A model of instructed SLA thus has two processes to account for: first, instruction as a starting point for the development of automaticity in performance, i.e., the passage from declarative to procedural; and second, the emergence of conscious declarative representations from successful performance, or the passage from procedural to declarative.

In the following paragraphs I will incrementally construct a model of instructed second language acquisition that incorporates the insights of the foregoing sections. The starting point is Karmiloff-Smith's model of

endogenous representational change. The modified model is represented diagrammatically in Figure 2.2.

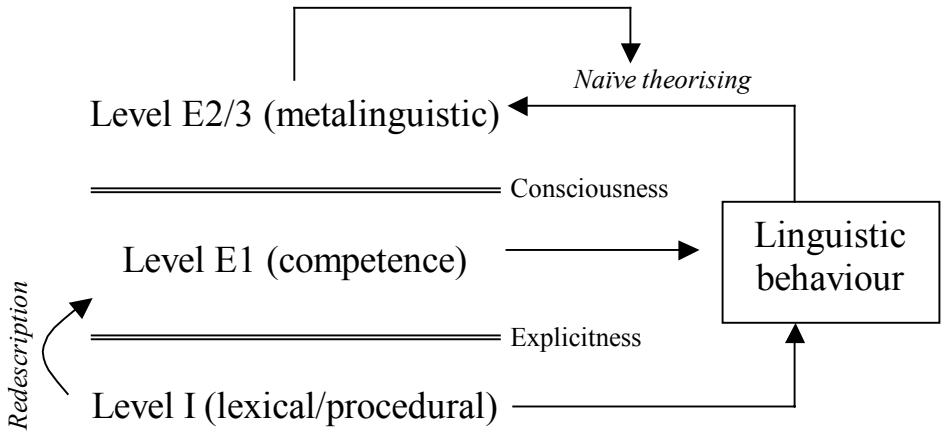

Figure 2.2: A modified version of the representational redescription model applied to language acquisition

This model accords with Karmiloff-Smith's in many important respects. First, it retains the general intent of Karmiloff-Smith's representational redescription model, namely, to account for the uniquely human capacity to transcend successful performance by developing highly flexible, consciously accessible representations of knowledge. Second, it retains both of the main explanatory constructs: a progression of discrete levels as a model of increasing explicitness, and the existence of a mechanism of representational redescription. Third, levels E2/3 (conflated here for simplicity of exposition) correspond to metalinguistic knowledge. Fourth, there is no direct way back from conscious knowledge to unconscious knowledge, or from more explicit to less explicit knowledge. To put it in Bialystok's terms, analysed knowledge cannot become less analysed: to claim otherwise would be 'to assign fundamental responsibility in learning to *forgetting*' (1990, p. 47). The relationship between sociocultural and internalised knowledge must be accounted for by a different mechanism. And finally, I assume, with Karmiloff-Smith, that fluent conversational performance may be governed by either level-I or level-E1 representations at any point in development.

The model differs from Karmiloff-Smith's in the following ways:

1. The implicit knowledge of level I comprises procedures, as per Karmiloff-Smith, but these procedures have access to the lexicon. Accordingly, acquisition at this level involves comparatively superficial, associative processes that form encapsulated procedures, but also the acquisition of lexicalised 'chunks' of varying degrees of flexibility (see pp. 81 ff.). Such learning accounts for not only early first language acquisition, but also the early stages of second language acquisition in naturalistic or otherwise highly communicative contexts.
2. Level E1 representations correspond to Chomskian competence: a declarative, parsimonious, unconscious and language-specific encoding of the language system. In the case of the first language, this process may be guided by innate, domain-specific ideas, i.e., Universal Grammar. This model is agnostic as to whether UG operates in second language acquisition. Level-E1 representations in the second-language domain correspond to what is often called interlanguage.
3. *Contra* Karmiloff-Smith, I see no need to assume that the same off-line, unconscious process that manufactures E1-representations from I-representations is also responsible for the emergence of conscious knowledge. Once unconscious, explicit representations have been posited, the association between consciousness and explicitness is no longer necessary: there is no need to associate increasing explicitness with increasing accessibility to consciousness. I have taken the view that explicitness is a purely formal property of representations, fully independent of accessibility to consciousness.

   The emergence of conscious knowledge is better accounted for, it seems to me, by the process of naïve theory-building (as previously suggested: see account of Mandler's view, p. 76). Naïve theories take as their data not E1 knowledge itself, since this is by definition not available to introspection, but the visible linguistic behaviour to which E1 and I-representations give rise. In theory-building, individuals bring general deductive and inductive reasoning to bear on their own linguistic behaviours (amongst which I include epilinguistic behaviours – see p. 54 – such as grammaticality

judgements). The premises for deductive reasoning are existing theories, i.e., existing E2/3 or metalinguistic knowledge. There is thus a cyclical relationship between newly-generated and previously existing metalinguistic knowledge. This is one sense in which we learn in terms of what we already know, a notion which we will encounter again.

This model, then, incorporates a non-interface view: there is no direct connection between the kind of knowledge that gives rise to most kinds of linguistic performance, and the kind of knowledge that is available to introspection. One consequence of this position is that there may well be mismatches between metalinguistic knowledge and underlying competence. In Karmiloff-Smith's model, mismatches between knowledge at different levels must be accounted for by loss of detail through successive abstraction. This predicts only discrepancies of *granularity*. By contrast, this model predicts that there may also be *substantive* mismatches. What the learner thinks he knows may not be what he actually knows. His metalinguistic theories may simply be wrong.

The model accounts for the emergence of two kinds of explicit knowledge, one conscious and one unconscious. It must now be enhanced by a mechanism for the internalisation of knowledge provided from without.

First, what is meant by 'internalisation'? It must be the case that certain kinds of linguistic task, mostly those in the literate domain, can be supported in part by the conscious application of metalinguistic (level E2/3) knowledge. But even in these cases, unconscious knowledge (levels I and E1) is the motor of performance. In composing an English sentence one may consciously opt to prepend an adverbial phrase to the sentence it modifies, rather than embedding it; but the native speaker is never tempted to place a determiner after a noun. The stylistic flexibility conferred by our metalinguistic capacity is constrained by our underlying knowledge. Unconscious linguistic knowledge has cognitive pre-eminence. For this reason I define 'internalisation' as the integration of conscious knowledge into unconscious knowledge at level I and/or E1.

I concur with Anderson's skill acquisition model that practice is of the essence. However, I have already set out briefly (p. 85) deficiencies in

Anderson's model as an account of second language learning. These criticisms, which I called the problems of coverage and of granularity, reduced essentially to the observation that those who achieve an advanced level of proficiency in a second language have at their disposal abilities that exceed anything that was ever available to them in propositional form. I will now consider this matter in more detail and propose an alternative view of how automaticity in performance emerges on the basis of prior declarative knowledge of rules for performance.

I have argued that the term 'procedural knowledge' is misleading: there is declarative knowledge of facts, and declarative knowledge of procedures; and then there is ability or skill. My declarative knowledge of procedures for doing A does not in the least mean that I am *able* to do A. Conversely, if I am able to do A, I might or might not have declarative knowledge of how to do it. Automatisation of conscious, declarative rules for task performance does not involve conversion of propositions into procedures. Knowledge is not the seed of skill. Rather, declarative knowledge D of activity A is an explicit representation of activity A, related to the actual activity through a non-arbitrary theory of A. The theory has mainly mnemonic value. D provides an agenda or plan for engaging in an activity that approximates to A in relevant respects. The repetition of A in accordance with the plan set by D is called practice. Practice gives rise to unconscious processes that monitor feedback, compare it to goals and instruct relevant systems (motor systems, linguistic systems) to adjust accordingly.[12] These unconscious processes are what give rise to ability.

It is difficult to imagine practising anything without a plan; what undoubtedly varies is the degree of explicitness of the plan. When a child mounts a bicycle and learns to ride simply through trial, error and tenacity, there is nonetheless a model of performance that functions as a plan for practice. It includes at least the basics of sitting on the saddle, holding the handlebars, and pedalling. A similarly unanalysed approach to learning to fly would be risky – but, assuming that the naive pilot has a near-endless supply of fuel and through

[12] It is possible that these processes, being probabilistic and associative, are best modelled by connectionist networks; cf. p. 78.

blind chance manages to recover from every stall, he could in principle still learn to fly the plane without having had prior declarative knowledge. In the final analysis, all that is required is a model of the target behaviour, and an environment that gives feedback relating current behaviour to target behaviour. In learning to fly, the environment includes the starting point and destination, the horizon, and flight instruments such as the altimeter. The target behaviour is getting from the starting point to the destination and staying approximately level in between. Communicative linguistic behaviour is infinitely richer, but we can say that in general the target behaviour is to engage in verbal communication and the environment is a social one, though the feedback is complex and difficult to interpret, and success correspondingly difficult to gauge.

Declarative representations of an ability can be thought of as discrete, while the ability itself is continuous. Declarative knowledge is merely a model, arrived at through *sampling* actual performance at points and in ways that seem relevant. The level of detail of the model is what I have previously called granularity: a fine-grained declarative model captures many aspects of actual performance. But there will always be aspects of performance that are not represented since, by definition, no discrete representation of a continuous phenomenon can be exhaustive. There are always gaps. Where the declarative model fails to capture what is necessarily unconscious, trial and error – constrained by interpolation between the data-points given by the declarative model – must take over. In statements of declarative knowledge, these are the points where the instructor resorts to assurances that 'you'll develop a feel for it'. This means that the discrete, therefore non-exhaustive, declarative representation of the ability has not analysed the performance of the target ability to the desired level of detail. Hence, to return to an earlier example, a German teacher might be able to give a broad account of the pragmatic force of discourse particles such as *doch*, *schon* and *mal*, but will be unable to give an account sufficiently fine-grained to enable the learner to generate or recognise all and only the acceptable kinds of use of these particles. Of course, there is a trade-off between the granularity of a declarative representation and its practical usefulness. The more exhaustive the model, the more difficult it is to store in memory, and the more cumbersome is

the plan for practice. If a declarative model is a pattern of data-points, then practice is what allows the mind to interpolate and extrapolate, to generate a continuous curve by joining the dots. While the generation of a continuous, procedural representation is always, in the final analysis, in the hands of unconscious processes, the coarser the granularity of the declarative model, the greater the burden on unconscious acquisitional processes, hence the greater the possibility of error in the completion of the model.

One further point is worth stressing in relation to this understanding of the nature of declarative-to-procedural learning. An externally supplied declarative model must interact with an internally-generated model; it does not simply pass unmodified from one mind to another. The learner may supply additional detail to the model on the basis of existing, relevant declarative representations. We will focus more narrowly on this point later.

The relationship between knowledge and ability, then, is indirect, mediated by practice. Knowledge sets a broad plan for practice. Practice, through processes unavailable to introspection, causes what we call ability or skill to emerge where previously there was none. Relevant aspects of the revised model are represented in Figure 2.3, the new components represented with bold lines.

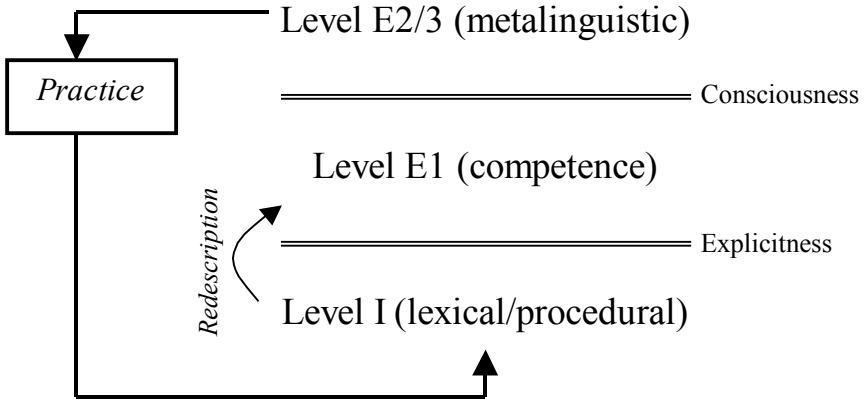

Figure 2.3: Practice as mediator between the declarative and the procedural

The key feature of Figure 2.3 is that the line linking metalinguistic knowledge to lexical/procedural knowledge is not continuous. Metalinguistic knowledge provides a framework for engaging in practice: it is a cognitive tool with which to broach the problem of communication in the target language. It is this

practice in communication which brings acquisitional rewards, through entirely separate and unconscious processes.

We now arrive at the question of how the individual learns at a conscious level from the environment. For expository purposes we can view this from without and from within. The view from without yields two aspects that need to be accounted for: expository teaching and opportunistic procurement of knowledge from input.

Expository teaching is the attempt to transmit what I have been calling sociocultural knowledge.[13] We have seen that Mandler (1985) views it as one of the benefits of symbol systems that knowledge can in principle be added in a single pass, through verbal communication (see p. 84). But of course, even if verbal propositions *are* accurately encoded by the learner in long-term memory, we know from experience, and it is predicted by our model, that this does not mean that such knowledge has any direct effect on performance. Karmiloff-Smith (1986), taking the example of children's learning of arithmetic, puts it like this:

> Children can learn from a teacher a series of verbally encoded principles which they can repeat perfectly. Yet the procedures that these same children use for arithmetic problem solving violate these very principles […]. In other words, for the child, there is as yet no connection between the two; the verbally encoded principles are not the end-product of internal representational explicitation but learnt directly from an external source. The verbally encoded principles have not therefore been linked *representationally* to the arithmetic procedures used in problem solving. It follows that they could not yet act as a constraint on the latter. (p. 143)

Bialystok (1990) reaches the same conclusion from a different understanding:

> There is no doubt that [second language] learners know some explicit rules, but these rules need not be represented in the mind of the learner as analysed knowledge. To the extent that these rules are not internalized as analysed knowledge, learners' performance will not be affected by them. (pp. 47-48)

The difference between these two views is that for Bialystok, even propositional knowledge starts at the bottom of the analysis continuum and has to work its way up. For her, internalisation involves *increasing* degrees of analysis. For Karmiloff-Smith, propositional knowledge is encoded directly at level E3, but is

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[13] In spite of the criticisms of the 'conduit metaphor' of communication alluded to in the previous chapter, I insist that this is a practically unavoidable metaphor for communicative behaviour and is entirely apposite in most cases, including this one.

not linked to the existing conceptual system. Both of these proposals converge, though, on the understanding that sociocultural knowledge does not directly affect performance. It must first be integrated with existing endogenous representations. The view that has been put forward here accords with that of Karmiloff-Smith, namely, that less analysed knowledge (levels I and E1) is the basis of at least the most fluent kinds of performance. Accordingly, in our model knowledge mediated through instruction must feed in directly at the conscious, metalinguistic level; and since it is verbally encoded, we can be more precise and specify E3 as the level at which it becomes incorporated.

The other component of conscious learning from the environment is direct derivation of propositional knowledge from input. This is identical with the noticing that was explored at length in section 2.2.4 (p. 39). Recall that in Schmidt's formulation of the Noticing Hypothesis, that which is noticed is that which becomes available for acquisition. The earlier, stronger formulation is that nothing is learned that is not first noticed; the more recent, weaker formulation is that more noticing means more learning (see p. 41). Truscott's critique of the hypothesis (pp. 47 ff.) led us to the suggestion that noticing is necessary for the formation of metalinguistic knowledge, but not acquired knowledge (in the Krashenian sense – i.e., knowledge at level I or E1). To this modification was added the proposal that the level at which entities are noticed is influenced by existing metalinguistic knowledge. There is thus a cyclical relationship between metalinguistic knowledge and noticing.

Thus far in the development of the model we have conflated levels E2 and E3. Both comprise consciously accessible knowledge in explicit, declarative form. What distinguishes them from one another, it will be recalled, is that at level E2 knowledge is not encoded in language-like form and therefore not available to verbal report, whereas level-E3 knowledge is encoded in language-like form and is available to verbal report. We might call the former kind 'intuitive knowledge', though of course in this use 'intuitive' does *not* mean inaccessible. It seems reasonable to suppose that noticing can contribute to metalinguistic knowledge at both representational levels: the intuitive and the linguistically-encoded.

The relevant portion of the model is shown in Figure 2.4.

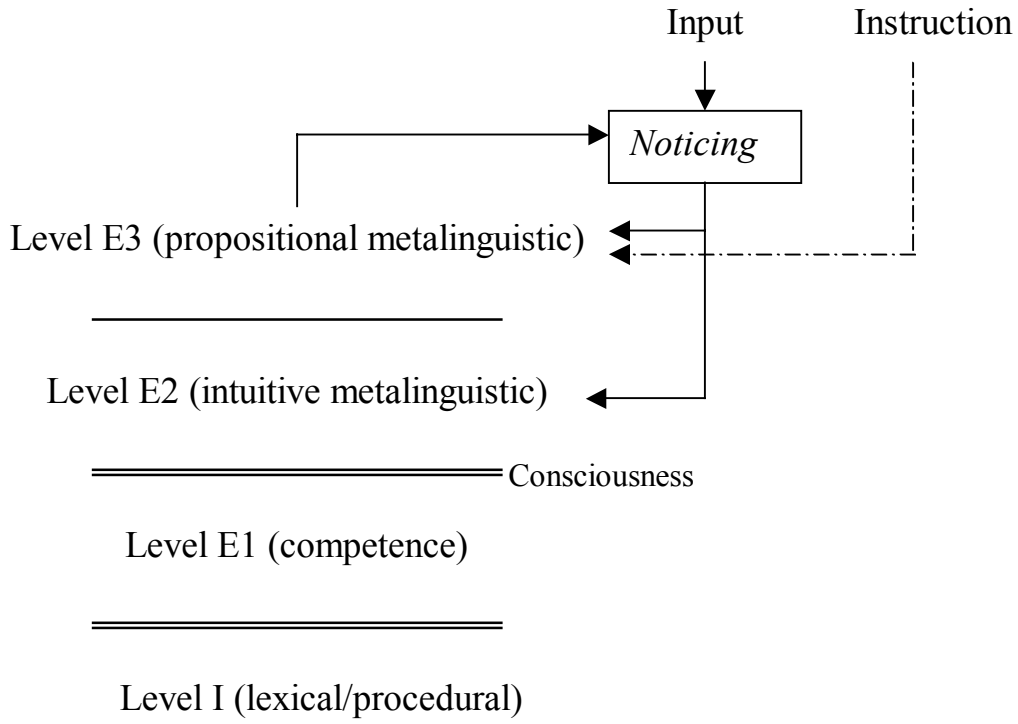

Figure 2.4: Conscious learning and metalinguistic knowledge

These two mechanisms account for conscious learning as viewed from without. It remains to consider the important question of how knowledge gleaned from without relates to existing conscious knowledge, which as we have seen is derived in part from implicit representations (though indirectly, through naïve theory-building). It is difficult to describe this with great precision, but it is at this point – for the first time in our cognitive exploration of language acquisition – that Vygotskian concepts prove clarificatory.

Vygotsky himself phrased the questions we now address thus:

> What happens in the mind of the child to the scientific concepts he is taught at school? What is the relationship between the assimilating of information and the internal development of a scientific concept in the child's consciousness? (Vygotsky, 1962, p. 82)

Vygotsky's concern in this quotation is with the relationship between what he calls *scientific concepts*, mediated through schooling, and *spontaneous concepts*, which are endogenous. He understands spontaneous concepts as being unsystematic and characteristically unavailable for manipulation in themselves. That is, they can be used spontaneously in task performance, but not reflected upon. But once the child comes to be able to generalise, and hence to order concepts

hierarchically with respect to one another – once, for example, she sees *rose* as a sub-category rather than a sister category of *flower* – then individual concepts and the conceptual system are beginning to come under her control. It is generalisation that allows reflexive thinking:

> In perceiving some of our own acts in a generalizing fashion, we isolate them from our total mental activity and are thus enabled to focus on this process as such and to enter into a new relationship to it. In this way, becoming conscious of our operations and viewing each as a process of a certain *kind* – such as remembering or imagining – leads to their mastery. (pp. 91-92)

It should be apparent that Vygotsky is here addressing the same phenomenon that motivates Karmiloff-Smith's representational redescription model: the way that humans transcend mere successful behaviour by developing abstract representations (concepts), which themselves are available as objects of reflection and mental manipulation. But while Karmiloff-Smith focuses on endogenous processes in development, Vygotsky assigns a central role to schooling in the development of concepts. Schooling provides socially-sanctioned scientific concepts that ultimately enable the child's spontaneous concepts to blossom:

> Scientific concepts, with their hierarchical system of interrelationships, seem to be the medium within which awareness and mastery first develop, to be transferred later to other concepts and other areas of thought. Reflective consciousness comes to the child through the portals of scientific concepts. (ibid., p. 92)

The influence of scientific concepts on spontaneous ones is first and foremost a systematising one. The concepts supplied by schooling, in contrast to those generated by the child, have a mediated relationship to reality. Their primary relationships, rather, are to other concepts – through word definition, for example. It is their essential characteristic that they are systematic in this sense, and the systematic, generalising mode of conceptual thinking transfers itself to the child's agglomeration of spontaneous concepts:

> [T]he rudiments of sytematisation first enter the child's mind by way of his contact with scientific concepts and are then transferred to everyday concepts, changing their psychological structure from the top down. (ibid., p. 93)

So far this sounds like a one-way process: spontaneous concepts need to be nurtured and shepherded by their sociocultural elders if higher mental functions are to emerge. But Vygotsky envisages a dialectical process. If it is true that spontaneous concepts are characterised by unmediated relationships to their

objects – they are 'saturated by experience' (ibid., p. 108) – it is also true that scientific concepts begin by having no such relationship. 'The development of a scientific concept usually *begins* with its verbal definition and its use in non-spontaneous operations – with working on the concept itself'; these concepts are 'schematic and lack the rich content derived from experience' (ibid.). Internalisation – true possession and control by the child – requires that the scientific concept become anchored in experience. This anchoring is accomplished through a reciprocal dynamic in which '*the development of the child's spontaneous concepts proceeds upward, and the development of his scientific concepts downward*, to a more elementary and concrete level' (ibid.; italics in original). But this process occurs only when the corresponding spontaneous or everyday concept has reached a certain level of abstractness, which is why this process is dialectical:

> In working its slow way upward, an everyday concept clears a path for the scientific concept and its downward development. It creates a series of structures necessary for the evolution of a concept's more primitive, elementary aspects, which give it body and vitality. (p. 109)

Ideas such as these are perhaps not notable for their analytical rigour, but Vygotsky's ideas and the metaphors they are wrapped in carry an intuitive charge that is difficult to ignore. In the above account of the cyclical relation between scientific and spontaneous concepts, for example, one seems to recognise the experience of seeing in print for the first time an account of one's own previously sub-propositional intuitions on some matter: a moment of insight that is called in German an *Aha-Erlebnis*. The moment when our intuitions seem to crystallise in language is the moment when the upward path of the everyday concept and the downward path of the scientific concept finally meet.

Vague though it perhaps is, Vygotsky's account of the relationship between scientific and spontaneous concepts is one that is highly commensurable with the model of instructed SLA that we have been considering. Having considered how sociocultural knowledge gets into the mind of the individual in the first place, I now propose that Vygotsky's cyclical account of conceptual development accounts for how this knowledge comes to be internalised. Sociocultural knowledge is a close analogue of scientific concepts (though it

encompasses more than simple concepts); we have seen that this is initially taken on board at level E3 as propositional knowledge; that is, it can be verbalised. Where do spontaneous concepts belong? For Vygotsky they are unconscious, but I have hypothesised that level-E1 conceptual knowledge is not directly converted into E2 knowledge. Consciousness is a ceiling on its upward progress. Instead, I suggest that spontaneous concepts are analogous to knowledge encoded at level E2: they are available to introspection, but not stored in propositional (language-like) form.

Integrating this idea into our model gives us the following picture:

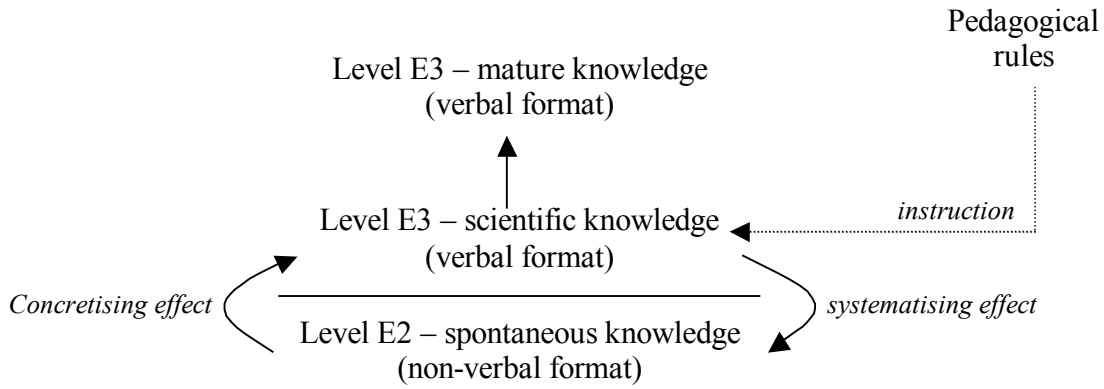

Figure 2.5: Internalisation of pedagogical rules

Figure 2.5 suggests that for pedagogical purposes we should consider there to be two kinds of propositional (level-E3) knowledge: knowledge of language form that has been encoded in long-term memory, but not yet integrated into the learner's personal conceptual framework; and knowledge that has been so integrated, which I have labelled 'mature knowledge' (after Vygotsky's 'mature concepts'). The reciprocal E2-E3 interaction operates as follows. Scientific knowledge – metalinguistic propositions relating to language form –, being pre-systematised (see above), fosters the systematisation of spontaneous knowledge. (This spontaneous (E2) knowledge, it will be recalled, consists of naïve theories based on behaviours produced by less explicit representations – I and E1.) Spontaneous knowledge (which may of course be inaccurate – see p. 89) 'fills out' this schematic formal knowledge with less abstract knowledge garnered from actual experience. The synthesis of this dialectic is mature knowledge. It is only as accurate as the pedagogical rules encoded in long-term memory and the

spontaneous knowledge generated independently by the learner; but it is fully integrated into the conceptual system. It is fully *controlled* by the learner. This is the knowledge that feeds into processes of noticing; into the construction of further theories at level E2; and that supports practice in the target language beyond that already made possible by underlying knowledge at the lexical/procedural (I) and competence (E2) levels.

2.5 Recapitulation and discussion

The model that has been built up in the foregoing paragraphs is complex. This complexity seems necessary to capture the complexity of the processes involved in instructed second language acquisition. For clarity I will now present two summaries of the model, one which recapitulates its key features and considers its predictions, and another which steps back from the detail and sets out at a broader conceptual level the ideas which motivate the model. Figure 2.2 to Figure 2.5 will be repeated as Figure 2.6 to Figure 2.9.

2.5.1 Levels of representation and endogenous processes

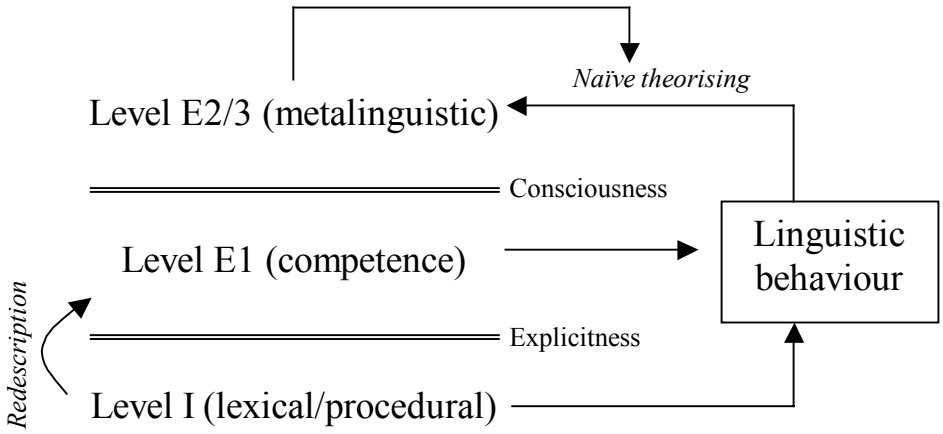

Figure 2.6: A modified version of the representational redescription model applied to language acquisition

1. The simplest, and earliest-acquired, linguistic representations are procedures for linguistic behaviour that have access to the lexicon (level I).
2. Unconscious, off-line processes of redescription identify redundancy across these lexis-based procedures and create new, explicit, and

therefore more general representations of linguistic knowledge (level E1). In mother-tongue acquisition, these inferential processes are constrained by domain-specific, innate ideas – Universal Grammar. UG may or may not operate in SLA. Level E1 representations correspond to Chomskian competence in L1, or to interlanguage in L2.

3. Linguistic representations across levels are redundant: L1 and L2 performance may be supported at any given moment, and at any stage in learning or development, by either level-I or level-E1 representations. Typical conversational performance may in fact require a mixture of the two. The analysis component of Bialystok's model gives a picture of how tasks in different linguistic subdomains require different levels of explicitness.
4. Re-analysis of representations within level E1 may be an ongoing process, but there is no sense in which a threshold of explicitness can be crossed that corresponds to the emergence of consciousness. Level E1 representations are always highly abstract and susceptible only to scientific investigation.
5. Hence, conscious representations (levels E2/3) are qualitatively different from those underlying fluent conversational performance. These do not emerge as a result of a continuous process of restructuring, but are the product of reasoning processes, based on existing consciously-held concepts, applied to linguistic behaviours.

This aspect of the model predicts the following: (i) initial acquisition is highly context-bound, relatively inflexible, and places a great burden on memory for words and more complex lexical chunks; (ii) more flexible, but still unconscious linguistic knowledge can emerge without instruction; (iii) epilinguistic and metalinguistic knowledge, being discontinuous with unconscious knowledge, may be inaccurate.

2.5.2 The relationship between conscious and unconscious knowledge in learning

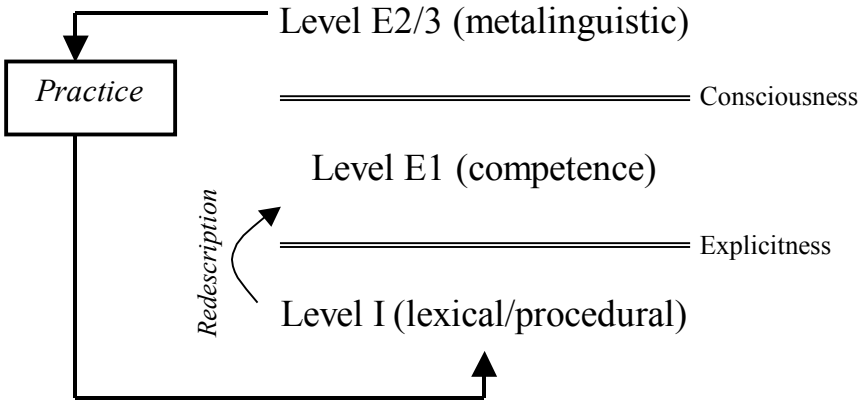

Figure 2.7: Practice as mediator between conscious and unconscious knowledge

1. Conscious propositional knowledge cannot be converted to the unconscious knowledge that underlies fluency in paradigm cases of linguistic communication.
2. The earliest-acquired forms of linguistic knowledge (level I) emerge from shallow, unconscious associative processes that are triggered by engagement in communication.
3. Early engagement in communication can be facilitated by metalinguistic knowledge (levels E2/3). In this way metalinguistic knowledge functions as a cognitive tool: a conscious plan for performance. Communication thus supported is apt to be slow and painstaking initially.

This predicts that acquired linguistic competence may come to exceed, in breadth and richness of detail (coverage and granularity), any propositional knowledge that was ever available to the learner.

2.5.3 The external perspective on learning

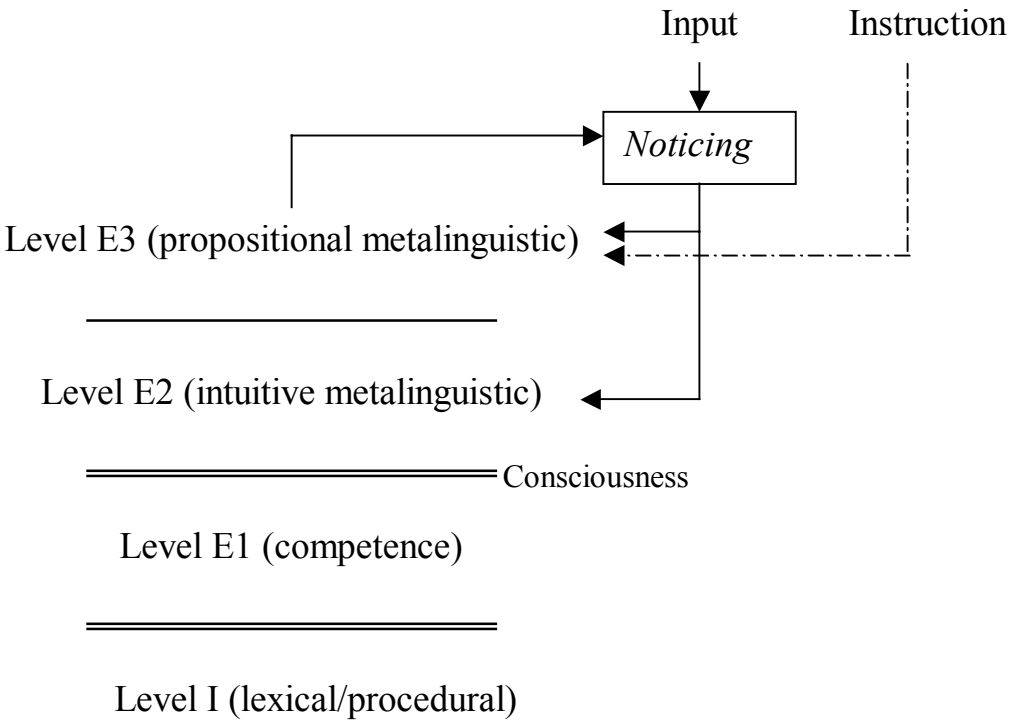

Figure 2.8: Conscious learning and metalinguistic knowledge

1. Both instruction and attention to linguistic input can lead to the acquisition of metalinguistic knowledge.
2. Neither instruction nor attention to linguistic input can lead to the acquisition of unconscious knowledge.
3. Noticing is the filter that determines what will be gleaned from input.
4. Existing metalinguistic knowledge predisposes the learner to notice particular phenomena and units in input.
5. Instruction adds only to propositionally-encoded metalinguistic knowledge.

This predicts that neither instruction in language forms nor attention to aspects of input directly impinge on fluent conversational performance, but both can affect metalinguistic knowledge.

2.5.4 The internal perspective: Integration of sociocultural with endogenous knowledge

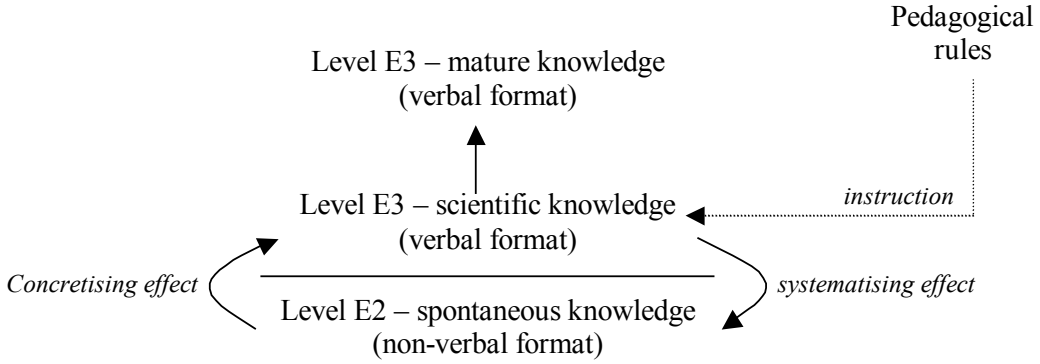

Figure 2.9: Internalisation of pedagogical rules

1. Storage in long-term memory of knowledge transmitted through instruction is only the beginning of learning, where learning means integration of this prefabricated knowledge with existing knowledge.
2. This integration involves a dialectical process in which (i) pre-systematised, verbally encoded sociocultural knowledge exerts a systematising effect on sub-propositional conscious knowledge (level E2), provided that this 'spontaneous knowledge' is at a level of generality compatible with the related 'scientific knowledge', and (ii) spontaneous knowledge, which is grounded in experience, 'fills out' the highly schematic scientific knowledge, whose native context is that of logical/conceptual relationships.
3. This dialectical relationship results in the emergence of mature knowledge over which the learner has 'control' in the Vygotskian sense: that is, it is robust and personally meaningful; context-independent; flexible in application, and perhaps most importantly, available as an object of reflection and mental manipulation in itself.

This part of the model suggests that the mere storage in memory of metalinguistic knowledge, such as pedagogical rules, not only will have no direct effect on performance (see section 2.4.3); neither will it be truly available to the learner as a manipulable and generalisable concept or rule in its own right. Though we can consider it to exist at level E3, it is effectively partitioned from that E3 knowledge that the learner has made her own. In effect, it has been rote-

learned but not *understood* until the learner makes explicit links with existing self-generated knowledge at level E2, or other mature knowledge at level E3. When these links are made, the result is new mature knowledge. In sum, this suggests that even at the metalinguistic level – which impinges minimally on fluent conversational performance of the canonical kinds – learning is not a simple matter of transmission. It is an active, constructive process, requiring reflection on the part of the learner.

2.5.5 Conceptual summary

The model presented here was motivated by a number of intuitions concerning the nature of learning in general and language learning in particular. The most general such intuition is that we must account both for the role of formal instruction and opportunistic learning from the environment, and the role of cognitive, developmental dynamics. Another guiding conviction is that conscious processes must surely have some large, and probably complex role to play, and that they must therefore be given due weight. I consider this in more detail below.

The foregoing observation implies that mental processes that are unavailable to introspection must also play a part in language learning. This belief in turn is prompted by a conviction that the study of grammar in the Chomskian mould is fundamentally right in its principal tenets: namely, that language-in-the-mind is a highly complex representational system whose principles are innately given and not derivable from more general cognitive principles; and that there is a distinction to be drawn between linguistic competence thus defined and the ability to use language. However, the present model can be read as suggesting that the ability to use language, in a second language as in the mother tongue, actually precedes the emergence of a full-blown, explicit, declarative and unconscious grammar.

The model is indebted above all to the ideas of Karmiloff-Smith and of Vygotsky. In particular, it addresses the idea, propounded by both, that the unique property of human learning lies in the fact that we are able to take control of our own cognition, to reflect on it, manipulate it and extend its scope.

This ability emerges from our ability not only to represent aspects of the world, but to re-represent: to conceptualise our own representations, so that what Vygotsky calls our higher mental functions – remembering, imagining, reasoning, supposing – can turn back on themselves. The result of this reflexive potential is far greater than what is made possible by mere increases in cognitive capacities, such as memory, however large. The result is a kind of cognition that is qualitatively different from that of even our nearest evolutionary cousins.

For Vygotsky, what makes this possible is language, and language plays three distinct but related roles in the ontogenetic and phylogenetic transformation of our cognition: two on the internal plane, and one on the sociocultural plane. Firstly, linguistic or language-like representations of knowledge (level E3), unlike their sub-verbal counterparts (E2), are manipulable through either rule-bound, logical (e.g., syllogistic) or fuzzy, probabilistic reasoning. Furthermore, the basis for reasoning itself is available for conscious consideration. Thought is objectified through language. For example, premises and inferential rules, once expressed linguistically, can be examined independently of each other. The propositional encoding of endogenous knowledge externalises the processes of thought, making them available for reflection, and hence functioning as a cognitive tool.

Secondly – remaining on the internal plane, and returning to one of Vygotsky's main theoretical focuses – inner speech takes on a controlling function in cognition. This notion is explicable in part through the function of externalisation alluded to in the previous paragraph; but I take it also, as suggested by Baddeley (2001), that the notion of inner speech as an agent for real-time control in cognition and action is interpretable in terms of the construct of the phonological loop (Baddeley & Andrade, 1998; Baddeley, Gathercole, & Papagno, 1998; Baddeley, 1986). This is a component of working memory that can hold phonologically encoded data. The content of the loop, which is limited by length measured as time required to articulate it, decays quickly and can only be retained through rehearsal, either vocal or subvocal. This device is a prime example of a cognitive tool. It acts as a workspace for storing interim data required in the completion of more complex tasks – as, for

example, when we rehearse a telephone number aloud or subvocally until we can find a piece of paper. Indeed, this example brings out the essential functional continuity between inner speech, understood as the contents of the phonological loop, and culturally-provided tools such as writing devices and notational systems.

It further suggests, as Vygotsky insisted, that there is indeed a continuity between the sociocultural plane and the internal, mental plane, and this brings us to the third way in which language transforms human cognition. Language makes available to us all the knowledge amassed by our community. In the model presented in this chapter, learning is in principle possible without external intervention, through endogenously generated goals and opportunities for practice modified by feedback. But sociocultural knowledge, duly integrated on the cognitive plane, greatly boosts the efficiency of learning. It provides plans for practice; it guides attention towards relevant aspects of input; and it enables us to crystallise in verbal form the theories that we generate on the basis of our own and others' behaviour.

All of this is as true of language as it is of any other domain. Our biological capacity for language enables a reflexive turn towards our own cognition that qualitatively transforms cognition. But language also enables us to reflect on language itself. At the level of sub-verbal naïve theories (E2), this may be tied to specific instances of language use – to utterances, *parole*, aspects of performance. But language enables us to bring such epilinguistic behaviours to a more abstract and general – metalinguistic – level. It enables us to reflect on language, rather than simply on speech. This ability to consciously generalise in our thought about language supports modes of linguistic performance that are substantially different in their cognitive demands than the paradigm cases of linguistic communication, the most obvious such case being that of literate practices (cf. the discussion of Bialystok's model and references therein, section 2.3.3).

A good portion of this argument is captured in the observation that verbal thinking makes it possible to bring concept systems to bear on concept systems. Vygotsky uses the following example:

> The adolescent who has mastered algebraic concepts has gained a vantage point from which he sees arithmetical concepts in a broader perspective. We saw this especially clearly in experimenting with shifts from the decimal to other numerical systems. As long as the child operates with the decimal system without having become conscious of it as such, he has not mastered the system but is, on the contrary, bound by it. When he becomes able to view it as a particular instance of the wider concept of a scale of notation, he can operate deliberately with this or any other numerical system. The ability to shift at will from one system to another (e.g., to "translate" from the decimal system into one that is based on five) is the criterion of this new level of consciousness, since it indicates the existence of a general concept of a system of numeration. In this as in other instances of passing from one level of meaning to the next, the child does not have to restructure separately all of his earlier concepts, which indeed would be a Sisyphean labor. Once a new structure has been incorporated into his thinking – usually through concepts recently acquired in school – it gradually spreads to the older concepts as they are drawn into the intellectual operations of the higher type. (1962, p. 115)

Analogous considerations apply to language learning. Learners and teachers should not be content to rest at more-or-less successful communicative performance. For one thing, Bialystok's model shows that many significant domains of language use involve much more than that. For another, most of language use, as previously discussed, is not reducible to automatic behaviour; most of it will require flexibility in applying abstract knowledge of the language system. But more crucially, if we follow Vygotsky's and Karmiloff-Smith's fundamental intuition, true learning is really only achieved once we establish conscious control over the domain in question; and we do this, for language as for other cognitive capacities, to the extent that we develop the capacity to reflect on the system itself, rather than merely reacting on the basis of unconscious representations. Understood in this light, learning prepares the way not only for successful application of the acquired knowledge, but also for further learning. It sets up a reciprocal cycle of practice and reflection that can, like a cognitive lever, exponentially increase the possible breadth and depth of learning.

Chapter 3: Towards a form- and meaning-focused pedagogy in a technological setting

3.1 Introduction

In Chapters 1 and 2 I discussed sociocultural and cognitive perspectives on second language acquisition and elaborated a model of instructed SLA. The purpose of this chapter is to consider how the model might inform a broad pedagogical approach and how that approach might be applied in the technological setting of computer-mediated communication (CMC). I will derive three broad pedagogical principles, and then proceed to describe and argue in favour of a framework called tandem language learning. Then I will consider the role of writing in second language learning, in the light of research into the relationship between written language and metalinguistic awareness. Finally, I will argue that the relatively new medium of online, text-based communication seems to offer unique benefits to language teaching and learning, and I will describe one such text-based system, called a MOO (Multiple-User Domain, Object-Oriented). Chapters 4 and 5 will describe and analyse learner behaviours during a tandem exchange in the MOO, focusing on learner behaviours that the model of SLA predicts ought to prove beneficial for learning.

3.2 Deriving a pedagogy from the model of instructed SLA

3.2.1 Learning dialogue

In the previous chapter, it was suggested that unconscious knowledge underlies fluent linguistic performance of the canonical kinds, and that explicit instruction cannot contribute directly to the development of such knowledge. Whereas some adherents of this non-interface view conclude that language pedagogy therefore can or should disregard explicit consideration of linguistic form in favour of providing a rich diet of comprehensible, meaningful linguistic input and opportunities for interaction, I have argued that conscious linguistic knowledge has some place in many kinds of language use in L1, and even more so in L2, and that conscious knowledge is what enables language learners to engage in the kinds of linguistic behaviours that *do* underpin unconscious

acquisitional processes. I have also argued that the storage in long-term memory of propositionally-encoded metalinguistic knowledge (level E3) does not by itself constitute learning. This knowledge must recursively modify and be modified by endogenous naïve theories of language (level E2) to generate mature knowledge.

I have used the term 'instruction' as a shorthand for 'the mediation of sociocultural knowledge'. Instruction in the conventional sense – the promotion of learning by an expert, often through expository monologue and usually in a formal educational setting – is one form of such mediation. But a wide range of educationalists advocate dialogic approaches to learning under such rubrics as Legitimate Peripheral Participation (Lave & Wenger, 1991), cognitive apprenticeship (Rogoff, 1990; Rogoff, Matusov, & White, 1996), or more broadly, cooperative and collaborative learning (Johnson & Johnson, 1975; the various contributions to Kutnick & Rogers, 1994; Mercer, 1995; Slavin, 1985). The model presented in the previous chapter drew on the Vygotskian dialectic between spontaneous and scientific concepts in explaining the nature of meaningful learning, but of course Vygotskian thought, as is clear from the discussion in Chapter 1, is more commonly associated with this broad shift of interest towards dialogic processes in pedagogy. It is to these processes that I now wish to turn.

In Chapter 1 I took issue with the assumption that the Vygotskian notion of mediation through dialogue, which is used to account for the development in children of higher mental functions, can account just as readily for language learning. This assumption seems to me to amount to a *post hoc* Vygotskian justification for pedagogical practices that have been prominent at least since the 'communicative revolution', and which were theorised most prominently by Krashen (Krashen, 1980, 1985, 1994; Krashen & Terrell, 1983). Dunn and Lantolf (1998) have warned against supposing that Krashen's *i*+1 construct and Vygotsky's zone of proximal development in some way amount to the same thing, simply because both notions focus on cyclical rhythms of transcending current knowledge or performance. It must be borne in mind that whereas the 'natural approach' as advocated by Krashen assumes that unconscious processes

drive second language acquisition – they will happen *nolens volens* given an appropriate linguistic environment – assisted performance in the Vygotskian view crucially involves the learner gradually gaining *control* over the representations that underlie performance as the locus of control gradually shifts from the social to the internal plane. This implies that the Vygotskian assisted-performance/ZPD mechanism applies to language learning primarily where language itself becomes the overt object of attention.

I will label as *learning dialogue* any interaction in which two or more people focus on knowledge that is problematic – i.e., not self-evident – to at least one of them and which results in the restructuring of existing knowledge in the light of new information or ideas. Such an interaction involves mediation in the Vygotskian sense. But labelling the process as *mediation* does not by itself explain what is happening: we need to look more closely at what transpires in the course of a learning dialogue. I suggest that the following are the key facilitative mechanisms of learning dialogue:

- Most obviously, the learner benefits simply from exposure to new ideas, concepts and construals pertaining to the problematic content, in cases where these are explicitly formulated; these can be encoded propositionally, at level E3, which of course does not amount to learning according to our model.
- Even in the absence of explicit reference to new concepts, etc., the learner may, transiently or otherwise, consciously attend to aspects of the partner's performance or to underlying assumptions of the partner's discourse: that is, the learner may *notice* significant aspects of the problematic content.

These two mechanisms involve the learner's relation to external, 'new' knowledge. Two further mechanisms of learning dialogue pertain in part also to existing knowledge:

- Dialogue necessitates the making explicit of what would otherwise remains implicit and therefore unanalysed (Little, 1994a, 1996b). In terms of the present model, this observation can be interpreted as

encompassing two processes: (1) a process by which learners develop, under pressure of the learning dialogue, naïve theories as to the principles underlying their own performance: that is, the generation of conscious, level E2 knowledge from unconscious, level E1 representations; and/or (2) one by which level E2 representations (consciously accessible but not propositionally encoded) come to be propositionally encoded for the first time, thus attaining level E3.

- Subsequent to this last process (numbered 2 above) is that of the conscious examination and revision of existing assumptions and understandings in the light of the new ideas, construals and so forth that emerge in dialogue: the accommodation of new knowledge to old, or the subsumption of new knowledge under old, resulting in both cases in the emergence of mature knowledge.

The combination of these mechanisms constitutes my construal of the Vygotskian notions of mediation and supported performance in the zone of proximal development. Understood in this way, learning dialogue is both the cause and the external sign of the dialectical processes by which spontaneous and scientific knowledge give birth to mature knowledge. But note that all of this assumes *explicit* discussion of the subject under discussion – hence, where language is the 'problematic content' in question, the learning dialogue must have an at least partially metalinguistic character.

Metalinguistically oriented learning dialogue, then, plays an important role in a pedagogy based on my model. But the model accords with the view that unconscious acquisitional mechanisms are engaged through meaningful communicative use of the L2; indeed, even without this assumption it is clear that the development of spontaneous conversational proficiency, at least, requires such practice. Since my primary interest is in the role of metalinguistic representations and sociocultural knowledge, I have not considered what kind of mechanisms might be involved in unconscious acquisition, beyond noting that lexical/procedural (level I) representations are the likely initial outcome, with generalised structures emerging subsequently through representational

redescription. It has long been argued that that exposure to input, engagement in interaction, and the 'pushed' generation of output are among the environmental factors necessary for unconscious acquisition to take place; I will argue below that these processes may contribute to language learning at a conscious level through increasing focus on form. The Vygotskian idea of supported performance is applicable to interactional processes at this level also, but here it relates to linguistic performance rather than overtly and consistently language-focused discussion, and it manifests itself in the form of interactional modifications in problematic communication.

3.2.2 Interactional modification – a Vygotskian perspective

Much research on interactional modification has been based essentially on an altered version of Krashen's theory, in which comprehensible input is the only causal variable in acquisition. Scarcella and Higa (1981) drew on Stevick's (1976) concept of 'active involvement' in discourse, arguing that negotiation leads to such involvement, which in turn 'charges' input and leads to deeper 'penetration', and hence acquisition, than merely simplified input such as is found in foreigner talk and teacher talk (see Gass & Varonis, 1985). Similarly, Long (e.g., 1981; 1983; 1985) argued that not just any comprehensible input will do; rather, input must be rendered comprehensible in interaction.

The theoretical rationale for this research focus has been refined somewhat as the notion of comprehensible input (or indeed 'charged input') has come to be regarded as too crude to account for the complexity of acquisition (e.g., Ellis, 2000; Pica, 1994). The value of negotiation is now usually considered to lie in its ability to promote attention to linguistic form within a meaning-focused communicative context. Negotiation researchers more frequently argue in terms of *focus on form* (e.g., Doughty & Varela, 1998; Long, 1991; Swain, 1998; Swain & Lapkin, 2001) or *noticing* in Schmidt's sense (e.g., Pica, 1994) than in terms of comprehensible input. When communication difficulties arise, the argument goes, joint attention turns to matters of form in an exchange that is a 'side-sequence' or 'pushdown' from the main line of conversation (Gass & Varonis, 1985). Such exchanges arise naturally and are thus supposed to be minimally

distracting, so that the primary focus on meaning of the discourse is not diminished (Doughty & Varela, 1998).

A number of criticisms have been levelled at interaction research. First, Aston (1986) points out that too many side-sequences for the purposes of clarification can be detrimental to social relationships. Second, clarification requests and confirmation checks do not appear exclusively in non-understanding routines: they also occur in unproblematic communication, hence their appearance does not of itself warrant the conclusion that negotiation of meaning is taking place. Third, we cannot assume that exchanges identifiable as negotiation necessarily lead to successful comprehension, however it may seem to the researcher or indeed to the interlocutor who has invested effort in clarifying his own utterances. Finally, Pica (1994) points out that we cannot assume that negotiation necessarily yields acceptable forms, given communication-strategic considerations: '[l]earners and their interlocutors find ways to communicate messages through negotiation, but not necessarily with target-like forms' (p. 518).

The argument that negotiation does not necessarily promote attention to form introduces an important note of caution. But it does not overturn the argument in favour of negotiation, for even if we cannot be sure that the level of attention it promotes reaches the level of truly metalinguistic reflection, it is at least probable that where comprehension fails to the point where conversational repair becomes necessary, *some* increase in attention to form takes place – though, like quasi-automatic self-repair in children, it might warrant only the label 'epilinguistic' (after Gombert, 1992: see chapter 2, p. 55). Such increased attention to form would correspond to a shift in the balance of processing strategies away from a semantic and towards a syntactic mode. This shift in the learner's strategy might be triggered not only through difficulties in comprehending input, but also – and perhaps more definitively – through pressure to reformulate his own utterances. This and other possible roles of output in interactional modification have been explored mainly by Merrill Swain in an influential strand of second-language interaction research (e.g., Swain, 1985, 1995, 1998, 2000; Swain & Lapkin, 1995, 2001).

Swain's 'comprehensible output hypothesis' holds that beyond comprehensible input, and beyond attention to form in meaningful input, learners also need to be 'pushed toward the delivery of a message that is not only conveyed, but that is conveyed precisely, coherently, and appropriately' (Swain, 1985, p. 249). Various benefits of pushed output have been advanced by Swain over the years:

- contextualised language use, i.e., 'the opportunity for meaningful use of one's linguistic resources' (Swain, 1985, p. 248);
- opportunities for hypothesis testing – 'to try out means of expression and see if they work' (ibid., p. 249);
- as discussed above, pressuring the learner to move from a semantic to a syntactic processing mode.

In more recent work, Swain has emphasised two other functions of output:

- promotion of noticing: in speaking, learners may notice a gap between what they want to say and what they can say (Swain, 1995);
- a metalinguistic or reflective function. Whereas in its hypothesis-testing role, a given utterance is *evidence* of a hypothesis, output can take on a metalinguistic role when it is used to *express* hypotheses concerning language: 'under certain task conditions, learners will not only reveal their hypotheses, but reflect on them, using language to do so.' (Swain, 1995, p. 132).

These recent modifications of Swain's hypothesis are of particular interest for the present study, for two reasons: first, because they bear on precisely the areas that were identified in Chapter 2 as being centrally important in language pedagogy, namely, noticing and metalinguistic reflection; and second, because her focus on the metalinguistic function is underpinned by Vygotskian theory. To my knowledge this is the first serious attempt to find common ground between the individual-cognitive/psycholinguistic and the sociocultural approaches to learner interaction. The Vygotskian perspective on dialogue leads her to conclude that '[t]he unit of analysis of language learning and its associated processes may […] more profitably be the dialogue, not input or output alone'

(Swain, 1995, p. 142). Three key Vygotskian notions are embodied in this new perspective: an emphasis on learning as it emerges in joint action rather than solely on individual contributions; an emphasis on conscious, reflective processes as they arise in such joint action; and an emphasis on speech as 'decontextualisation of mediational means' (Wertsch, 1985; see also Chapter 1) – that is, speech as a cognitive artefact that is itself capable of becoming an object of reflection. Wells (2000), who is cited by Swain (2000) in this connection, highlights this dual potential of speech:

> One of the characteristics of utterance, whether spoken or written, is that it can be looked at as simultaneously process and product: as 'saying' and as 'what is said'. In uttering, the speaker's effort is directed to the saying – to producing meaning for others. […] It is frequently in this effort to make his or her understanding meaningful for others that the speaker has the feeling of reaching a fuller and clearer understanding for him or herself.
>
> But in uttering, the speaker is also producing 'what is said', a material utterance to which s/he can respond in very much the same way as those to whom it is addressed: by interrogating the meaning of what is said, evaluating its coherence and relevance, and by beginning to formulate a further response. (n.p.)

Swain applies this line of reasoning to tasks that are both communicative and language-focused, i.e., where the goal is to solve a language problem; the collaborative creation of a written text in the target language, for example. In these cases, in addition to whatever meaning-negotiation goes on, questions of language, including form-meaning relations, are likely to feature as the overt topic of discussion for much of the dialogue. Negotiation of this kind must be kept distinct from that arising from miscommunication, which as noted may be no more than epilinguistic. In collaborative output tasks, learners may 'negotiate about form' as Swain has it (1995, p. 133). This explicit and shared attention to language undoubtedly reaches the level of the metalinguistic.

In this Swain leans explicitly on Vygotskian arguments in very much the same mode that was critiqued in Chapter 1. For example, she claims that

> According to Vygotsky (1986), cognitive processes arise from the interaction that occurs between individuals. That is, cognitive development, including presumably language development, originates on the interpsychological plane. Through a process of appropriation, what originated in the social sphere comes to be represented intrapsychologically, that is, within the individual. (Swain, 1995, p. 135)

But as pointed out in Chapter 1, Vygotsky claimed neither that 'cognitive processes' in general arise through interaction nor that 'cognitive development originates on the interpsychological plane'. Rather, he says that 'higher mental

functions' arise first on the interpsychological plane, through transformation of a pre-existing biological line of development. Further, I have argued that, contrary to Swain's explicit assumption, language is not itself one of these higher mental functions but is a biological given. Language *in use*, though – speech – is initially social and is subsequently transformed into a semiotic tool that itself mediates higher mental functions.

Notwithstanding these misconstruals, Swain is unusual in drawing attention to the central problem of applying Vygotskian theory in an overly simple way to second language acquisition:

> The role of dialogue in mediating the learning of such substantive areas as mathematics, science, and history is generally accepted. Yet, when it comes to the learning of language, the mediating role of dialogue seems less well understood. Perhaps this is because the notion of 'language mediating language' is more difficult to conceptualise and it is more difficult to be certain of what one is observing empirically. (Swain, 2000, p. 110)

Though she does not do so explicitly, Swain has identified the problem with much previous second-language research in the Vygotskian vein, and has also, tacitly, identified the solution that I would wish to advocate. To recapitulate, the assumption that any linguistic interaction represents mediation, thus internalisation or acquisition, in progress, seems to me to arise from the confusion of the Vygotskian model with Krashen's model of unconscious acquisition through interaction. The problem is that Vygotskian mediation through dialogue cannot apply in a transparent way to just any ordinary dialogue, since language is here instantiated, not mediated, and is the means of mediation, not its object. The solution – how the model *can* apply to dialogue in second language learning – is that language itself must be the overt topic of discourse. If questions of form, of form-meaning correspondences, of idiom, usage and so on, are made overt and reflected on in dialogue, then shared understandings can be constructed and, through interaction with the individual's prior concepts (see Chapter 2), internalised. Crucially, though, what is internalised is *not* acquired knowledge or competence, but high-level *metalinguistic* understanding, which nonetheless has its role to play in acquisition of unconscious knowledge, according to the model presented in Chapter 2.

It seems, then, that we can identify two distinct ways in which attention to linguistic form can increase in communicative interaction. The first is where

communication becomes problematic, resulting in interactional repair in which meaning is negotiated. A negotiation routine begins with an indication, or signal, from the listener that comprehension has not been complete, to which the speaker responds with a modification of some kind (e.g., reformulation, repetition, segmentation). Where the *hearer* is a non-native, the assumption is that he will pay increased attention to the form of the speaker's response. Where the *speaker* is a non-native, the miscommunication may push him to clearer and/or more formally accurate utterances, which may bring some or all of the benefits identified by Swain and enumerated above (p. 114). Two provisos need to be attached to this. The first is that, as noted, we cannot be certain of the extent to which attention shifts to form in such exchanges, whether involving modified input or pushed output. But it seems reasonable to assume that in most cases some such shift must occur, even if we can characterise it as no more than epilinguistic. The second proviso is that even if these exchanges represent opportunities for learning through increased focus on form, we cannot be sure that the opportunities are taken (Faerch & Kasper, 1986; Pica, 1994; Swain, 1995).

The second way in which attention to language may increase in interaction is where language itself becomes the overt topic of discussion. In a classroom setting this is most likely to arise, it is argued, where the learners' task is a language-based one, typically a collaborative output task. Research interest in tasks of this kind and the metalinguistic discussion they give rise to has emerged only comparatively recently among conventional (i.e., psycholinguistically-oriented) interaction researchers (Fortune & Thorp, 2001; Jackson, 2001; Mrowa-Hopkins, 2000; Swain & Lapkin, 1995, 2001), and although these tasks are a staple of Vygotskian second-language research (Antón & DiCamilla, 1998; Donato, 1994; Villamil & De Guerrero, 1996, 1998), these researchers have apparently not identified the important distinction between collaborative activity where language is only the medium and that where it is also the focus. Where language is the task focus, discussion of language form is by definition metalinguistic, but Swain (1995) argues that even in this case, we cannot be sure

that the learning opportunity that such discussion represents is in fact taken by learners.

To recapitulate, earlier versions of interaction theory are at odds with my understanding of second language acquisition in so far as they consider meaning negotiation to be a process in which input is rendered comprehensible and thence, presumably, acquired through the unspecified mechanisms implicit in Krashen's model. In effect this conception equates negotiation with acquisition: each negotiation routine is a moment of potential acquisition. The model presented in Chapter 2 does not assign pivotal importance to comprehensible input ($i + 1$). The output perspective on modified interaction, in its general form, harmonises with the present model to the extent that it stresses hypothesis testing and a shift to a syntactic processing mode as factors in acquisition: both of these are likely to be important mechanisms in the communicative *practice* that was posited as crucial in low-level, unconscious acquisition at level I. More recent versions of both the input and output perspectives on interaction that identify noticing as the key outcome of negotiation come closer to the model. But recall that noticing, as argued by Truscott (1998), was held in Chapter 2 to be one of the mechanisms, along with naïve theorising, that contributes to level E2 knowledge (consciously accessible but not verbally encoded); and, along with explicit instruction, to level E3 knowledge (consciously accessible and verbally encoded). So here again, the link between negotiation and acquisition is even more indirect than postulated by most interaction researchers, though it is not necessarily any less important for that. But most obviously, Swain's recent sociocultural rationalisation of interactional modification in general and comprehensible output in particular (2000) resonates strongly with the model posited in the current study. Her account of metalinguistic talk in the solving of linguistic problems amounts to an explication of the role of dialogue in constructing, mediating, and internalising sociocultural knowledge about the target language: *constructing* because interlocutors must reach a shared understanding of this metaknowledge; *mediating* because metalanguage in dialogue objectifies the target forms and makes them available to joint attention; and *internalising* because the knowledge thus constructed and mediated, which is

level E3 knowledge (accessible, verbally encoded) must (i) be accommodated by or assimilated with other relevant knowledge at level E3, and (ii) interact, through the systematising and concretising effects discussed in Chapter 2, with related non-verbal, spontaneous knowledge at level E2. These processes, in fact, are precisely what I understand by Vygotskian internalisation.

My understanding of the role of dialogic interaction harmonises with existing research to the extent that it emphasises the role of conscious processes in learning, but conflicts with them where they posit a direct relationship between unconscious acquisition and particular kinds of exchange in discourse, whether *via* comprehensible input or *via* noticing. I suggest that pedagogical strategies can provide opportunities for low-level acquisition to take place – *viz*, through practice in meaningful communication – but that pedagogical intervention cannot force the issue by triggering what one might call 'acquisitional moments' in dialogue. Rather, pedagogy ought to concentrate on supporting processes within meaningful communication that encourage *conscious* learning either at a more explicit (metalinguistic) or less explicit (epilinguistic) level.

3.2.3 Three features of a communicative and form-focused pedagogical framework

It follows from the foregoing discussion that an effective pedagogy requires (1) meaningful L2 communication and (2) a metalinguistic focus, which can arise through explicit metalinguistic dialogue – i.e., 'reflective conversation' (Lamy & Goodfellow, 1999) – but also through spontaneous and transient language-related episodes, such as negotiation of meaning, that may support noticing and focus on form at some level. (Note that these two kinds of metalinguistic focus reflect the distinction made by Gombert (1992) between metalinguistic knowledge as awareness of form and metalinguistic activity as an element of real-time processing; see also the discussion below of *reflection-on-action* and *reflection-in-action*, p. 142.) I would also speculate that learning might be rendered more efficient if L2 practice and metalinguistic dialogue were integrated: unconscious lexical/procedural knowledge would develop concomitantly with the emergence of new metalinguistic knowledge and its integration with existing

metalinguistic knowledge, so that the learning problem would be approached from both sides. But how to implement an integrated approach such as this in a learning-teaching framework or procedure is not transparent. Meaningful L2 dialogue *about* L2 seems ideal, but language itself is a limited topic of conversation for most learners. More importantly, although learning processes may be triggered and advanced to some extent in the course of dialogue itself, engaging with metalinguistic matters in a way that promotes the dialectical mechanisms discussed above requires time for reflection. Our pedagogy should therefore also include (3) opportunities for individual and unpressurised reflection, outside the general course of dialogue.

It is worth noting that these principles are more specific analogues of Little's 'three fundamental pedagogical principles' (1999a, from the title) for developing learner autonomy. Little's first principle is 'learner empowerment': 'learners must become […] fully involved in planning, monitoring and evaluating their learning activities' (p. 83). Similarly, the third strand of the pedagogy outlined here calls for opportunities for reflection, though this specifically concerns reflection on language form in the light of input and metalinguistic discussion. Little's second principle, 'appropriate target language use', corresponds in obvious ways to our first principle, meaningful L2 communication; and his third principle, 'the use of language as a cognitive tool', makes similar arguments to those I have made in favour of metalinguistic reflection, though at a more broadly metacognitive level. In this connection, Little focuses in particular on the role of writing: '[this principle] insists on the necessity of using the written language to elaborate learning plans, remind learners of agreed learning tasks, capture parts of the learning process, summarise individual and collective evaluations, and so on' (pp. 85-86). This emphasis on the role of writing is one to which I return, in slightly different but compatible terms, in section 3.4.

I will argue in the next section that tandem language learning can provide an overarching framework for the kind of pedagogy outlined above. In section 3.4 I will discuss the relationship of writing and metalinguistic awareness, suggesting that writing and consideration of written language can add the crucial

metalinguistic component to a tandem communication-based framework; and in section 3.5 I will consider the possibilities that text-based computer-mediated communication (CMC) offers in the light of these reflections.

3.3 Tandem language learning

3.3.1 Basic principles

Tandem language learning is an arrangement in which two native speakers of different languages agree to communicate regularly with one another, each with the purpose of learning the other's language. No doubt such arrangements have existed, in the form of reciprocal conversation sessions or tutorials and bilingual pen-pal correspondences, as long as people have sought to learn languages; but in recent times they have become a matter of particular interest to researchers in language pedagogy. They have noted that tandem learning can support a combination of explicit form-focused learning and meaningful communication; that this communication is highly authentic, since tandem partners should in principle be interested in one another as individuals and not just as sources of language input; and that it facilitates an autonomous mode of learning, since partners can negotiate the desired balance between topical and pedagogical communication, and choose conversational and pedagogical topics according to their needs and interests.

Two fundamental principles are taken as axiomatic in recent work on tandem learning (e.g., Little & Brammerts, 1996; Little et al., 1999): the principles of reciprocity and of learner autonomy. The former is summarised thus by Brammerts (1996):

> successful learning in tandem is based on the reciprocal dependence and mutual support of the partners; both partners should contribute equally to their work together and benefit to the same extent. Learners should be prepared and able to do as much for their partner as they themselves expect from their partner. They should not only dedicate the same amount of time to each language: they should also invest the same amount of energy in preparation, in the interest they show in the learning success of their partner, and in their concern for their partner's success in speaking and understanding their language. (p. 11)

The principle of learner autonomy holds that learners must take responsibility for their own learning: 'they alone determine what they want to learn and when, and they can only expect from their partner the support that they themselves

have defined and asked for' (ibid.). Taken together, these principles outline a mode of cooperative learning in which there is a shared concern for the conduct of the partnership and for its outcomes. In principle we would expect this to be manifested in dialogue focusing on organisational and pedagogical matters themselves, dialogue in which the partners plan, monitor, and adjust in the light of experience their way of going about the business of learning. Although such dialogue would of course constitute only one aspect of learner discourse, and should certainly not edge out content-focused talk, this disciplined mode of working is what sets the tandem partnership apart from the more informal kinds of bilingual partnership that we are familiar with.

The explicit pedagogical focus of the tandem scheme also gives rise to perhaps its most important property: the fact that it places each partner, at different moments, into the role of teacher.[14] This brings potential benefits of two kinds, one applicable to any reciprocal learning arrangement and one specific to reciprocal language learning. First, as teacher of a skill that one normally takes for granted – such as mastery of one's mother tongue – one must place oneself in the shoes of the learner. This outsider's view can bring fundamental matters into sharper focus than usual. That is to say, the *teacher* in such a situation may be drawn into reflection on the learning process and on the role of prior knowledge in that process, thereby bringing to consciousness assumptions that often remain hidden when one simply engages in *learning* on the basis of habits long taken for granted. Hence, the tandem-partner-as-teacher may become a more reflective and critical learner. Related to this is the second benefit, which is also bound up with the fact that second languages are of necessity viewed through the lens of the mother tongue (Little & Ushioda,

[14] In fact, tandem partners ought not, in general, to take the role of teacher in the conventional sense; such efforts often prove unsatisfactory. David Little (personal communication) argues that 'what they need to do is use (i) their NS knowledge and skills and (ii) their metalinguistic awareness of L1, L2 and (in their partner's output) L1 filtered through L2 to support and clarify the construction of meaning.' This kind of role comes close to that of 'pedagogue' as identified by Higgins (1988) – roughly meaning teacher as informed guide and knowledge resource. For simplicity of exposition, however, we will retain the term 'teacher', the foregoing caveat being taken as read.

1998b). As a teacher of one's mother tongue having a knowledge, additionally, of the learner's mother tongue, one can distinguish in one's partner's second-language productions the influence of one language on the other. As Little et al. (1999) put it,

> tandem language learning provides two perspectives on each partner's target language. One perspective is that of the second language user interacting with a native speaker; the other is that of the native speaker correcting errors in her mother tongue which are in part produced by interference from her partner's mother tongue, which is her target language. (p. 2)

In short, the relationship of mother tongue and target language becomes more apparent by virtue of the dual teacher-learner role that each tandem partner takes. That this occurs in practice and is perceived to be beneficial by learners is corroborated by a study by Appel (1999), in which some students reported learning benefits not only from having their own errors corrected, but also from focusing on their partner's errors.

3.3.2 Electronic tandem

The recent interest among researchers and practitioners in tandem language learning has in large measure been triggered by the new communicative possibilities offered by the Internet, especially e-mail. Sheer speed of communication is the most obvious benefit. Maintaining a focus on learning is crucial to a successful tandem exchange; this in turn depends on maintaining motivation, and promptness of response clearly makes all the difference. David Crystal (2001) illustrates by anecdote the importance of the speed factor:

> The use of e-mail in this way certainly puts traditional methods of contact in the shade. I recall in 1960, after a multinational work experience in Europe, attempting to work in tandem with an Algerian Arab friend – my English in exchange for his Arabic. It lasted only a few weeks, simply because of the impracticability of the only method then available to us – exchange by slow and expensive letter. If e-mail had existed then... (p. 234)

It should be noted, though, that while a slow medium is bound to be detrimental to motivation, a fast one does not guarantee its survival. To the foreign language learner (i.e., one not resident in a target-language community), corresponding with a native speaker by e-mail may have an initial novelty value, but this naturally wears off. Learners must deliberately construct and sustain a learning partnership, and not expect it to happen of its own accord. It seems clear, and

we shall see when we turn to the empirical part of this study, that this is easier said than done.

Similarly, the other specific benefits of electronic tandem learning do not accrue automatically, but require autonomy on the part of the tandem partners. Many of these benefits are essentially those that we shall identify in section 3.5 as arising from the nature of electronic text: texts sent can be easily revised during composition, and all texts, sent or received, can be stored and retrieved, searched, and manipulated in various ways. Ease of editing along with the convention of 'quoting' parts of the e-mail to which one is replying also mean that it is comparatively straightforward – though not completely unproblematic (Appel, 1999; Little et al., 1999) – to respond to issues of linguistic form that arise in one's partner's writing. Other benefits emerge from the time-shifted nature of the communicative situation. In contrast to face-to-face tandem (though not to tandem learning by conventional letter), the composition and transmission stages are divorced from each other, allowing the learner to give attention to matters of language form while composing a message that is nonetheless personally meaningful – a balance that can be difficult to strike under immediate pressure of communication. In attending to issues of form, learners have access to reference materials of various kinds, in print and online. All of these can work to the advantage of the learner, but only provided that the learner is sufficiently alive to the possibilities of the medium, as well as to the demands of language learning, to try to exploit them actively. A large part of the class teacher's role in a successful electronic tandem exchange, therefore, is to raise learners' awareness of the strengths and limitations of the medium and of the ways in which language learning can proceed in this kind of communicative environment (for elaboration of this point, and practical approaches to the issue, see Little et al., 1999).

Little et al. (1999) identify one final, important characteristic of e-mail tandem. In e-mail communication, the learner writing in the target-language cannot draw on the online support of his native-speaker partner as he would in a face-to-face encounter. The native speaker can provide neither the pervasive, involuntary support that interlocutors routinely give each other in oral

communication – the moment-by-moment non-verbal and paralinguistic feedback that makes all oral dialogue a fundamentally shared enterprise – nor the conscious support that the native speaker often provides in the case of communication difficulties, whether in the course of performing a learning task or in ordinary conversational exchanges. In e-mail tandem, all negotiation of meaning, and all supportive and corrective feedback of any kind, can only be deliberate and after-the-fact. This constraint is fundamental to asynchronous communication of any kind, regardless of how fast.

Tandem learning thus provides a framework within which learning dialogue and the communicative use of L2 can be combined. The dual non-native speaker learner/native-speaker 'teacher' role also promises a certain metalinguistic focus, enhanced by partners' consciousness of the language-learning purpose of tandem learning. In the next section I will argue that engagement with written language can deepen this metalinguistic focus.

3.4 The role of writing in second language learning

3.4.1 The cognitive consequences of literacy

In Chapter 1 we saw that control is a key concept in the Vygotskian view of cognition and development. Indeed, Vygotskian internalisation can be characterised as the process of increasing control: functions played out on the social plane gradually come under the voluntary control of the individual, until he or she is capable of deploying them outside of their original situation, even divorced from any immediate social context. Wertsch and Stone (1985) identify this process with gaining control over external sign forms – notably, of course, language. In this they follow Vygotsky's claim that the most important form of internalisation is that by which children 'master the rules in accordance with which external signs must be used' (quoted in Wertsch, 1985, p. 65). (It should be clear that I understand this to refer not to grammar, but to sociolinguistic, discourse and pragmatic principles of use.) Taking it that the ontogenetically primary function of language is face-to-face communication (Clark, 1996), we can say that from this starting point there are two processes of decontextualisation associated with language use. In one development, the child

comes to use language for self-regulatory purposes, in the progression from social to private to inner speech (Chapter 1, p. 8). Language use in this case moves from an external, social context to an internal, psychological one. In the second development, speech moves from its primary social context to a different kind of external context, namely the textual. This is the development of literacy. Wertsch (1985) identifies it as Vygotsky's view that 'the acquisition of literacy automatically results in an increased decontextualization of mediational means'; that is to say, 'in acquiring literacy, humans acquire the ability to utilise signs in less-context-bound ways' (p. 36). I will argue that this kind of decontextualisation goes hand-in-hand with advances in metalinguistic awareness.

Educational psychologist David Olson has written extensively on the cognitive and cultural effects of literacy. His principal argument is that a writing system is less a transcriptional system than a model of language (Olson, 1997). In this view, metalinguistic awareness is a *result* of literacy rather than a prerequisite for it: in learning to read and write, we gain a conception of how language is structured and how it relates to meaning. To take one example, there is some research to suggest that the way a listener phonologically segments an utterance depends on the kind of script he habitually uses. In a study cited by Olson (1995), readers of the alphabetic Pinyin script for Chinese were found to be better at detecting phonemic segments than readers of the traditional logographic Hanzi script. Olson concludes that 'to learn to read any script is to find or detect aspects of one's own implicit linguistic structure that can map onto or be represented by that script' (p. 115). Furthermore, for the child, learning to read and write means ultimately learning that 'sentences have implications that are necessary by virtue of sentence meaning itself' (Olson, 1977, p. 276). That is, children come to distinguish (i) between context-dependent speaker meaning and context-independent sentence meaning, and (ii) between social/pragmatic meaning and propositional meaning (Olson, 1980; see

also Olson, Torrance, & Hildyard, 1985). Considerations like these lead Olson to conclude that 'writing is in principle metalinguistics' (Olson, 1995).[15]

3.4.2 Reading, writing and metalinguistic reflection

Olson's views constitute an argument for viewing literacy as the key to the origins of metalinguistic thought in individuals, and to the origins of the received theories of language in a literate society. But what of metalinguistic reflection in the moment-by-moment processes of literate activity? Is there any reason to assume that engagement in reading and writing makes people think about language? Mike Sharples' model of writing sheds some light on this. He stresses the artefactual, tangible nature of text, which makes one's writing, to a far greater extent than one's speech, available for conscious consideration. But in addition to providing a visible object of reflection, Sharples points out that reflective thought is an unavoidable consequence of writing. He portrays writing as a cyclical process involving alternating, discrete and non-overlapping phases of *engagement* and *reflection* (Sharples, 1993, 1999). In other words, in a writing session one is always either writing or thinking about one's writing. The two cannot be done together: we 'think with the writing while we are performing it', but 'we cannot think about the writing (or about anything else) until we pause'; hence 'a writer in the act has two options: to be carried along by the flow of words, perhaps in some unplanned direction, or to alternate between reflection and writing' (Sharples, 1999, p. 7).

Sharples is concerned mainly with the process of composition, and so the kind of reflection he has in mind relates principally to content and text structure. But undoubtedly the writer who is reflecting in between bursts of engagement is also at times re-reading and planning with orthographic and grammatical accuracy, lexical felicity, and other formal matters in mind. The paradigm writing situation, that of the solitary writer producing a stand-alone text, thus comes with distinct moments of metalinguistic reflection built in, as it were. Contrast

[15] It should be pointed out that Olson puts at least as much weight on the societal effects of literacy as on the purported direct effects on individual cognition.

this with face-to-face conversation, where attention is constantly on meaning, which unfolds in real-time; where text is constructed by at least two parties; and where information comes from a variety of sources, many of them paralinguistic or non-linguistic. Here there can be no clearly structured phases of cognition, certainly none as simple as *reflection-engagement*. Metalinguistic reflection may take place, but it is necessarily haphazard. Indeed, as we saw, it has been argued that it is triggered only by communication failure (Marshall & Morton, 1978 - see Chapter 2, p. 57).

3.4.3 Reading and writing in L2

Perhaps there is room for argument as to whether Sharples' characterisation oversimplifies matters; but at the very least it serves as a useful archetype capturing a key structural difference between the cognitive process of writing and that of speaking. In writing, one tends to think, then do (write), then think again; these phases are clearly enough demarcated as to be perceptible to an observer. In speaking, the thinking and doing (speaking) phases are less obviously distinct from one another. The extent to which writers do in fact reflect on form-meaning correspondences is of course an empirical question, but it is clear that writing affords opportunities for doing so. In L2 writing, one can monitor one's output without the risk, inherent in speech-monitoring, of impairing communication with hesitations and moments of distraction.

Likewise, reading clearly allows time for metalinguistic reflection. Since the linguistic forms are given, however, the need to reflect on form rather than meaning is less pressing; indeed, it probably only occurs when the written forms prove problematic; that is, when comprehension fails. Oakhill and Garnham (1988) observe that 'When skilled readers fail to understand part of a text, they take action, such as rereading, asking for assistance, or using a dictionary, to overcome the problem' (p. 115). It seems likely that the re-reading strategy is the first to be invoked, and that the others are resorted to only after repeated comprehension failure. I would argue further that in such situations, readers may shift the balance of their processing strategies in favour of a bottom-up or code-focused approach (I have made a similar argument above in relation to

miscommunication in dialogue: p. 113). L2 texts are by nature problematic texts for the learner, and we would consequently expect this switch to a more form-focused mode to be more common in reading L2 than L1 texts.

It was noted above (p. 120) that Little (1999a) considers the use of writing to be not merely valuable, but a corollary of the 'fundamental pedagogical principle' of using language as a metacognitive tool (see also Aase, Fenner, Little, & Trebbi, 2000; Little, 1997b). He points to the role played by written language in the pedagogical practice of Leni Dam (Dam, 1995) and Hanne Thomsen (Thomsen, forthcoming), teachers of English in a Danish middle school who have long been concerned with the development of learner autonomy in language learners. Little points out that from the very earliest stages, writing is used to support the development of speaking skills (a practice that contrasts with certain widespread misconceptions about the implications of communicative language pedagogy). But he further argues, on the basis of theoretical considerations similar to those rehearsed above, that engagement with written language, whether as writer or reader, fosters the growth of metalinguistic awareness (Little, 1997b):

> The second claim that I make for the early use of the technology of writing in second language learning is that it compels a focus on linguistic form and thus fosters the development of metalinguistic awareness. This effect arises in part from the fact that writing captures language in visible form, making it a potential object of description and analysis. But I think there is more to it than that. […] [In the second language classroom] written target language forms both are and are not transcriptions of speech. Sometimes they are used to represent (parts of) spoken utterances, but sometimes they stand for themselves without any implied reference to speech. The early use of writing in second language learning is, I believe, a necessary response to the dual function of writing systems in relation to speech and language. (p. 124)

It is worth stressing that Little's point refers to *early* L2 writing; we are not necessarily justified in supposing that confrontation with writing and written products *compels* a focus on linguistic form in the general case. I have suggested rather that dealing with written language, in reading as in writing, *facilitates* such a focus, and that such opportunities become compelling only in certain circumstances, notably in the case of problematic communication, including L2 writing by learners. In the next section I will argue that text-based computer-mediated communication (CMC) supports a mode of engagement with written

language that is historically entirely novel, and that this mode of communication promises unique benefits to the kind of pedagogy I have outlined.

3.5 Text-based computer-mediated communication[16]

3.5.1 Text-based technologies and language

If, as Levinson (1989) claims, correspondence to human communicative needs is essential for the survival of a communications medium, then we might expect the most important property of any new medium to be that of increased *verisimilitude*, i.e., approximation to natural, unmediated communicative situations, especially face-to-face oral interaction (Clark, 1996). But how important can verisimilitude really be? Consider some of the most successful new communications technologies of the last twenty years: fax; e-mail; the World Wide Web and, most recently, text messaging (Short Messaging Service, SMS). The first three of these are highly flexible: between them, fax, e-mail and the Web can be used to transmit information of practically any kind. And yet it seems probable that all of them earn their keep mainly from the transmission of text. The success of text messaging is especially unexpected (Crystal, 2001). Highly sophisticated technology in the handset and in the network infrastructure, many years in the development, makes it possible to communicate by voice from practically anywhere to practically anywhere. The mobile phone allows us to convey many of those crucial aspects of linguistic communication that are entirely lost in the stripped-down medium of text: nuances of intonation and phonetic emphasis that convey the subtle pragmatic and affective information that hearers are so adept at interpreting and which provide redundancy and thus improve communicative reliability (Shannon & Weaver, 1949). Why then do so many mobile users, so much of the time, choose to forgo this highly natural, simple and efficient mode of communication for one that requires clumsy keying-in of alphabetic characters on a numeric keypad, one in which everything – time, ergonomics, limits on length of messages –

[16] Parts of this section are based on O'Rourke & Schwienhorst (forthcoming).

militates against the composition of full sentences, even against the spelling out of complete words?

Speech is a highly efficient medium, one which likely evolved to meet the needs of intelligent social animals and in turn facilitated the development of societies as we know them. It is certainly true, as assumed by most linguists, that conversational speech is highly automatic, requiring minimal cognitive effort for encoding and decoding and thus leaving the speaker/hearer to concentrate on the various facets of meaning. But the communicative shift defined by the advent of writing,[17] far more than just introducing a means of preserving speech, actually transformed our relationship both to language and to communication itself. Nearly all text-based communication involves a time shift that separates the framing of the message from its transmission, and hence allows measurably more time for reflection on form and its relationship to intended meaning. Text introduces a new approach to communication: one in which the key role of moment-by-moment *fluency* is usurped by strategic, reflective *design*. Communication by text, in any form, gives the writer the opportunity and the means for careful manipulation of language, be it to communicative, aesthetic or ludic effect. To communicate in text is to face an entirely different set of challenges from those posed by speech. My contention is that the challenges of the various text media, the idiosyncratic constraints they impose, far from being deterrents to their use, constitute a large part of their peculiar attraction. People enjoy the opportunity, in interacting with others, to explore and expand the bounds of the possible in written language. In most situations, speech is about efficient communication; it follows from the discussion in the previous section that writing is also about language. Roland Barthes (1982, p. 314; cited in Olson, 1999) put the matter thus: 'Writing/literature *stages* language rather than *uses* language'. Playful text-messaging is one expression of the pleasure people take in manipulating the medium while framing their message – staging language while using it.

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[17] By writing I mean notational representations of language, as distinct from pure pictographic and ideographic systems.

3.5.2 MOOs

A key ingredient in the success of any new communications technology, then, is the extent to which it provides a new set of constraints in using language, hence new ways of expressing ourselves through language and hence, ultimately, a new relationship to language. The medium whose features and constraints will be explored hereunder is synchronous (real-time) text-based computer-mediated communication (CMC); in particular, a kind of virtual environment known as a MOO (derived fancifully from Multiple User Domain, Object-Oriented). Text-based CMC encompasses in addition a whole range of proprietary and generic systems such as Internet Relay Chat (IRC), *ytalk*, certain components of Microsoft NetMeeting, AOL Instant Messenger, ICQ, and innumerable other nameless 'chatroom' applications that can be embedded in any World Wide Web page. What defines this class of systems is that communication takes place through text rather than through audio or video, and that it takes place not asynchronously (in postponed time) like e-mail or newsgroups, but in real time (synchronously). Users of these systems may connect to them from any computer with an Internet connection and appropriate software, and communicate with other users logged on from anywhere on the globe.

MOOs differ from the other systems mentioned in two principal respects. First, a MOO user is manifested as a 'character' (technically a system object like any other) whose name and other properties remain stable from session to session. By contrast, users are not permanent features of most chat systems; a user does not belong to a chat room in the way that a character belongs to a MOO. Many chat systems allow or even require users to choose a new username at each session. The stability of MOO characters supports the formation of communities, even cultures if we define that term broadly enough. Characters are created by the MOO's administrators, but they can be personalised to a degree by the users they represent; for example, a user may change his or her character's 'appearance' (which is a textual description: see sample transcript below, p. 135).

Second, a MOO is not simply a channel for communication; rather, its communication functions are embedded within a metaphor of space, typically a building. The environment is divided into 'rooms' between which users may move, and utterances generated by the more common communication commands are visible only to users in the same room. It is quite possible and not uncommon for users to log on to a MOO even when there are no other users to converse with, because it is possible to interact with objects contained in the environment. One can read notes left by other users, follow virtual presentations or 'listen to' (i.e., read) recordings. Indeed, one can even alter or extend the environment through programming commands. Every aspect of a MOO can be manifested as natural-language text: communication with other users is textual; spaces ('rooms') are described in natural-language text, as are the objects they contain. The 'behaviours' of objects, such as 'talking' in the case of automated public announcements or 'recording' in the case of virtual tape recorders, are described in text. Even the characters, the online manifestations of users themselves, are represented by natural-language written descriptions. (The various commands given by users – to move from place to place or to interact with objects, e.g., by reading them, viewing them, or picking them up – are passed to the system in text form also, but the system has no natural-language processing functionality, and so the commands are formed using a simple English-like syntax and vocabulary – see transcript sample below, p. 135.)

There are many technical means of accessing a MOO. While the original interfaces were text-only, many MOOs now use an optional World Wide Web interface. The following illustration shows the Web interface to the Centre for Language and Communication Studies (CLCS) MOO as it appeared at the time of the tandem exchange to be examined in Chapters 4 and 5:

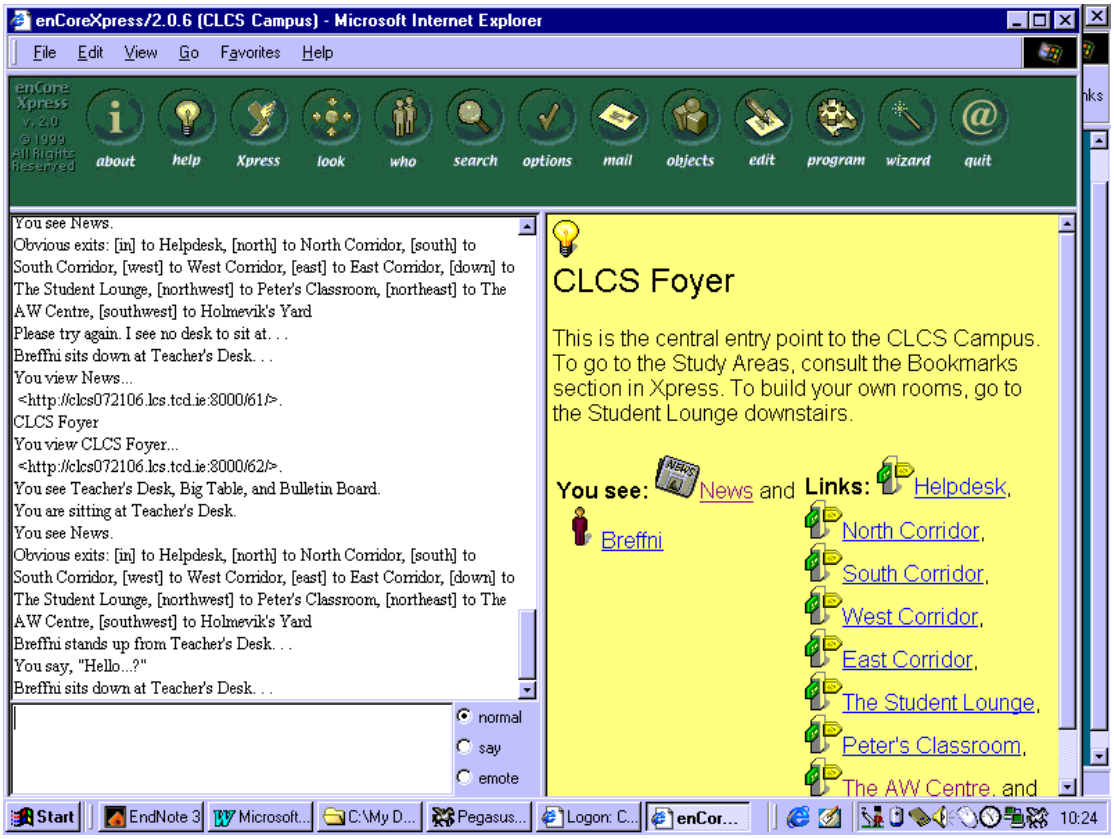

Figure 3.10: The Web interface to CLCS MOO. Communication takes place in the left-hand pane.

All commands are entered by the user in the lower left portion of the screen (the input pane); system responses and other users' utterances appear in the scrolling upper portion of the left-hand section (the output pane). The right-hand pane supplements environmental descriptions by keeping a permanent representation of the current room on screen (the textual representation in the output pane eventually scrolls off the screen due to the continuous appearance of utterances and system-generated text). The Web interface means that many important functions can now be accomplished through clicking on hyperlinks or buttons on a toolbar. This eliminates the necessity of learning a range of text commands for acting and interacting within the MOO. It also means that objects and people in the environment may be displayed graphically as simplified icons as well as being described in text. Among the additional functions available in CLCS MOO are an online diary, accessible only from within the MOO, where learners are encouraged to reflect critically on their experience after each session,

and MOO mail, which is restricted to communication between characters belonging to the MOO but otherwise wholly analogous to conventional e-mail.

The following extract from a MOO log – partly invented, partly based on an actual session in a MOO called Diversity University – illustrates some of the system's interactive features. The extract is from the perspective of a user who is referred to in system output as 'you' and whose MOO username is Bill. Text preceded by '>' represents a command typed in by the user, other text is either generated by the system in response to these commands, or by another user:

```
> north
You go north.
Student Union Foyer
A large foyer with a lot of through-traffic. There's a
receptionist counter, but no-one ever seems to tend it. Next to
it an array of flat futons arranged in a half circle offers ample
seating space.

Exits include: [north] to Student Union Lounge, [west] to
orientation center, [southwest] to Tour Center, [east] to
Learning Hall (1-6), [south] to Student Union Front Lawn.
You see Notice Board here.
Sandi is here.
> look board
A small bulletin board where notices are kept. Type 'read
<number> on <board>'.
  Currently posted notices:
  1. Welcome to Diversity University
  2. Treasure Hunt
> look Sandi
You see a woman who is very tall and dark. Sandi loves to write…
check out the poetry board in her room.
Sandi says, "hello"
> say Morning Sandi, I'm new here
You say, "Morning Sandi, I'm new here"
Sandi says, "Where are you located?"
> say In Dublin, Ireland
You say, "In Dublin, Ireland"
> emote smiles
Bill smiles
```

As the extract shows, the text resulting from interaction in a MOO follows conventions drawn from drama (scene descriptions) and the novel (dialogue in quotation marks introduced by formulae like *Sandi says*). Interactions with the environment in this extract are movement (in response to the command *north* in this case) and viewing objects or other users (*look*). It would also have been possible to read notices on the bulletin board, or to post a new notice. Two kinds of communication command are used in the extract: the *say* command and

the *emote* command. The use of the former is obvious from the extract. 'Emotes' give a flexibility to communication that is unavailable in most other synchronous text systems, allowing users to step outside the speech metaphor in order to convey what would be in oral interaction non-verbal information like gestures or expressions (*Bill smiles*), but also thoughts and feelings (e.g., *Sandi misses her old friends*). Since we are concerned with interpersonal interaction, we will consider only communicative utterances, where *utterance* is defined as the output of a single *say* command. It is important to keep in mind the fact that action and interaction within a MOO evokes a 'third place' (Schwienhorst, 1998): it is not a connection between two physical locations *along* which communication takes place, but a shared place that constitutes a *setting* within which people can interact. The implications and potentials of virtual realities of this kind for language learning are the subject of research by Klaus Schwienhorst (especially 1997; 1998; 1999).

3.5.3 Language learning, text-based CMC and metalinguistic reflection

What research there has been to date on language learning in synchronous CMC environments has drawn either on high-level educational concepts such as learner autonomy and collaborative learning or else on analysis of interaction, communication strategies and negotiation of meaning within the theoretical framework of Long (1983; 1985; e.g., 1991), Pica (e.g., 1994; 1985) and Swain (e.g., 1985; 1995). Taking the latter approach, Pellettieri (2000) finds that negotiation does take place in synchronous text-based CMC, that it does foster mutual comprehension and therefore, according to the interaction approach, ought to promote the development of grammatical competence. Lee (2002) investigated similar phenomena, finding that similar strategies were used in online as in face-to-face communication (corroborating findings referred to below – p. 140– relating to the nature of online interaction in general). Requests for help, clarification checks and self-corrections were the most frequent kinds of input/output modification used by the learners of Spanish who participated in her study. She also finds that learners tend to focus on fluency to the detriment of accuracy. Negretti (1999) employed a Conversation Analysis

framework to describe and contrast the patterns and strategies of native-speaker and non-native speaker online discourse. However, no conclusions are drawn regarding the implications of these patterns for language learning.

Work by other investigators draws on broader educational concepts using qualitative methodologies and also on occasion examining discourse phenomena in the light of these higher-level considerations (Donaldson & Kötter, 1999; Schwienhorst, 2002a, 2002b). On the basis of a seven-week online bilingual exchange, von der Emde, Schneider, & Kötter (2001) identify five broad areas in which MOOs may be beneficial to language learners:

(i) authentic communication and content: e.g., through content-focused discussion, of literary or other authentic texts;

(ii) autonomous learning and peer teaching in a student-centred classroom: 'the decentred space of the MOO' (p. 215) and small group work require students to exercise and further develop their autonomy as learners;

(iii) individualised learning: 'all students write and speak at the level they are capable of while still participating fully in the collaborative learning projects taking place' – p. 218;

(iv) opportunities for experimentation and play: 'In terms of soliciting spontaneous and unselfconscious use of language, playing and experimenting with language is probably the most obvious and one of the most productive learning strategies that the MOO encourages' (von der Emde et al., p. 219; see also my remarks above on technologies and linguistic play, p. 131);

(v) students as researchers – the intellectual dimension: 'In addition to the usual expectation of an intermediate class that students become better "users" of a language, a content-based approach to our work in the MOO also asks students to become researchers of their target language and its culture' (p. 219).

Schwienhorst's research (e.g., 1997; 1998; 1999) has been informed by a model of learner autonomy that encompasses three complementary perspectives: the individual-cognitive, the social-interactive, and the

experimental-participatory. The individual-cognitive perspective emphasises the processes of accommodation and subsumption by which new knowledge is integrated with old – in essence, the dialectical processes that have been theorised in this work in terms of representational redescription and the Vygotskian dialectic between scientific and spontaneous knowledge. The social-interactive perspective involves the social aspect of Vygotskian theory: learning through supported performance and internalisation in the zone of proximal development, notions which were introduced in Chapter 1 and considered further in the current chapter (p. 109). The experimental-participatory perspective on learner autonomy emphasises the role of activity over acquisition, and especially the role of evidence and the manipulation of linguistic artefacts in learning. Schwienhorst argues that MOOs can support autonomy in all of these respects: the environment promotes metalinguistic awareness and hence the cognitive processes involved in fitting new knowledge with old, and this is facilitated by students' favourable affective reactions; interaction and collaboration in the MOO support the social context of learning; and the flexibility of the environment supports experimentation through, for example, object creation (which, as we have seen, is a necessarily linguistic activity in a MOO).

This investigation is concerned with the relationship between metalinguistic knowledge and language learning, and I have argued that written language is associated with such knowledge. A pertinent question for this investigation, then, is whether using language in text-based CMC is more akin to writing or to speaking, and whether linguistic output is more like text or speech. There has been a good deal of empirical research into the linguistic properties of CMC utterances and discourse. We will review this literature below, but there are a number of *a priori* observations that we can confidently make in connection with MOOs. Let us compare first of all MOOs and speech:

- Like oral conversation, meaning in a MOO is negotiated rather than stipulated. Textual cohesion and coherence are the result of an implicitly agreed agenda as to reference (e.g., pronominal reference) and background assumptions.

- Oral and MOO texts have a turn-taking structure (though under different constraints: one participant cannot 'talk over' the other, nor can she give non-verbal feedback during the other's turn).
- Phatic communion is paramount: communication constitutes the vast majority of activity in a MOO, so there is perceived social pressure to keep the lines of communication open by filling in apparent gaps in conversation. Related to this, finally, is the fact that…
- communication proceeds under pressure of time.

These are some of the constraints and pressures under which we expect learners to be able to speak their target language, and to that extent MOO communication provides relevant opportunities for practice. But other aspects of MOO communication are comparable to writing (in the following list, 'message' is meant to encompass both spoken and written utterances):

- Most obviously, the medium is textual and therefore calls on literate skills.
- Message generation is private and invisible: one's interlocutor cannot influence the shape of an individual message, since complete messages are transmitted instantaneously.
- Messages can be reviewed and altered – or even abandoned entirely – before transmission. Again, this is invisible to the interlocutor.
- After transmission, messages from both interlocutors, being visible, are reliably available for consideration in a way that spoken utterances, which leave only a rapidly-fading trace in echoic memory (Baddeley, 1986), are not.
- Entire dialogues can be archived for indefinite periods and are therefore available for subsequent review and consideration.

In summary, then, real-time text communication such as that in the MOO makes possible real-time dialogue, like speech, while offering opportunities for reflection, like writing. To formulate the argument at its most general, the dependence on a single channel for all communication puts a greater burden on the individual's conscious cognitive processes. At the level of discourse as a

manifestation of joint action (Clark 1996), the single-channel modality means that communication is more susceptible to misunderstanding, and we might expect increased instances of negotiation, repair and other indicators of metalinguistic activity.

Also relevant is the fact that in CMC, text carries the added burden of maintaining social relations on a moment-to-moment basis. In the absence of any shared physical context beyond the discourse itself, the text must create its own context, a context that must be robust enough to bear the pressure of social interaction. As Yates (1996, p. 46) puts it, in CMC 'not only must the text carry the social situation, it must also carry the participants' relationship to the situation, their perception of the relationships between the knowledge and objects under discussion.' Indeed, identity itself is up for negotiation in a way that it is not in other communicative situations: in the absence of visual and paralinguistic cues, the CMC participant exists only in the measure that he or she creates text. Feenberg (1989, p. 24) cites Baltz (1984, p. 185) as arguing that in CMC, 'instead of identity having the status of an initial given (with which the communication usually begins), it becomes a stake, a product of the communication.' In the light of these properties, we can reasonably speculate that focus on language form may be even sharper in synchronous CMC settings than in other reading/writing situations.

We now turn to the empirical research on the question of CMCs, speech and writing. Ferrara, Brunner and Whitmore (1991) compared the language of what they call Interactive Written Discourse (IWD), which they consider to be a register in Halliday's (1978) sense, with another written register characterised by brevity: note-taking. They conclude that IWD is a hybrid of written and spoken registers that is beginning to form an identity of its own, with certain discourse norms emerging. Voiskounsky (1996) concludes, in a similar vein, that a characteristic form of English is emerging in synchronous text-based media. Warschauer's (1996) reading of the literature likewise leads him to conclude that 'electronic communication differs linguistically from both traditional written and spoken discourse', and he cites Chun's (1994) contention that electronic discussion is linguistically as complex as spoken language but exhibits the same

range of pragmatic functions as face-to-face discussion. Warschauer's own study (op. cit.) supports this view as regards complexity, especially syntactic complexity. Werry's (1996) finding is that the linguistic and interactional characteristics of synchronous text-based communication (specifically, IRC discourse) are the result of users' attempts to approximate speech patterns within the constraints of a textual medium with no other cues. He also makes the argument that speech does not belong to the speaker in IRC in the same way as it does in natural speech. Speakers are, he argues, distanced from their own utterances, which might explain the relentless verbal playfulness of IRC communication – a phenomenon which is also quite prominent in the MOO (though, impressionistically, to a lesser extent). Other investigations into linguistic playfulness have been conducted by Bechar-Israeli (1995) and Marvin (1995) (see also my remarks on the attraction of language-play within the constraints imposed by communications technologies, p. 131).

Yates (1996) observes that 'rather than the making of literate texts into oral ones, we are possibly seeing here what Zuboff (1988) describes as the "textualization of sociality" through CMC. That is, users of CMC systems may be bringing their literate production practices to an interactive, social and orally-oriented interaction' (p.39). This is what Ong (1982) has referred to as 'secondary orality' – the reintroduction of practices characteristic of oral cultures into a literate culture. The substance of Yates's speculation is also favourably considered by Baron (1997), Brent (1991) and Fowler (1994). This seems paradoxical at first sight, since the textual nature of CMC makes it obtrusive by comparison with other media: 'At every stage of communicating, from encoding words on a keyboard to decoding hard-to-read text on a screen, the mediated nature of CMC continuously calls attention to itself – especially so when users attempt a "real time" conversation or "chat" via their keyboards' (Langham, 1994). But Langham goes on to remark that

> despite this difference (indeed perhaps because of it), the CMC environment fosters a sense of place, a sense of conversational space alien to most people's experience with telephony. Whereas telephony calls attention to the fact that the parties do not share the same space, CMC encourages the perception that their interaction occurs in a shared location. In synchronous environments, interaction occurs at the same time, in the same place. (ibid.)

In summary, then, empirical research suggests that the language of CMC displays discourse and pragmatic functions of speech and the structural complexity of writing. This bolsters our *a priori* speculations that the speech-like, real-time dialogue of a text-based CMC system affords opportunities for reflection that we usually associate with reading/writing situations. There is thus a *prima facie* case for the view that such communication furnishes a unique way of combining meaningful communicative practice with reflection on form. For these reasons, we might expect that learning conversations via CMC will sustain a higher level of metalinguistic awareness than oral interaction, and perhaps even more so than other reading and writing processes. Since conscious awareness of language form is of the essence in writing, any incidental promotion of such awareness due to the online medium itself is clearly welcome.

Among real-time CMC systems, the MOO is unusual in that it can provide the user with a log or transcript after each session. I argued above (section 2.2, p. 108) that unpressurised reflection is a key aspect of a pedagogy based on the model elaborated in Chapter 2. Reflection of this kind has been called *reflection-on-action*, in contradistinction to *reflection-in-action* (Schön, 1987). Discussing the use of MOOs in L1 writing instruction, English (1998) asserts that '[certain] synchronous activities allow for online metacognition that face-to-face activities do not, and perhaps more importantly, the saved, printed logs of the activities allow for further reflection and metacognition' (n.p.). The online metacognition he refers to is an instance of reflection-*in*-action. Our discussion thus far leads us to hypothesise, likewise, that the MOO may support *metalinguistic* awareness, especially in language-learning situations. Reflection on the basis of the MOO transcripts, whether printed or not, is reflection-*on*-action; it should be clear that such logs can support the language learner by providing a linguistic resource that is personally meaningful. By using the transcripts, a learner can extend lines of thought that were begun but not pursued under the pressure of real-time communication, whether focusing on the content or the form of the dialogue.

It is clear that a MOO provides a potentially highly useful and cost-effective way of bringing students together for tandem learning. But the foregoing discussion leads us also to speculate that this technology can bring with it

benefits relating specifically to metalinguistic activity and reflection: the nature of the medium itself may lead learners to focus more closely on language form than normally occurs in oral conversation, and the availability of session logs makes possible the subsequent consideration of the content and form of the dialogue. But if it is the case that MOO interaction brings certain benefits for free in online interaction, it may be the case that carefully designed tasks and activities are likely to play an important role in promoting offline reflection. Such a task will be described in the next chapter.

3.6 Summary

In this chapter I began by elaborating three principles for a pedagogy based on the model of instructed SLA elaborated in Chapter 2 and drawing also on a Vygotskian perspective on second-language interaction research: the first is meaningful L2 communication; the second is a metalinguistic (or epilinguistic) focus, in the forms of learning dialogue or 'reflective conversation' and in transient language-related episodes such as negotiation of meaning; and the third is individual, unpressurised reflection on language form. I then introduced tandem language learning, arguing that this framework can combine learning dialogue and meaningful, content-focused communication, and that it further promises a metalinguistic focus by virtue of its overt pedagogical purpose. Next I discussed the role of writing in metalinguistic thought, suggesting that engagement in reading and writing at least *facilitates* a metalinguistic mode, and may *compel* it in certain problematic situations – a category to which many L2 reading and writing experiences belong. Finally, I argued that synchronous, text-based CMC, and the MOO system in particular, offers a unique hybrid of real-time dialogue and written modality which may support both online and offline metalinguistic processes. The MOO thus promises much as a forum for international tandem exchanges. Chapter 4 introduces and describes just such a MOO-based tandem exchange, incorporating a writing task designed to promote online and offline metalinguistic reflection; Chapter 5 examines the evidence of MOO transcripts from this exchange in the light of the foregoing ideas.

Chapter 4: Empirical study (1) – context, methodology, and preliminary measures

4.1 Introduction

The theoretical apparatus constructed in the preceding chapters has ranged widely, taking in sociocultural/Vygotskian and cognitive approaches to second language acquisition; the role of consciousness and metalinguistic awareness; the nature of written language and of our interactions with text; and the nature of the comparatively new medium of real-time text-based communication. On the basis of these considerations I have elaborated some broad principles of which I believe any effective pedagogy ought to take account.

The purpose of this, the empirical component of the thesis, is not to put the theoretical apparatus to the test. The model is just too large for that. At best we might address this prediction or that prediction – 'Is initial acquisition highly lexical?', perhaps, or 'Do learners come to know more than they have consciously learned?'. But these would examine only small corners of the model. Though such research is important, it represents the wrong level of inquiry for present purposes. The goal of this project has been not to test a model of language acquisition, but rather to consider how, in the light of that model, one particular communications medium can be exploited in a formal second language learning/teaching context.

The model of instructed second language acquisition elaborated in Chapter 2 addresses on the one hand endogenous processes of representational redescription and unconscious acquisition, and on the other the role of consciously acquired sociocultural knowledge and its interaction with naïve metalinguistic theories. On the basis of this conception, I argued in Chapter 3 that the various new media of text-based real-time communication – and especially MOOs – might offer new and effective kinds of learning experience, as they combine opportunities for authentic interaction with enhanced opportunities for reflection on language form. I further elaborated an approach to pedagogy which might be viable in this medium and which would combine

communication and reflection. A key part of that pedagogy was tandem learning.

The empirical study reported in this chapter is based on an actual online tandem exchange. Its purpose is to describe behaviours in the MOO that have a metalinguistic dimension; to consider, as far as possible within the constraints of a primarily observational study, the extent to which these behaviours are influenced by the medium and/or the pedagogical framework; and to examine the working of one phase of a three-week task designed along the lines of the pedagogy outlined in Chapter 3.

Section 4.2 sets out the institutional and pedagogical context in which the tandem exchange is embedded. It looks first at the organisation and ethos of the course in which the learners were enrolled, then at the particular German-English tandem exchange project that provided the basis for the study, and finally describes the rationale and the detailed specification of the three-week task assigned to the students. Section 4.3 sets out the study's methodology; section 4.4 characterises the operation of the exchange in terms of attendance, partnership stability and basic interactional measures. In Chapter 5 I will examine metalinguistic behaviours in the MOO on the basis of transcripts from six of the nine sessions, complemented by interview and questionnaire data.

4.2 The institutional and pedagogical context

4.2.1 A programme of Language Modules for ICT students: institutional framework, ethos, student response

Trinity College Dublin's undergraduate degree course in Information and Communications Technology (hereafter BAICT[18]) includes an obligatory language module in the first two of its four years. At the beginning of their first year students choose between French and German; a Leaving Certificate qualification or equivalent in the chosen language is a prerequisite. The language module entails one two-hour class session per week plus one additional weekly

[18] Bachelor of Arts (Moderatorship) in Information and Communications Technologies; for further information see < http://www.cs.tcd.ie/courses/baict/ >.

hour. Otherwise used for individual tutorials, this additional hour is devoted, in the first term (October to December) of the second year, to participation in an online tandem-learning exchange in cooperation with third-level institutions in target-language countries. This tandem exchange is the framework for the empirical study reported on below.

The BAICT language modules programme was conceived by the College's Centre for Language and Communication Studies (CLCS), which retains responsibility for coordinating, monitoring and teaching it (Little & Ushioda, 1998b). Its guiding precepts are the principles of communicative language teaching and of learner autonomy, and in the latter it harmonises with the educational philosophy of the BAICT course in which the modules are embedded. In particular, BAICT lays great emphasis on authenticity and collaboration, principles that are most evident in the use of content-focused project and small-group work. The language modules have been prominent in promoting this working method: the substantial continuous assessment component in the language module is based on performance in four group projects presented at intervals during the academic year. Most projects take five weeks: three weeks for preparation, one for presentation, and one for project review. Each is differentiated by a pre-ordained communicative scenario, so that it has a recognisable rhetorical purpose constrained by all the linguistic and discourse conventions any such purpose entails. For example, first-year students are required in one project to research and perform a debate on a social issue of their choosing; in another, each group must write a newsletter in the preparatory stages and 'sell' their newsletter at the presentation session, in competition with the other groups. The aim is to create a realistic communicative framework for their language productions, one that is as authentic as possible within the constraints of the formal learning context. In the second year general-interest matters are put aside in favour of topics related to the main subject of study, Information and Communications Technologies (ICT), so that students' language work is more closely interwoven with their vocational needs. Second-year project scenarios include reviews of web sites and software.

From the beginning language classes are conducted entirely in the target language, and in the project-preparation sessions each group draws on the target-language expertise of a native-speaker assistant, typically an undergraduate on a European Union-funded year abroad. The assistants are intended to function primarily as authorities on the lexis, grammar, sound system and idioms of their native tongue. They are resources to be drawn on as needed by the learners rather than teachers in any usual sense, though in practice they often need to animate topic- and task-related discussions as well.

By their second year of study, then, BAICT students should in principle be accustomed to a style of language learning that is highly communicative, collaborative and needs-oriented; a style, moreover, that is consistent with that of their degree course generally. In practice, there is often some resistance to this approach. Few students will have experienced in their secondary schools a language-learning environment that is as thoroughly committed to communication and collaboration as this one. Foreign language teaching in Irish schools has of course been strongly influenced by the communicative approach, but anecdotal evidence suggests that a robust attachment to grammar-focused and individualistic teaching and learning persists – influenced, no doubt, by the perceived need to 'cover' grammatical ground for the highly competitive, state-run Leaving Certificate examination. Although many BAICT students find the language modules a welcome and motivating change from this environment, others remain convinced that the more conventional methods of their school years are the only reliable means of learning a language in an institutional setting. But even in such cases, the experience of language modules teachers suggests that students' resistance often diminishes in proportion to their degree of success in using the target language to prepare, present and discuss projects on topics of their own choosing. Without overstating the case, it is fair to say that the majority of BAICT students, by the start of their second year, are no longer unduly intimidated by situations requiring authentic communication in the target language, and that they are persuaded of the pedagogical effectiveness of this rigorously autonomy-based approach. These two claims are corroborated in particular by the high take-up, relative to expectations, of recently-instituted

extra-curricular third year modules for those students who wish to continue their language study beyond the obligatory two-year period. For no additional credits, these students give up two hours of one evening each week to continue their French or German in substantially the same pedagogical-organisational mode as in their first two years.

4.2.2 The Dublin-St. Augustin MOO exchange

The Centre for Language and Communication Studies has a practical and research interest in electronic tandem language learning that dates from 1995. The Centre's initial involvement was as a member of the International E-mail Tandem Network (Little & Brammerts, 1996)[19]. To begin with, students of CLCS's optional evening language modules (distinct from the ICT modules, but similarly constituted) were encouraged, not required, to find a partner through the Network and to subscribe to the appropriate bilingual e-mail forum administered by the Network. The forums are essentially mailing-lists for general conversation among large numbers of subscribers. A more formal arrangement was instituted and evaluated as a postgraduate research project (Appel, 1999). This involved a small number of students taking the optional evening Spanish module. These experiences combined to show, first, that e-mail tandem had great potential benefits, and second, that a carefully organised bilateral partnership forms the necessary context for any successful tandem learning scheme. Such a partnership was established in 1996 and operated until 1998, bringing together students of extra-curricular German language modules in Dublin and students of English in a comparable course in Ruhr-Universität Bochum (reported in Little & Ushioda, 1998a; Little et al., 1999). This partnership led to the development of robust organisational and pedagogical structures, primarily based on integration of tandem partnerships with coursework, but led also to the recognition that 'although students perceive e-mail tandem partnerships as a beneficial and enjoyable way of learning a language, they easily drift into a pen-friendship that lacks the critical focus

[19] Now known as eTandem Europa; details are available at http://www.tcd.ie/clcs/tandem

fundamental to tandem learning' (Little et al., 1999, p. 52). This tendency to 'drift' from tandem principles seems to be due in part to the fact that e-mail is associated with informal, conversational and playful communication, especially among students who are not normally required to use the medium for study purposes.

It was partly for this reason that it was decided to pursue the use of MOOs in tandem learning: the MOO environment is familiar to only a minority of Internet users, hence it seemed reasonable to expect that students introduced to this medium would treat it as a work environment. Naturally, though, switching to the use of a MOO is more than just a modification of tandem e-mail. As discussed in Chapter 3, a MOO is an entirely different communications medium, and we would expect it to have different things to offer language pedagogy. Hence the use of the MOO was an area of research that overlapped only in part with the tandem e-mail projects.

The Dublin-St. Augustin MOO partnership is continuous with the e-mail project described above in that the personnel involved are substantially the same on both sides, and in that the pedagogical principles of tandem learning still apply. The projects differ, first, in the technology employed (MOO versus e-mail), and second, in the nature of the courses involved. The Dublin students are from the second year of the BAICT course described above, and the German students are from a similar information technology-oriented course in Fachhochschule Rhein-Sieg[20] (FHRS) in St.-Augustin, near Bonn. In this scheme, then, all the students involved share a specialist interest in information technology; all learn their target language as a compulsory part of their course; and all participate in the tandem project as a compulsory part of their language studies. The two sides of the exchange are thus closely matched in ways which previous experience suggests can maximise the chances of an effective and sustainable partnership.

This tandem exchange has been in place since 1998. Since German and Irish academic terms have relatively little overlap, a factor that proved disruptive

[20] German *Fachhochschulen* are third-level institutions with a technical-vocational emphasis.

to the e-mail projects, it operates only in the pre-Christmas term, over nine weeks from October to December. Before the first session, the German students send brief accounts of themselves and their interests to the Irish organiser. These texts are distributed to the Irish students, who use them to select their preferred partner. The German group being usually larger than the Irish, this system has the disadvantage that inevitably some of the German students are left without a partner. These excess students are encouraged to work with another partnership, which mitigates against any bad feeling on the part of the German partner to some extent, though not entirely. This pairing system is not ideal, but it has proved more effective than the random matching that was employed for the e-mail projects, since it promises a degree of compatibility within a substantial proportion of the partnerships. Moreover, students seem to assume more responsibility for a partner they have chosen themselves.

The exchange operates as follows. In the pre-Christmas weekly MOO session, the German and Irish groups each assemble in a computer laboratory in their institution – though it is not unknown for students to connect from home – and log on to the MOO environment. Each student meets his or her partner in a virtual room that has been assigned to them by the organisers. Each room includes links to texts suggesting tandem activities – getting-to-know-you activities in the initial sessions, for example, or discussion of German and Irish stereotypes. Another activity involves trying to identify the partner's photograph in one of the two (Irish and German) online 'galleries' that are accessible in the MOO. Teachers rarely intervene: when they do, it is normally to resolve organisational difficulties, such as asking an established pair to accept a third student whose partner is absent. A general announcement (by means of a communication function analogous to a public-address system), asking students to change language, is made half-way through the session. This is an effort to enforce the tandem principle of bilingualism.

The atmosphere in a computer laboratory during a typical MOO session is quite unlike most classrooms: there is neither plenary input from the teacher nor the chatter of groupwork. Each student is apparently engrossed in screen and

keyboard, only occasionally exchanging remarks with classmates or, more rarely, referring to the teacher, usually for help with target language vocabulary or idiom. The impression one gets on entering the *virtual* environment is quite different. Public concourses, where MOO participants ('characters') materialise on logging on initially, seem quite chaotic to begin with: several characters address one another, perhaps asking for their partner's whereabouts or exchanging pleasantries with classmates or students from the 'other side'. The linguistic product created by several characters 'talking' simultaneously in a MOO room – we can only loosely call it a text – is a complex, confusing, partially incoherent affair, with adjacency pairs interrupted by entirely unrelated turns uttered by third parties (Herring, 1999). All of this dies away as students find their partners and move to their assigned rooms to converse and work on tasks. The transcript analysis in subsequent sections gives a flavour of the nature of discourse within partnerships.

4.2.3 Encouraging metalinguistic reflection: a writing/reformulation task

It was suggested in Chapter 3 that tasks encouraging reflection on target-language form ought to play an important role in second language instruction; such tasks are most likely to be fruitful if they involve reflective dialogue. Discussion of language form requires the expression and elaboration of existing metalinguistic assumptions and of thought processes. Ideally it should also lead to the joint development of a shared understanding which can then be internalised in the Vygotskian sense. As pointed out, this contrasts with much of the Vygotskian literature (exemplified by many of the contributions to Lantolf & Appel, 1994b), which assumes that Vygotskian mediation and internalisation of language knowledge can take place in the absence of any overt concern with language as an object of thought.

Contending that instructional techniques should promote both kinds of noticing identified by Schmidt and Frota (1986) – noticing features of input and 'noticing the gap' between one's current interlanguage state and the target language system – Thornbury (1997) argues persuasively in favour of reformulation tasks. He points out that pre-emptive input enhancement

(Sharwood Smith, 1993) cannot take account of the readiness of the individual learner to acquire the targeted features. Our model precludes the notion that noticing is directly linked to acquisition, but Thornbury's argument can be readily understood and accepted in terms of the interaction between verbally-represented sociocultural knowledge (level E3) and explicit but non-verbal metalinguistic knowledge (level E2): that is, if no pertinent level-E2 knowledge is present to begin with, then there is no basis for such interaction, hence no basis for mutual accommodation at these levels. As to after-the-fact input enhancement in the form of error correction, Thornbury suggests that its value is dubious, quoting Chaudron (1988, p. 152) thus: 'the greatest error teachers make may be the assumption that what occurs as "correction" in classroom interaction automatically leads to learning on the part of the student' (Thornbury, 1997, p. 327). Furthermore, Truscott (1996; 1999) argues rigorously that the evidence of many studies fails to support the supposition that correction of writing holds any benefit for the learner.

One of two generic instructional techniques advocated by Thornbury is reformulation. (The second is reconstruction, which will not be considered further here.) In its simplest form, the teacher provides a more target-like reformulation of a student's composition, rather than a conventionally corrected or marked-up script. The reformulation should retain the sense of the student's text, and the student is invited to compare the means of expression in the original with that of the reformulated version. Thornbury's rationale for this approach is that 'it reverses the order of traditional models of instruction, which move from accuracy to fluency' – e.g., presentation-practice-production sequences and product approaches to writing – and is thus 'consistent with a fluency-to-accuracy, or task-based, model of instruction.' (1997, p. 328). Specifically, the benefits of the approach are that meaning is generated by the learner and, more interestingly for our purposes, that 'the learners are predisposed to look out for (and notice) those features of the modelled behaviour that they themselves had found problematic in the initial trial run (or first draft)' (ibid.).

This technique recommended itself for implementation in the TCD-FHRS MOO tandem exchange for three reasons: because the theoretical rationale set out by Thornbury seems substantially right; because the availability of asynchronous communication functions (e-mail and MOO mail) makes the exchange of draft and reformulation readily feasible; and not least because it provides an asynchronous dimension to a pedagogical framework that is otherwise wholly synchronous. That is, a reformulation task gives individual learners time to work reflectively, in-depth and meaningfully with their target language in a way that is not possible in the more pressurised setting of synchronous MOO communication. But the model elaborated in this study stresses the importance of interpersonal interaction in the development of metalinguistic understanding. For this reason, the task as implemented in the MOO would have to have a dialogic dimension that is not emphasised in Thornbury's account of reformulation.

The writing/reformulation task as adapted for use in the MOO tandem setting differs from the simple version described above in three ways. First, the role of 'teacher' is taken by the native-speaker partner. Second, the writing topic is decided by negotiation between the partners in the MOO, who may each choose a different topic. Third, partners must discuss the reformulations made to each of the texts. This last adaptation is intended to add the crucial dialogic dimension to the task. It is also hoped that it has a washback effect – if learners know they must discuss the reformulations they make to their partner's text, perhaps they will attend more closely to their (partly intuitive) reasoning as they make their changes, thus operating at a more metalinguistic than intuitive level. Of course, if it happens at all, the effect of this washback will be on the partner reformulating a text in his/her L1, so it might appear at first glance that there is no L2 learning benefit. But in tandem learning, each partner is a speaker of both languages, and it is an inevitable factor in learning a second language that one views the target language in part through the lens of the mother tongue (Little & Ushioda, 1998b). To employ another metaphor, one's metalinguistic conception of the first language may function as a coordinate grid for reflection on the second language. Advocates of the grammar-translation approach may not have

been wrong in supposing that explicit comparisons between the first and second languages are an enabling factor in second language learning. If this reasoning is sound, it accounts for Appel's (1999) finding that learners perceived as much learning benefit in correcting their tandem partners' e-mails as in receiving corrections to their own. Likewise, there may be as much benefit in reformulating a non-native text in L1 as there is in examining the native-speaker reformulation of one's own L2 effort. But however the washback effect may benefit the reformulation process itself, the principal intention is that discussion of the reformulation will bring linguistic matters relating to L1, L2 and the relations between them, into sharper focus than would be the case if there was no such culminating activity.

The task specification as given to the TCD group is attached as Appendix A. It was scheduled to run over three of the weekly sessions, which will hereunder be designated A, B and C. In Session A, partners were to decide on a topic or topics on which to write a 100-word L2 text. It was suggested that the topic should be controversial, so as to stimulate interest and provoke discussion. Partners were also to begin eliciting L2 resources from each other in this session, especially vocabulary, and were reminded that they could refer back to the session log when writing their text. Session B was devoted to discussion of the topic *per se*, giving an opportunity to clarify ideas as well as to glean further linguistic raw materials from the native speaker partner's utterances. Between sessions B and C, the L2 drafts were to be exchanged and each partner was to reformulate the other's text 'in [English/German] that a native speaker would use' (the words of the task specification), but without comment. Session C was devoted to discussion of reformulations, with native speakers attempting to explain the rationale behind their changes and non-native partners seeking clarification as necessary.

4.3 Methodology

4.3.1 Research on computers and language learning – broad considerations

A debate has emerged in recent years concerning research paradigms and the field of computer-assisted language learning (CALL). Chapelle (1997)

pointed out that it has become a commonplace to assert that many diverse fields are relevant to CALL, including computational linguistics and natural language processing (NLP), interface design, instructional design, and educational technology. The implied, and sometimes explicit, corollary of these claims is that research in second language pedagogy and acquisition is no more crucial than any of the other fields, or even that it is too fragmented and its findings too uncertain to be directly applicable to CALL.

One prominent advocate of a related position is Michael Levy (e.g., 1997; 2000; 2001). Levy holds that the development of CALL applications and of the field in general ought to be a 'bottom-up' process: it is through working with specific technologies, developing pedagogical applications and evaluating them that we develop initial heuristics that will in the fullness of time intersect with larger theories of various kinds. Chapelle disputes this (1997; 1998; 1999), advocating instead what Levy calls a 'top-down' approach. That is, she holds that the research agenda should not be in thrall to speculative or heuristic processes, nor should it be determined by any of the various other related fields. Rather, it must be led by L2 classroom research and SLA theory, which she believes have converged adequately on a conception of language learning emphasising the role of input, output and interaction. The distinction between 'research-then-theory' and 'theory-then-research' approaches is well known; the CALL debate centres on a variation of that theme, namely, 'research-and-development-then-theory' vs. 'theory-then-research-and-development'.

But perhaps the debate is not even relevant to present concerns. The empirical part of this study is concerned with the use of computer-mediated communication (CMC) in language learning, and there is some room for doubt as to whether CMC counts as a form of CALL. Chapelle (2000) points out that '[f]rom the perspective of second language acquisition, it is significant that learners often interact with a computer program in pre-network CALL activities, but they usually interact with other people in NBLT [network-based language teaching] activities' (p. 204). She ultimately concludes, however, that 'at least for the time being, it is useful to consider network-based learning within the scope of CALL' (p. 222). More pertinently, the focus of the present study is quite

different from much CALL research in the ordering of its priorities. In concerning itself first and foremost with theories of language learning rather than with characteristics of the technology, it is very much in keeping with the 'top-down' approach advocated by Chapelle. The purpose has not been *primarily* to evaluate MOOs as a CALL environment; rather, we have started from speculations and models in SLA, and when we now turn to CMC it is to consider it as one of many possibly beneficial settings for implementing a pedagogy in the light of the model elaborated. But I do not see the top-down (theory-driven) and bottom-up (empirical research- or technology-driven) approaches as being dichotomous: they seem likely to complement one another. This is simply one kind of research among many that relate to both language learning and computer technology, and it focuses on one application of computer technology among the limitless numbers of such applications. The immense range of possibilities for CALL applications and for research approaches within CALL reinforces an argument made by David Little (personal communication): that CALL is not in fact a research field, any more than French Studies is a research field. It is an umbrella term for an organisationally convenient grouping of otherwise disparate research focuses. In the same vein, Chapelle warns against adopting 'the faulty assumption that the computer itself constitutes a method of instruction' (Chapelle, 2000, p. 212). She cites Doughty (1992) as arguing that

> CALL activities should attempt to operationalize those features that are theorized to facilitate instructed SLA. The object of investigation, then, changes from the effects of the computer to the learners' interactions and outcomes involving particular features. The challenge in this promising line of research […] is to identify the features that should be developed in CALL activities and to identify appropriate methods for investigating their effects. (Chapelle, 2000, p. 212)

This conception of research comes close to that adopted in the present study. However, the 'features' Doughty speaks of (as paraphrased by Chapelle) appear to be 'structural' features of tasks or activities only (ibid.); this seems to me to downplay rather too much the role of features of the technology. In designing pedagogical applications of computers, and in designing research into those applications, it is surely crucial to give a central role to the interaction between characteristics of the medium and the desired features of the pedagogy (whether

'pedagogy' is understood narrowly as referring to tasks/activities or to a broader framework like tandem learning). Once we accept that research, development and theory must be guided by concern with both the characteristics of the medium – such as 'interactive multimedia', intelligent tutoring systems or CMC – and by medium-independent theories of second language learning, then we are approaching a middle way between the heuristic, technology- and design-focused approach advocated by Levy and the theory-driven, medium-independent and top-down approach championed by Chapelle.

In Chapter 1 we critically reviewed research that has been conducted in the sociocultural/Vygotskian paradigm. Much of this research aspires to a holistic picture of dialogic interactions among learners that should do justice to the complexity of the social context within which learning takes place – which is, indeed, the crucial locus of learning in many construals of Vygotskian theory. This approach is contrasted by its advocates with the supposed reductionism of much mainstream classroom research, where linguistic phenomena are classified, exemplified and tallied, and the organic richness of dialogue is neglected (it is argued) by a too-narrow focus on individual utterances or individual exchanges considered as types rather than unique social episodes. However, it was noted in Chapter 1 (p. 18) that in practice, at least some ostensibly Vygotskian research ends up focusing on individual utterances as evidence of notions such as object-, other- or self-regulation. Though the data is interpreted through a Vygotskian framework, the methodology remains quite similar to discourse-analytic classroom research. This paradox highlights the difficulty of employing doggedly qualitative methodologies while simultaneously attempting to reach generalisable conclusions. It is undoubtedly the case that there is much that we can learn about learning by examining complex constellations of social, individual-cognitive and affective factors that are bound up in the phenomenon of learning dialogue, and that thoroughgoing qualitative research must play an important role in such an analysis. However, it does not serve us to take an undifferentiatedly holistic approach to dialogue. The various factors must be teased apart, the nature of their interactions theorised, generalisations made: in

short, this complex phenomenon must be analytically *reduced* and dealt with in terms of appropriate units of analysis before it can become tractable to research.

The discussion thus far leads us to conclude that (i) research on technologies in language learning needs to be guided by the insights of second-language theory; that (ii) notwithstanding this, development and evaluation of computer applications in language learning should be constrained by the unique features of the technologies in question: research in particular must focus on the match between such features and the goals of the pedagogical approach; and that (iii) a Vygotskian approach, like research in any strongly qualitative paradigm, can aspire to generalisability only if it first engages in some degree of reductive, probably quantitative analysis – which by no means implies an abandonment of commitment to more holistic methods.

Our model of instructed SLA identified two areas in which Vygotskian theory can shed light on processes of language acquisition (indeed, of learning in general). In the social domain, dialogue *which explicitly concerns the object of learning* can serve to mediate learning: by the sharing and mutual re-shaping of interlocutors' understandings; by requiring individuals to focus consciously on their understandings, the better to make them explicit; and by the dynamic, facilitative support that one interlocutor may give to another in reaching new kinds of understanding (scaffolding). In the individual-cognitive domain, a Vygotskian dialectic accounts for the interaction of endogenous, spontaneous knowledge with socioculturally-mediated scientific knowledge and the consequent emergence of mature knowledge; i.e., knowledge that is both anchored in personal experience and systematised through interaction with external, sociocultural knowledge, and is thus flexible, generalisable, explicit, available for conscious reflection, and personally meaningful. In second language learning, these two perspectives explain why metalinguistic reflection and metalinguistic dialogue are vitally important.

The pedagogical feature that is considered of primary interest for our purposes, then, is metalinguistic behaviour: discourse episodes that evidence such behaviour – hereunder *language-related episodes*, in a broader sense than that of Swain (2000) or Fortune and Thorp (2001) – will constitute the primary units

of analysis for the investigation. In Chapter 3, it was hypothesised that real-time text-based communication offers opportunities for metalinguistic reflection that are more salient than in other settings, and that tandem language learning provides a framework within which authentic L2 communication can be combined with a pedagogical and metalinguistic focus. The goals of the empirical study, accordingly, are to describe metalinguistic behaviours in an online, text-based environment, and as far as possible to relate the character and patterns of occurrence of these episodes to features of the medium and of the tandem framework. The appropriate methodology for such an enterprise is focused description (Larsen-Freeman & Long, 1991), where the primary aims are data classification. One expects such research to be suggestive of generalisable conclusions, but findings will be tentative and admittedly influenced by the theoretical orientation. It is clearly not the intention to establish causal relations between medium, pedagogy and behaviour and, as was pointed out at the beginning of the chapter, it is still less possible to attempt to corroborate the theoretical model.

Negretti (1999) articulates the view that methodologies closer to the qualitative end of the continuum should be used to generate hypotheses for future, more quantitative research:

> Given the present state of SLA research in Internet-based environments and computer mediated communication, a heuristic-inductive approach such as CA [conversation analysis] is the most useful and fruitful because such a hypothesis-generating method is a good way to begin the study of new interaction/acquisition situations. A qualitative approach can facilitate a preliminary understanding of broad new perspectives that Internet technologies open to SLA and communication. Since it does not establish research questions *a priori*, any variable of the context may become the focus of investigation even though qualitative research methods are more frequently used in SLA research today. (p. 76)

Conversation analysis is an approach that is longer established and has a more firmly-rooted analytic apparatus than Vygotskian approaches to dialogue, but it is likewise highly open-ended. While I sympathise with the view that we must be open to the identification of phenomena that are peculiar to new media, it seems to me that we must begin from a perspective rooted in second-language research. Descriptive studies seem to me to provide two cornerstones of further research: reliable descriptions of learner behaviours that we believe to be

pertinent to second language learning – these may well provide a necessary framework for any subsequent qualitative or quantitative research; and, in the form of their tentative findings, landmarks by which to orientate future work.

4.3.2 Data sources, instruments and analysis

The primary data source for the study is a corpus of MOO transcripts (logs) from the 2000-2001 Dublin (TCD)-St.-Augustin (FHRS) tandem exchange. Transcripts were collected for six of the nine weekly sessions, namely, the three sessions in which the writing/reformulation task was carried out (designated Sessions A, B, and C – see p. 154), along with the session before the task started (Session 0), and the two sessions after the conclusion of the task (Sessions Y and Z). Transcripts are automatically generated and mailed to each user upon logging off the MOO. They are digital text files that include nearly all text that appears on the user's screen, whether generated by the user himself or by other users. (Exceptions to this are any 'public announcements' made by MOO administrators, and communications sent by the user to MOO participants in a different room, called 'page' commands.) With the consent of students, each transcript was simultaneously and automatically mailed also to the researcher.

Transcripts are directly-observed, as opposed to reported, performance data of a unique kind. For the purposes of analysis, potentially pertinent aspects of dialogue include both the environmental context and any information conveyed by whatever means – linguistic, paralinguistic, gestural, kinesic, etc. In the MOO environment, all aspects of the communicative situation are represented as text and are captured in the transcript. There is no alternative channel of communication between physically separated MOO participants that is unavailable to the researcher. It is thus possible to recreate almost the entirety of the MOO participant's experience by studying the transcript of his or her session. I say 'almost' because there are two elements that are not recorded. First, there is the physical, as opposed to virtual, environment – in this case, the environment of the computer laboratory, in which a certain amount of communication also takes place. Users' awareness of the physical setting and its influence on their behaviour is not clear, but for present purposes we can

justifiably regard this as a parallel communicative setting that impinges minimally on the online communicative interactions and is thus of little interest to us. The second elusive element is the unfolding of discourse in time; transcripts give no indication of how much time elapses between the appearance on screen of each communicative turn. This is a salient part of the MOO experience: a rapid dialogue can induce a sense of pressure, particularly if one is using L2, while a slow dialogue can lead to boredom or frustration. In extreme cases, one may even wonder whether one's interlocutor is still logged on to the system, and if he is, whether he is still attending to the communication. But it is not evident that such factors substantially influence the nature of interactions. In summary, then, transcripts of textual communication like these, in contrast to transcribed speech, allow us to capture nearly all aspects of the communicative setting that are pertinent to the participants. This kind of data collection has the further merit of being minimally intrusive. Although participants are aware that transcripts are being collected for research purposes, and although they occasionally refer to this fact, in the absence of microphones, cameras, hovering researchers and so forth, it seems unlikely that this influences their behaviour greatly over the course of several hour-long sessions in comparison with the more obtrusive apparatus involved in collecting speech data.

The research does not fall neatly into either of Larsen-Freeman and Long's (1991) categories of classroom and naturalistic settings. In some senses we are dealing with a classroom setting: the purpose of a tandem exchange is pedagogical, and on both sides, it is a part of the students' courses and takes place regardless of whether a study is being conducted. On the other hand, most of the usual characteristics of the classroom situation – for example, plenary input from a teacher and highly structured allocation of time to overtly pedagogical activities – are absent in the tandem situation, where partners enjoy great freedom to do as they wish with their time, normally with no intervention whatever from either teachers or peers.

In regard to the related distinction between elicited and natural (spontaneously-occurring) data, the situation is clearer: the transcript data is unambiguously spontaneous, with no effort made to generate particular kinds of

language or interaction for the purposes of the study. It is true that the writing/reformulation task sought to channel students' attention and shape their interactions in certain ways, but this was done primarily for pedagogical rather than for research purposes.

Two broad kinds of linguistic occurrence were identified in the transcript and marked up accordingly: *exchanges* of various kinds (see list below), which comprise at least one turn from each of at least two partners; and metalinguistic *utterances* (usually corresponding to a single *say* command). Each exchange was further subclassified as follows:

1. negotiation
2. metalinguistic
3. text-discussion
4. task-oriented
5. cultural
6. organisational

We will be concerned only with the first three of these. *Negotiations* in my framework are considered a type of metalinguistic exchange, but are considered separately since they constitute the largest single category for analysis. The *metalinguistic* category encompasses various kinds of native-speaker feedback on linguistic form, notably error-correction, and any other kind of language-focused discussion except *text-discussions*: these are the dialogues that constitute the final phase of the writing/reformulation task, and they took place only in Session C.

Each entity tagged as an utterance was simultaneously marked up with at least some of the following information, only a subset of which will concern us:

- Speaker's L1 (*German* or *English*)
- Utterance language (*L1*, *L2* or *Both*)
- Utterance dependence (*Embedded* within an exchange or *Free*-standing: this was technically necessary for tallying purposes)
- Metalinguistic function (one of *Repair*, *Correction*, *Response to correction*, *Generalisation*, *Self-diagnosis*, *Cue*, *Failure signal*, *Response to signal*, *Re-use of L2 input*)

- Target entity (i.e., what a metalinguistic utterance refers to: another *Utterance*, a *Text*, or the language *System* as a whole)
- Language referred to (*L1*, *L2* or *Both*)
- Metalanguage used (*True* or *False*)
- Affective function (*Neutral*, *Self-critical*, *Other-critical*, *Self-justificatory*, *Face-saving*)
- Level of (linguistic) analysis (*Generalised*, *Sociolinguistic*, *Discourse*, *Idiomatic*, *Pragmatic*, *Sentence-semantic*, *Lexical-semantic*, *Lexical selection*, *Morphosyntactic*, *Orthographic*, *Null* (i.e., not applicable))

Utterances referring to a lexical level of analysis were further classified as open- or closed-category (i.e., referring to content or to function words), and then with further category details as appropriate, but this information is not used in the current study.

The directly observed performance data of the transcripts forms the basis for the analysis of metalinguistic behaviour. It was supplemented in various ways, however: with interviews, a questionnaire, online student diaries, and the texts and reformulations produced in the course of the task. Online semi-structured interviews were used to elicit reports from a sample of 15 students, twelve Irish and three German. The core questions (contained in Appendix B) dealt with the experience of interacting in the MOO in general and also with the writing/reformulation task specifically. The intention was to gather evidence concerning moment-by-moment processes in MOO interaction – such as whether students re-read their utterances before and after transmission – and about medium-influenced strategic considerations such as whether they attended more or less to accuracy in MOO interaction than they typically did in class. This data cannot be considered highly reliable, being both introspective and retrospective. The danger with such elicitation techniques, as McLaughlin (1990a) notes, is that 'Subjects' reports may derive more from what they think they should have been doing than from what they actually were doing' (p. 629). But the alternative was a think-aloud or similar technique for actually eliciting self-report during the process of communication, and it is clear that this would

constitute an immense interference with natural communication and the ecological validity of the study. Section 5.3 draws on some of this data and though the conclusions are tentative, we shall see that they are also highly suggestive and yield an interesting framework for considering opportunities for reflection in media and technologies.

All students were asked to complete a questionnaire (see Appendix C) whose main focus was evaluative; this is drawn on only in relation to the effectiveness of the task discussions. In addition, the writing/reformulation task specification asked learners to fill in an online diary, also available to the researcher, after each phase of the task, which provides a further form of introspective data. Finally, students were asked to mail their texts and reformulations to the researcher as well as to their partners, thus providing performance data of another kind.

There is clearly a wealth of data sources, then; however, for present purposes it has been decided to concentrate heavily on the transcript data and the evidence of metalinguistic behaviour found therein. Other data sources will for now be drawn upon only where they seem to shed further light on issues raised by this primary data source, though they may be investigated more closely in future research.

4.4 Preliminary measures: Participation and interaction

Analysis will begin with broad measures of participation, attendance, group formation, interactional style and language balance. While these are of little general theoretical importance, they are a necessary background that affords a sense of how this particular tandem exchange actually operated and facilitates understanding of the practical reality of tandem exchanges. Exchanges are difficult to organise and sustain and they diverge in various ways from the ideal of the online tandem exchange as outlined above, in which, for example, partnerships are stable across sessions, each learner has only one partner, and partners turn up for all sessions. The following descriptive characterisation, then, is intended to provide a backdrop against which the subsequent more detailed and theoretically-oriented analysis should be considered. But they also

provide baseline data for some of the measures in those sections. The focus of the descriptive analysis will successively narrow, beginning with the level of participation metrics and attendance trends, through partnership stability, to interactional style and language balance.

4.4.1 Participation, attendance and partnerships

MOO characters were created for 35 students of English in FHRS and for 28 students of German in TCD. Each of 34 FHRS and 26 TCD students was present in at least one of the sessions in which data were collected; hence we are concerned with 26 tandem partnerships and eight unpaired German students. Each of these eight unpaired students was invited to join an existing partnership for the duration of the exchange. Similarly, any student whose assigned partner was absent in a given session was invited to join another pair for that session. Consequently, meetings of three or more students are common in the data; FHRS students predominate in all but one of these multilateral meetings.

It was noted above that one FHRS student denied the researcher permission to use transcripts of meetings in which he was involved. This student participated in meetings of other pairs, with the result that the transcripts of these meetings have not been read or analysed in any way. This means that in those sessions where this student was present there is a maximum of 25 tandem meetings available for study.

Table 4.2 and Figure 4.11 show attendance at the recorded sessions in terms of overall student numbers.

	Session 0	Session A	Session B	Session C	Session Y	Session Z
FHRS students	32	30	25	30	28	21
TCD students	23	25	19	24	14	14
Total students	55	55	44	54	42	35

Table 4.2: Attendance at recorded sessions

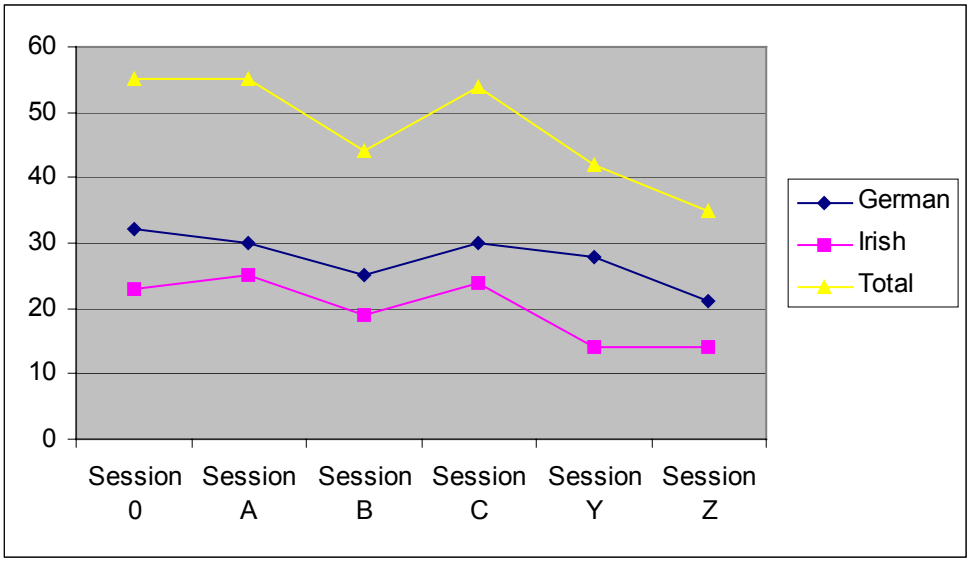

Figure 4.11: Attendance at recorded sessions

Weekly activity in the sessions can alternatively be characterised in terms of number of meetings per session, which, predictably, correlates strongly[21] with the preceding attendance figures:

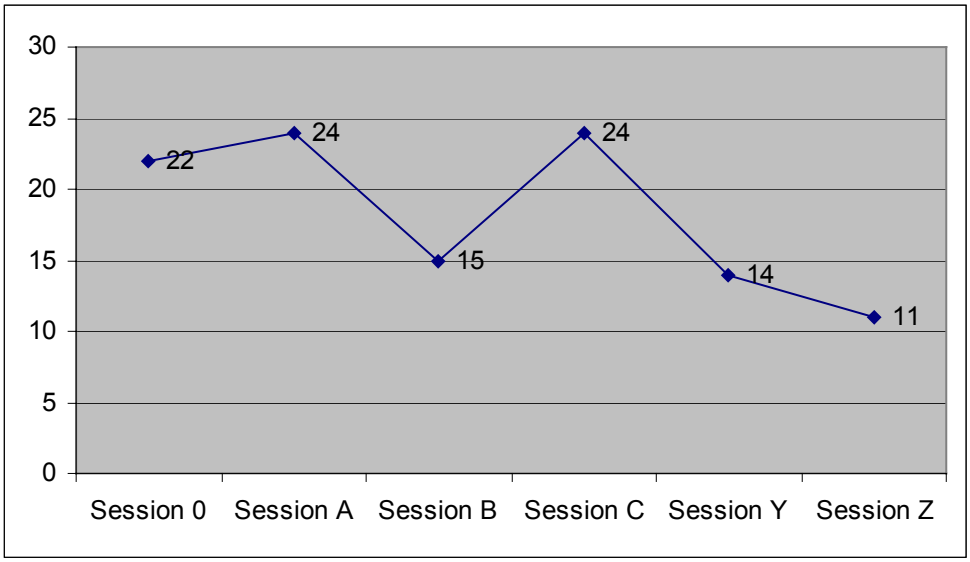

Figure 4.12: Number of meetings

The sharp fall-off in attendance in the last two sessions seems readily explicable. First, the timeframe for the writing/reformulation task being past,

[21] Though not perfectly: absenteeism can lead to significant numbers of partnerless students. Some of these, as noted, joined existing meetings, but others wandered alone through rooms, communicating sporadically or not at all, and/or quit the MOO early.

there was no required activity for these sessions. Second, these were the last sessions of the pre-Christmas academic period (corresponding to a term in TCD), and deadlines for submission of coursework, combined perhaps with end-of-term fatigue, may have caused some students to opt out of classes that did not seem centrally important. The reason for the drop at session B is less clear. It is impossible to rule out factors unrelated to the MOO exchange, but since the fall-off is about equal on both sides of the exchange, it seems unlikely that any such factors were predominant. A more plausible explanation is that the activity prescribed for this phase of the task – recall that this was the second of the three writing-task sessions – was not clearly enough defined, and possibly perceived as being superfluous.

At first glance, Figure 4.13 and Figure 4.14 (below) seem to show a striking difference in individual attendance scores – i.e., in terms of number of sessions attended – between the German and the Irish students (percentages represent a proportion of the relevant cohort, integers the number of sessions attended):

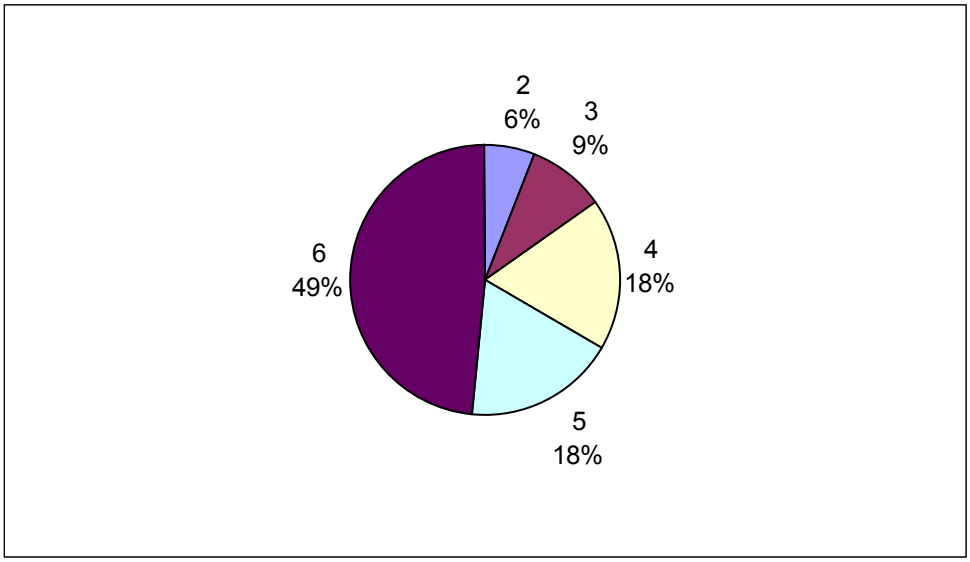

Figure 4.13: FHRS attendance scores (frequency distribution). Integers denote number of sessions attended, percentages represent proportions of students who attended the corresponding number of sessions.

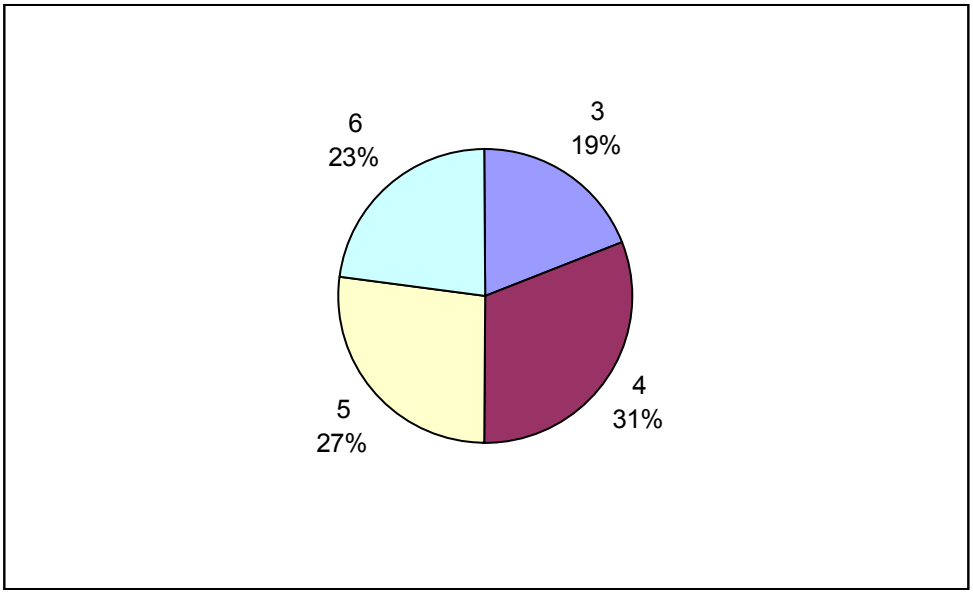

Figure 4.14: TCD attendance scores (frequency distribution): Integers denote number of sessions attended, percentages represent proportions of students who attended the corresponding number of sessions.

The most salient aspect of these charts is that almost half of the German students attended all the recorded sessions while less than a quarter of the Irish students did. This might be interpreted as indicating greater commitment, on the average, on the part of the FHRS students. However, attendance need not be a function of commitment. There might conceivably be a generally greater culture of attendance at compulsory classes in the German institution than in the Irish one, for example, or sanctions for non-attendance might be more severe, or more strictly enforced. And in any case, a slightly different analysis of the data shows greater similarities than at first glance: the difference in proportions of German and Irish students attending five or more sessions is much less substantial (67% FHRS, 50% TCD), and the proportions attending four or more sessions are very similar (85% FHRS, 81% TCD).

But we must consider what the difference in full-attendance figures means in practice to a tandem partnership. Missing even a single session – particularly if it is in the middle of the term, and still more especially if it is a designated task session – can be highly disruptive on the pedagogical and organisational levels. It may also prove disruptive to personal relationships, and the student more likely to feel let down is the one left partnerless in the MOO. Clearly, more German

than Irish students found themselves in this situation at least once, and we can therefore expect to find more absenteeism-related disaffection among the German group.

As noted, the target pattern in most tandem exchanges – and more so in this one given the nature of the writing/reformulation task – is that each partnership should comprise just two learners, and that these should meet regularly. As noted also, this is a difficult target to meet, given the usual discrepancy in group sizes and the typical attendance patterns among students. Figure 4.15 should give a sense of the degree of divergence from the ideal in the TCD-FHRS exchange:

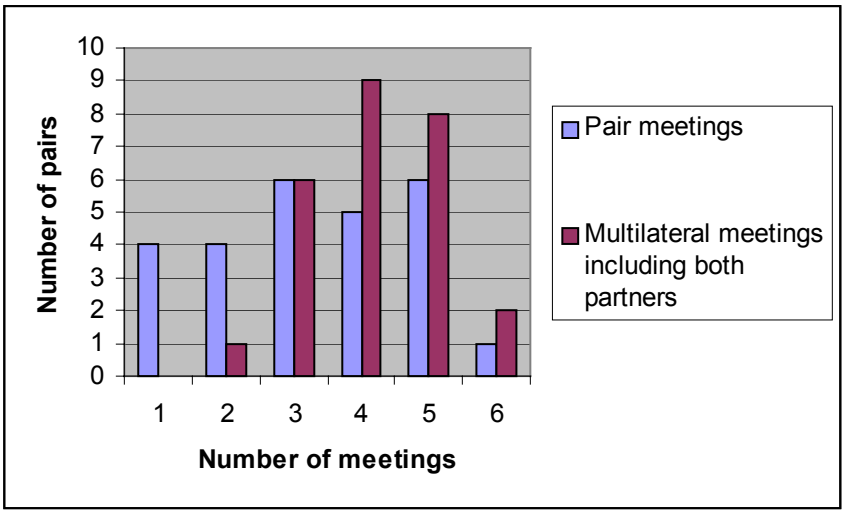

Figure 4.15: Distribution of pair and bilateral meeting scores

The first series represents pair meetings, which I define as meetings in which only established partners were present, with no third parties contributing significantly to the interaction (though it is not uncommon for stray students to pass through a room momentarily in silence or with minimal interaction). There were only 26 such 'pure' meetings, from of a total of 110 meetings in the six recorded sessions. Only one partnership had a pair meeting in all of the six sessions, while less than half of the partnerships (12 of 26) had four or more pair meetings.

The second data series in the chart represents multilateral meetings, which are those in which both established partners were present, with optionally one or more others also present. This gives a more positive impression of pair

stability: 73% of partnerships met four or more times in the recorded sessions, and only one partnership failed to meet more than twice. The relevant proportions are illustrated in Figure 4.16:

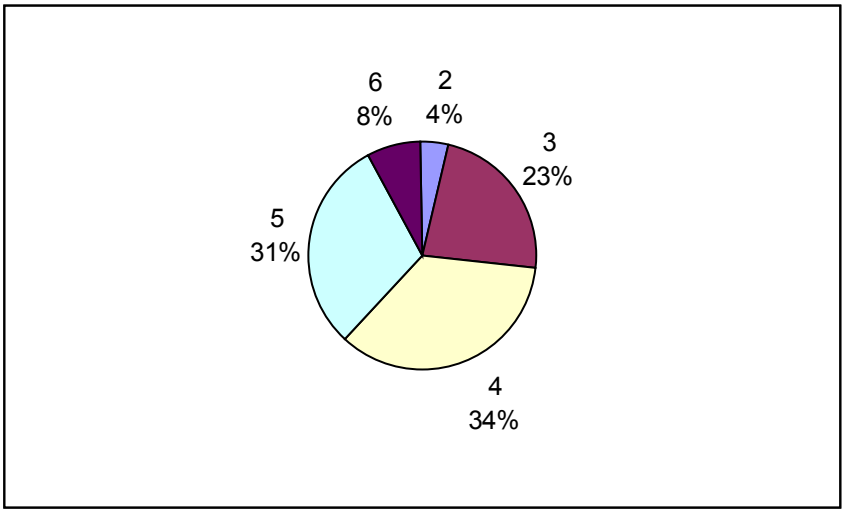

Figure 4.16: Distribution of multilateral meetings proportional to total number of partnerships. Integers represent the number of multilateral meetings, percentages the proportion of students attending the corresponding number of multilateral meetings.

4.4.2 Interactional style

The mere fact that a MOO meeting takes place does not, of course, mean that useful interactions are going on. We will look at the quality of interactions later; here we focus on the quantity of language that is produced, which of course has a bearing on the amount of learning that can in principle take place. MOO discourse can vary in terms of how much gets said in the course of a meeting, which is a function of at least three factors, themselves interrelated: the real-time speed with which the dialogue unfolds; the average length of utterances for each partner; and whether conversational turns correspond to 'say' commands or are broken down into phrases or smaller strings.

The first of these factors, *interaction speed*, is the only variable in MOO discourse that is salient at the time of interaction but not readily re-constitutable from transcripts. We might define interaction speed as the number of utterances in a meeting divided by the duration of the meeting from greeting to leave-taking, defining *utterance* in turn as any string generated by a single 'say' command. Interaction speed is itself a function of what we will call *turnaround*,

which is the average time lag, within a given meeting, between participants' turns. Turnaround is an important determiner of one's subjective experience of a MOO meeting. When participants find themselves waiting a long time for responses, they may wonder whether their own last utterance has somehow got lost in transmission, or been overlooked, or whether the partner is busy composing a lengthy response. While waiting they may get distracted from the MOO conversation, engaging in other computer tasks or face-to-face conversations, or even leave the computer temporarily. On the other hand, if one's partner responds rapidly, it may seem necessary to match his or her turnaround rate, resulting in a sense of pressure to keep the dialogue moving along, with minimal gaps.

But while we can readily count the number of utterances in a meeting (see below), measuring meeting duration from transcripts is an intractable problem. All transcripts bear time-stamps indicating, to hundredth-of-a-second precision, the time at which the learner logged on and logged off. However, logging-on time often does not correspond to the time at which a dialogue begins: learners have to wait for latecoming partners, or they take time locating them within the virtual environment. There are thus no direct indications of the actual duration of the dialogue. Nor can turnaround be measured directly: since individual communication commands are not time-stamped, at the level of the adjacency pair (two-turn unit), transcripts yield no evidence of turnaround, which can vary between fractions of seconds (typical of dialogues composed of many short utterances) and minutes (dialogues with longer utterances, or dialogues that are perceived as phatically difficult, with partners struggling to find things to say). Important though this factor clearly is, then, we must resign ourselves to the fact that we cannot reconstruct this dynamic dimension of MOO interaction from static transcripts.

As noted above, though, it *is* possible to count the number of utterances in a meeting. Other things being equal, this measure correlates both with the rhythm of the meeting and with the total amount of language generated and received, both prominent aspects of the participant's subjective experience. Keeping to the foregoing definition of a MOO utterance as 'any string generated

by a *say* command', we can easily count the number of utterances in a meeting, and then divide by the number of participants to arrive at an average number of utterances per learner for a given meeting. Consolidating across all sessions we arrive at the following frequency distribution for number of utterances per learner in all meetings (category labels represent the midpoint of intervals, e.g., 35 means 'between 30 and 40 utterances per learner'):

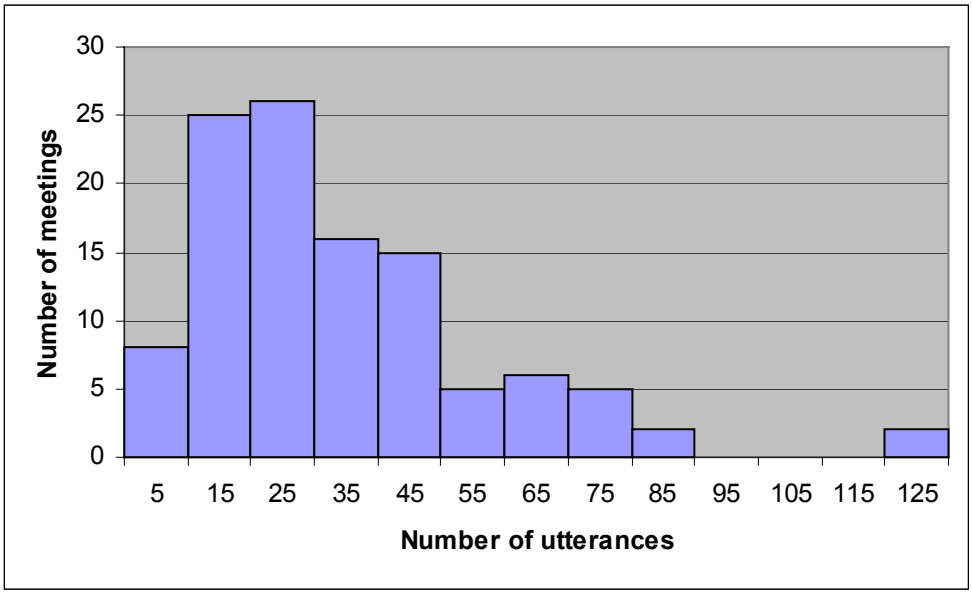

Figure 4.17: Utterances per learner - frequency distribution across all meetings in all sessions

The distribution is positively skewed with the mode at the 20 to 30 utterances-per-learner interval, and similar patterns are found in four of the six sessions, one notable exception being Session C with a strong mode at 40 to 50 utterances per learner. The positive skewness is exaggerated by an outlier in the 120-to130 interval, which represents just two meetings, of two different partnerships, with an average of 125 and 129 utterances per learner.

Figure 4.18 is an alternative representation of the same data which highlights the proportions of these class intervals:

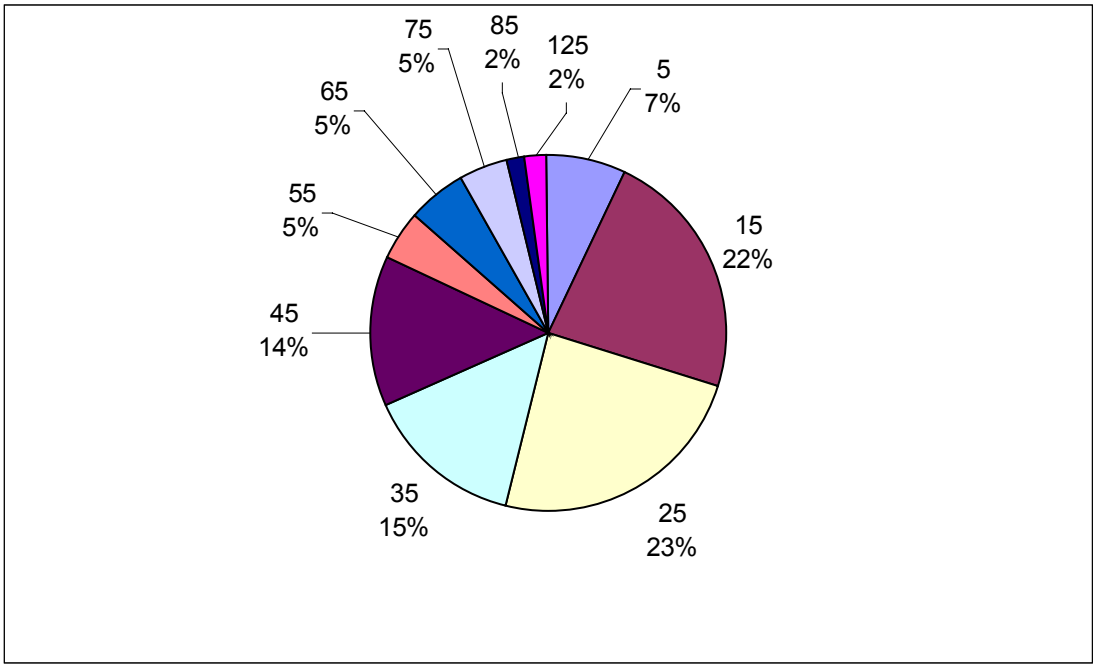

Figure 4.18: Utterances per learner across all meetings in all sessions: proportional

It can be seen that the broader interval of 20 to 50 utterances per learner (the segments labelled with the midpoint values 25, 35 and 45) includes just over half of the meetings in the study (52%), and a further 19% of meetings had over 50 utterances per learner. However, it remains the case that in a substantial proportion of meetings (29%), learners produced on average under 20 utterances.

It was suggested above that this measure, average utterances per learner, has psychological validity in the sense that it corresponds to a parameter of which a participant is likely to be aware. But from a language-learning point of view it does not necessarily correspond to the quantity or quality of input or output, simply because low utterance-per-learner scores may indicate a tendency to produce fewer, longer, and therefore possibly more complex utterances. Conversely, we might expect to find a high proportion of very short utterances in meetings with very high utterance-per-learner scores.

Unfortunately, for technical reasons having to do with the format of the transcripts, it is not straightforward to calculate the number of words in each utterance, and it was not possible to measure this for all 110 recorded meetings. Instead a sample was taken: average utterance length was measured for one

randomly selected meeting in each of the ten class intervals represented in Figure 4.17. This measure is tabulated against total number of utterances in Table 4.3.

Partnership ID / Session ID	Mean utterances per partner	Mean words per utterance
14/A	8.5	27.59
11/0	19.5	15.36
7/C	21.5	16.65
3/A	30.5	19.08
12/Z	47	7.11
8/B	50.67	9.82
9/0	69.5	7.63
23/A	74	5.72
1/0	80	8.23
17/A	125	4.87
Spearman's rank correlation coefficient $r_s = -0.83$ Significant at $p < 0.005$		

Table 4.3: Total utterances and mean words per utterance for each of 10 meetings

The highly significant negative correlation between number of utterances in a meeting and number of words per utterance justifies the prediction that, on average, the fewer turns taken in a meeting, the longer and more complex the utterances will be, and *vice versa*. This corroborates previous findings by Cherny (1999).

A further question that needs to be asked is: what determines the variation in the number of utterances per meeting? There are two obvious candidates. The first is session: perhaps earlier sessions are associated with more (or with fewer) utterances, regardless of partnership, or perhaps certain task sessions – A, B and C – led to more or fewer utterances. The second is partnership: perhaps certain partnerships can be characterised by the number of utterances typically produced in a meeting. This question has been addressed by examining data from all partnerships in which at least four pair meetings remained after elimination of meetings where at least one partner was clearly late, as established through transcript time-stamp. This data is tabulated in Table 4.4:

Partnership ID	Session 0	Session A	Session B	Session C	Session Y	Session Z	*Range*
14	9.5	8.5		11.5	8		*3.5*
11	19.5	18	22	17.5			*4.5*
5		11.5	10.5	16.5	11	11	*6*
21	28.5	27.5	21		22.5		*7.5*
12	50	38.5		48.5	49.5	47	*11.5*
6		26	17.5	21	21.5		*8.5*
22	31.5	23		44.5	31	30	*21.5*
9	69.5	59	57	46.5			*23*
1	80	48.5		64	68.5		*31.5*
25		47.5	61.5	42	30.5	26	*35.5*
Range	*70.5*	*50.5*	*51*	*52.5*	*60.5*	*36*	

Table 4.4: Utterances per learner per meeting: range across sessions and across partnerships

It can be seen that the range of utterances-per-learner in each session is high: all sessions except Z have a range of more than 50; while on the other hand the range in each partnership across sessions is typically low, both in relative terms – maximum range 35.5 among learners as against minimum 36 among sessions – and in absolute terms – five of the ten partnerships in the sample vary from one week to the next by fewer than 10 utterances per partner. I conclude that average utterances-per-learner is best regarded as a typically stable attribute of a MOO partnership.

Taking these last two observations together – utterances per learner is a partnership variable, and number of words per utterance correlates inversely with number of utterances per learner – it follows that partnerships can be meaningfully characterised by a particular conversational style, along a continuum ranging from [few, long and complex utterances] to [many, short and simple utterances].[22]

[22] From the assumption that mean length of utterance is the prime determiner of number of utterances per meeting, we can discount the possibility that utterance turnaround is an important independent variable between partnerships. Clearly it will vary, but this variation will be linked to mean length of utterance.

4.4.3. Language balance

The evidence so far has shown the contours of the exchange as regards overall participation and richness of interaction, which are clearly matters of significance to a collaboration-based pedagogy. Central to any language pedagogy, though, is quantity of L2 input and output, and this is the final descriptive statistic we will examine. It was noted in the discussion of tandem learning that both learners' languages should be represented about equally in interaction, a tenet that is sometimes called the 'principle of bilingualism'.

It is difficult to choose a valid metric for language quantity in the case of a MOO. In face-to-face situations one might measure time spent on each language, on the assumption that input and output processing time are related to acquisitional processes. But we have seen that MOO transcripts offer only the crudest clues about the passage of time. The alternatives seem to be number of words, number of clauses, or number of utterances. This last is the metric that is used here, for two reasons: first, for compatibility with the other meeting-internal metrics previously established (total utterances, average utterances per learner); and second, for the simple reason of feasibility. Counting utterances is perhaps a somewhat rough and ready procedure, but we shall see that in the case of these particular data a more sensitive measure would add little to the insight it affords.

Counting English and German utterances in the entire transcript corpus is not feasible. A sample of 47 meetings was chosen instead: these were all the meetings of partnerships which had at least four one-to-one meetings (a superset of those meetings sampled for the previous measure, average utterances per learner; the current sample does *not* exclude those in which one or both partners were late). The language balance across partnerships, sessions and both is tabulated in Table 4.5.

Partnership ID	Session 0		Session A		Session B		Session C		Session Y		Session Z		*Summed across sessions*	
	EN	GE	EN	GE	EN	GE	EN	GE	EN	GE	EN	GE	*EN*	*GE*
14	15	4	11	6			23	0	16	0			*65*	*10*
11	32	7	32	4	33	11	33	2					*130*	*24*
5	17	9	16	7	19	2	33	0	21	1	18	4	*124*	*23*
21	36	21	21	22	35	7			45	0			*137*	*50*
12	66	34	51	28			97	0	99	0	69	25	*382*	*87*
6			31	21	34	1	42	0	43	0			*150*	*22*
22	48	15	33	13			81	8	4	58	59	1	*225*	*95*
9	135	4	118	0	104	10	93	0			62	2	*512*	*16*
1	111	49	71	26			118	10	127	10	33	0	*460*	*95*
25			56	39	106	17	84	0	61	0	51	1	*358*	*57*
Summed across partnerships	*460*	*143*	*440*	*166*	*331*	*48*	*604*	*20*	*416*	*69*	*292*	*33*	***2543***	***479***
	76%	*24%*	*73%*	*27%*	*87%*	*13%*	*97%*	*3%*	*86%*	*14%*	*90%*	*10%*	***84%***	***16%***

Table 4.5: Language balance (by utterances) across a sample of partnerships and sessions

A sizeable imbalance is manifest in this data: by far more English than German is used, not only overall, but in all partnerships, in all sessions, and in all but two meetings (the exceptions being Partnership 21 Session A and Partnership 22 Session Y). The overall English to German ratio is 5.3:1. The significance of this data should not be underestimated. It was conceded above that a simple count of utterances is a crude measure: it does not necessarily capture the quality or quantity of processing involved in learners' L2 production and comprehension, or the balance between the languages in terms of time devoted to each during meetings. But it is bound to bear some relation to these matters, particularly at extreme levels. If a meeting contains, say, two German utterances, then by any interpretation it is improbable that much learning of German occurred in that meeting. It might indeed be the case that the two German utterances are in fact an exchange of formulaic greetings – in which case the English-speaking partner will have produced only one L2 utterance. It is tempting to speculate that the German utterances produced by Irish students, though fewer, might have in general made greater demands on the learner, in the sense of requiring deeper processing ('pushed output', Swain, 1985 - see Chapter 3). Only impressionistic evidence can be offered on this hypothesis, but if surface complexity is an indicator, then perusal of the transcripts argues against it. So although the measure is insensitive to some pedagogically significant details, the size of the imbalance it reveals must surely be considered significant. And more specifically, the language count highlights the fact that in some partnerships remarkably little German was spoken in absolute terms (e.g., Partnerships 14 and 9). This must be borne in mind in subsequent analysis and evaluation of the exchange.

The imbalance is probably a consequence of the gap in proficiency between the German and Irish groups. Where communication is obviously and significantly more difficult in one language than the other, then affective factors – specifically, face-saving concerns – will likely lead both partners to fall into habitual use of the stronger learner's L2 as a *lingua franca*. This tendency may well be reinforced by the reduced-cues nature of the medium itself: there are no non- or paralinguistic channels to facilitate communication when linguistic

communication proves problematic, and there is thus an increased likelihood of falling back on a reversion-to-L1 strategy as the line of least resistance. Only the most determined and autonomous learners are likely to resist these pressures. The German partners, having most opportunity to practise their L2, might seem to benefit most from this effect, but they might also feel that the burden of effort they carry is unfair. This *lingua-franca* effect is thus doubly undesirable as well as being at odds with the defining feature of tandem language learning.

In contrast to utterances per learner, the above data shows clearly that language balance is not a stable feature of partnerships, but bears a relationship to session: there is an approximately rising trend in the predominance of English across the sessions, with a particular peak in session C (Figure 4.19). The local peak may be accounted for by the nature of that particular phase of the task – this will be explored later – but the general trend, on the face of it, may be attributable to either a falling off in consciousness of the central language-learning purpose of the exchange or, a probable corollary of such a trend, an increase in concern with sociable communication for its own sake.

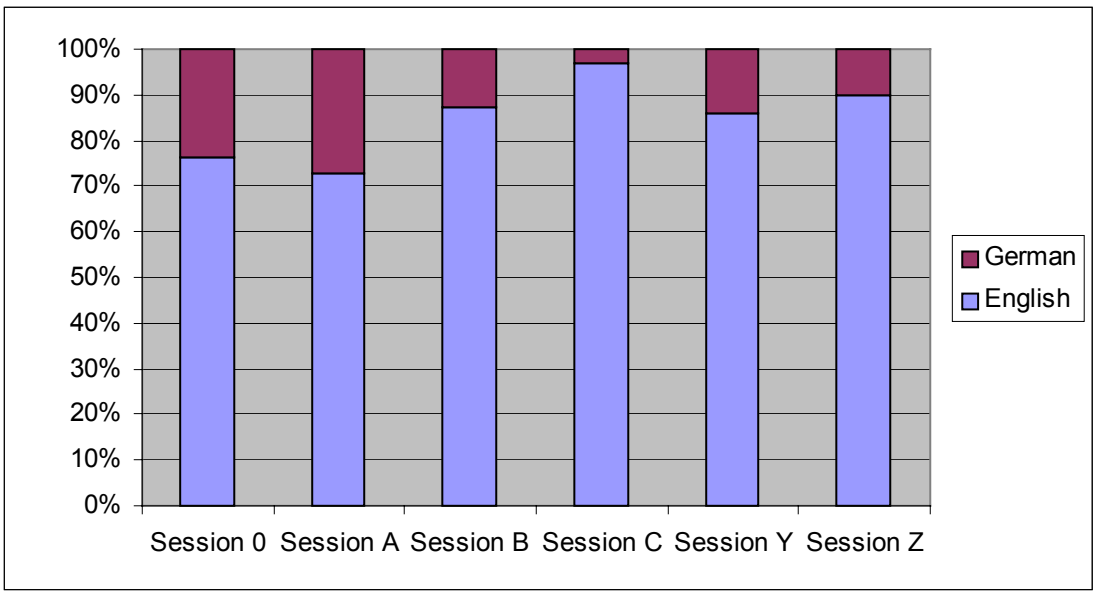

Figure 4.19: Language balance in a sample of meetings (*N*=47)

4.5 Conclusion

This chapter has introduced the empirical part of the thesis. It has outlined the institutional and pedagogical framework within which the MOO exchange,

our object of study, took place. We examined the rationale behind and the detailed specification of a writing/reformulation task, one part of which (the discussion phase) will be evaluated in terms of its success in generating metalinguistic dialogue. Appropriate research methodology was considered in the context of the debate on the nature of CALL research and took account also of views within the sociocultural school concerning the merits of qualitative research and the alleged demerits of discourse-analytic second-language research. It was concluded that focused description, broadly in the discourse-analytic mode, is an appropriate methodology capable of yielding findings that will provide necessary descriptive foundations for further qualitative research. But first and foremost, such research can lead us to at least tentative conclusions regarding interactions between pedagogy, medium and metalinguistic behaviour.

Preliminary data analysis sought to characterise the exchange in terms of patterns of attendance and participation, interactional styles, and language balance. It was found that there was considerable divergence from the target norm of pair meetings among stable partnerships with full attendance by both partners: in fact, only one partnership met these criteria, and less than half of the partnerships had four or more pair meetings. Nevertheless, if we include meetings where one or more third parties were present, we find that 73% of partnerships met in four or more of the six recorded sessions. Stability of partnerships and regularity of meeting are crucially important in establishing personal and pedagogical relationships, both of which are important to the effectiveness of a tandem arrangement; these attendance and pair-stability statistics show that the situation in this regard needs to be addressed organisationally, but this is of course easier said than done. Much of the absenteeism was on the Irish side of the exchange, and is likely to have been strongly influenced by cultural and institutional factors beyond the control of the organisers.

Interactional style and language balance were examined with a view to finding indicators of the quantity of input available to, and output produced by, tandem partners. It was found that the number of utterances per meeting ranges widely; that the fewer the number of utterances in a meeting, the longer (and

thus, presumably, the more complex) those utterances tend to be; and that these two correlated variables were characteristic of partnerships: i.e., a given partnership can be characterised by many short utterances, or by fewer, longer ones. The other crucial dimension of input and output in tandem learning is language balance. It was found that English predominated over German by a factor of 5.3, clearly due to the far greater target-language proficiency, on average, of the German students. These findings form an extremely important backdrop for the substantive interactional/linguistic analysis which follows in Chapter 5.

Chapter 5: Empirical study (2) – descriptive analysis of metalinguistic behaviours

5.1 Form-focused discourse 1: Negotiation of meaning

In examining the nature of form-focused discourse in this MOO exchange I will first turn to *negotiation of meaning*. It must be emphasised that although I draw on concepts and analytical frameworks used by mainstream researchers in this long-established research field, I do not thereby endorse the theoretical perspective that has driven negotiation research.

5.1.1 The Varonis and Gass model of meaning-negotiation

An important legacy of interactional research is a framework of discourse-analytic concepts suitable for the examination of negotiation. This framework will be adopted here, bearing in mind the foregoing provisos regarding the adequacy of its theoretical underpinnings. One of the most widely-used models of negotiation was introduced by Varonis and Gass (1985). According to the model a negotiation routine begins with a *trigger*, an utterance that creates a comprehension difficulty for the hearer, who responds with an *indicator* – now more usually called a *signal* – that comprehension is incomplete. The speaker utters a *response*, and the routine may come to an end when the hearer gives a *reaction* to the response. A whole routine of this kind is characterised as a *pushdown* from the main line of discourse, and the listener's reaction to the response, if any, indicates readiness to *pop up* once again to the main line of discourse. The model is outlined in Figure 5.20.

Trigger	**Resolution**		
T	S	R	RR
	Signal	Response	Reaction to response
Speaker	*Hearer*	*Speaker*	*Hearer*

Figure 5.20: A model of negotiation of meaning, after Gass and Varonis (1985)

Two matters need clarification. First, 'speaker' and 'hearer' will be so labelled by virtue of their role in relation to the trigger utterance. For example,

an interlocutor who utters a clarification request (a kind of signal) is designated 'hearer' since that was his role in relation to the trigger utterance. Second, it should be noted that a trigger is a different kind of entity than the other three 'primes' (as Gass & Varonis, 1985, call them). Signals, responses and reactions to responses play their respective roles in negotiation usually by virtue of the communicative intentions of the interlocutor who utters them, while triggers are not normally intended to provoke miscommunication. Furthermore, it is only by examining the hearer's negative feedback (the signal) that we can recognise a trigger in the first place, and then identify the aspect or aspects of the utterance that caused the problem (e.g., lexis, morphosyntax, sentence meaning, contextual meaning).

5.1.2 The Varonis and Gass model as applied to discourse in tandem learning

The analysis of negotiation that follows will focus on a range of issues that have been dealt with in previous negotiation literature. The aim is to identify areas where either the text-based, online medium or the tandem pedagogical setting can be demonstrated to have a bearing on the kind of negotiation that takes place. There are three crucial differences between the pedagogical setting in question and most interaction studies. First, where previous research has looked at NNS-NNS (peer collaboration, frequently in immersion education) and NS-NNS settings, this study examines tandem learning. In a given tandem meeting, each partner should take both native and non-native speaker roles at different points. Second, both partners share two languages to different degrees of proficiency. Third, most of the talk in this study is open-ended rather than directed. Even in those sessions where they worked on the writing task, the pairs were free to organise their task work as they pleased; there was no predetermined outcome. To this extent the discourse we will be looking at is highly naturalistic compared to that in previous studies, which has mostly been based on short, closely-specified tasks – information-gap and jigsaw tasks, collaborative writing, etc.

The tandem constellation means that there are four possible kinds of negotiation, which we can classify according to the nationality of the hearer

(coded IR or GE), and according to his or her role with respect to the language of the trigger utterance, which I will call 'current tandem role' – NS or NNS. These possibilities are set out in Table 5.6.

	Irish student (IR)	**German student (GE)**
Native speaker (NS)	IR-NS: Irish student signals a problem in understanding German partner's English utterance	GE-NS: German student signals a problem in understanding Irish partner's German utterance
Non-native speaker (NNS)	IR-NNS: Irish student signals a problem in understanding German partner's German utterance	GE-NNS: German student signals a problem in understanding Irish partner's English utterance

Table 5.6: Possible negotiation situations in tandem meetings

In principle, an NNS exchange is an opportunity for modified L2 input to the non-native (signalling) partner, while an NS negotiation is an opportunity for pushed L2 output for the non-native (responding) partner.

Examples 1 to 3 below are negotiation routines taken from the MOO transcripts, exemplifying some of the terminology that has been introduced up to this point:

1. **IR-NS**

T(rigger) GE10 says, "Today we got three topics to select. identify your photo […] in the picture gallery. Or discuss the different studies(Ireland and Germany) or discuss the development of computer (last 10-20 years). What do you mean?"

S(ignal) IR10 says, "What do you mean? "What do I mean?"?"

R(esponse) GE10 says, "Which one should we talk about today?"

2. **IR-NNS**

T GE11 says, "Genau wie in Deutschland, hier werden Informatiker "händeringend" gesucht!"
You say, "Just like in Germany, they're looking händeringend *[roughly, 'imploringly'] for IT professionals!"*

S IR11 says, "Was bedeutet handeringend?"
IR11 says, "What does handeringend *mean?"*

R GE11 says, "Es steht für äußerst dringend oder unbedingt."
GE11 says, "It means extremely urgently or absolutely."

3. **GE-NNS**

T GE21 says, "by the way, where are you from?"

```
        IR21 says, "Have you got many assignments in
        college at the moment?"

S       GE21 says, "assignments? what does it mean? new
        students?"

        IR21 says, "I'm from Athlone. Its a town about
        75 miles west of Dublin. But I'm living in
        Dublin at the moment." [Identifying details
        altered]

R       IR21 says, "Assignments are like projects or
        exercises."
```

Example 1 is classed as IR-NS since the negotiation is triggered by the Irish partner in the role of native speaker – i.e., the triggering problem lies in the use of English by the German partner. The trigger is the question 'What do you mean?', which appears to be a mistranslation of German *Was meinst du?*, a contextually appropriate English equivalent of which would be *What do you think?*. The Irish partner's signal takes the form of a direct question that also identifies the source of the problem by quoting or 'echoing' the trigger. The German partner's response to this, and the resolution of the routine, is a reformulation in which the problematic form is abandoned in favour of a more explicit question. This is a negotiation triggered by a miscommunication at the level of lexical selection: the German partner chose an inappropriate verb for the meaning she meant to convey. But note that we cannot be sure that either partner has in fact identified the source of the miscommunication: the German partner may still not realise that *What do you mean?* is an inappropriate formula for this kind of question, and the Irish partner will most likely have perceived the problem as a pragmatic rather than lexical one. That is, the problem sentence is grammatical and happens to be interpretable in isolation, yet makes no sense in this context. Thus the source of the confusion – L1 lexical interference from German *meinen* having at least two English equivalents – probably remained opaque to both partners.

Example 2 is IR-NNS – the Irish partner failed to understand the German partner's German – and here again the failure is signalled by a direct question, which identifies the precise lexical item that has caused the problem. The German partner's response is to reformulate in German. The next turn (not

given here) is a change of topic, so that we cannot be sure that the original input (*händeringend*) has been rendered comprehensible by triangulation from the alternative words proffered.

In Example 3 a German student signals difficulty with comprehension of his partner's English, hence it is classed as GE-NNS. Once again the problem is lexical-semantic. Here too the problem is signalled by a direct question and a specifying echo (*Assignments? What does it mean?*). These are forms of clarification request, but in offering a tentative interpretation (*new students?*), the signal includes a confirmation check. This example includes a phenomenon typical of MOO discourse: turns that are related but not adjacent. In this case an utterance related to a previous question intervenes between the signal and its response, giving the following structure:

```
GE: Question Q1 – 'Where are you from?'
     IR: TRIGGER T of non-understanding routine (occurs in
         Question Q2 – 'Have you got many assignments at the
         moment?')

     GE: SIGNAL S of non-understanding of trigger
         ('Assignments?')

IR: Reply to Question Q1 ('I'm from Athlone')
     IR: RESPONSE R to S ('Assignments are like projects or
         exercises')
```

There are two interwoven threads of conversation here, one of which is completed (topic: IR's provenance) and the other of which leads to a negotiation routine but is never actually completed: GE never replies to IR's question concerning current assignment workload. This kind of interweaving, whether involving negotiations or not, is quite common in MOO discourse because of the pervasive time lag that accumulates due to time taken for composition and transmission of each turn in what we would call, in face-to-face settings, an adjacency pair (Brown & Yule, 1983).

5.1.3 Failure signals – quantification, form and linguistic level

A total of 95 signals were identified in the transcripts (not all of which led to negotiations). These are broken down according to the above negotiation types in Table 5.7:

	IR	GE	*Total*
NS	11	24	*35*
NNS	40	20	*60*
Total	*51*	*44*	

Table 5.7: Negotiations occurring in the transcripts, by nationality and current tandem role

Evidently nationality is not a strong predictor of disposition to initiate negotiation, since Irish and German students initiated similar numbers of negotiations (51 Irish-initiated to 44 German-initiated). Current tandem role is a better predictor, with non-native speakers about 1.7 times more likely to signal a comprehension problem than native speakers (60 NNS signals to 35 NS); hence there are more opportunities for modified input than for pushed output.

Breaking down the figures according to trigger language yields significant conclusions:

	English language trigger (IR-NS, GE-NNS)	German language trigger (GE-NS, IR-NNS)
NS	11	24
NNS	20	40
Total	*31 (32.6%)*	*64 (67.4%)*

Table 5.8: Negotiations by trigger language

Table 5.8 shows clearly that German causes more than twice as many problems as English (31 English-triggered against 64 German-triggered failure signals); that is, Irish students evidently have far more problems in comprehending German input and in producing German output than do the German students with English input and output. The situation emerges as even starker than these figures suggest when we recall the more than five-to-one predominance of English over German (see p. 178). So while a randomly-chosen utterance from the transcripts is five times more likely to be English than German, a randomly-chosen problem utterance (trigger) is nearly twice as likely to be German as English. Of course this reinforces the observation that the German students are more proficient in their L2 than the Irish, but if we accept that negotiation is a beneficial feature of L2 communication, then the Irish group stand to gain more than the Germans since they should have more exposure to modified input (40 IR-NNS negotiations vs. 20 GE-NNS) and are more often 'pushed' to produce comprehensible output (24 GE-NS vs. 11 IR-

NS). However, we need also to bear in mind Aston's (1986) caution that too much negotiation can be unfavourable to the smooth progress of social relationships. And of course, since we are at this stage concerned only with characterising signals, it must be stressed that these represent *opportunities* for modified input and output, which in turn represent opportunities for learning at the metalinguistic level. We will see what is made of these opportunities when we come to look at responses to signals.

We turn now to signal *form*, which represents the kind of negative input received by the learner in NS-initiated negotiations or, in NNS negotiations, the manner in which the non-native draws attention to a comprehension problem. An initial distinction is often made between *confirmation checks* and *clarification requests*. Pica (1994) argues that these terms, derived from the work of Long, presuppose that we can identify speakers' intentions and she intends the term *signal* to supersede both. But some concepts from Austin's (1962) speech act theory can help us to untangle ambiguous cases. Any utterance carries within it an *illocutionary act* – e.g., asserting, wishing, doubting, wondering – and a *perlocutionary act* – the effect that it has on the addressee, whether intended or not. The illocutionary act is encoded in the linguistic form of the utterance and is thus objectively identifiable, while the perlocutionary act, which as noted might or might not be intended by the speaker, is identifiable only after the fact if at all. We can apply this to signals that seem to have elements of both confirmation check and clarification request. Though a hearer's intention might be to seek clarification, this illocutionary act might be disguised as a less face-threatening confirmation check, in which case we would say its illocutionary force is that of 'seeking confirmation of comprehension' while its (intended) perlocutionary force is 'achieving clarification of meaning'. Rather than presuming to read the minds of the learners by identifying intended perlocutionary force, we must let the surface form of the utterance be our guide. Hence a confirmation check will be deemed to be such by virtue of its apparent illocutionary force, and likewise for clarification requests. As we shall see later, though, some utterances in this study contain the illocutionary force of both.

Varonis and Gass (1985) established the following, more fine-grained catalogue of signal forms for their data:

- Explicit indication of non-understanding – frequently *wh*-questions (e.g., *What do you mean?*), but also statements such as *I don't understand*
- Echoing of word or phrase from previous utterance
- Non-verbal response
- Summary, or reformulation (*Do you mean…?*)
- Surprise reaction (*Really?*)
- Inappropriate response
- Overt correction

To fit MOO tandem data, this taxonomy needs to be modified, both on *a priori* grounds and on the evidence of the MOO transcripts. Varonis and Gass (1985) applied the 'non-verbal response' category in face-to-face communication principally to silences, though intuitively it would seem that an uncomprehending silence is likely to be accompanied by cues of another kind, e.g., facial, kinesic and paralinguistic cues. During MOO interaction, 'silence' – deliberate relinquishing of a turn – is difficult to identify, since there is always some delay between transmission of an utterance and receipt of a response: one can never be certain that a response is not forthcoming. There are many possible reasons, including technical ones, for long delays, but incomprehension is not the most likely of these, and hearers are certainly highly unlikely to signal incomprehension through failure to respond. The MOO data bears this intuition out: there are no cases where a response-delay perceived as abnormally long was interpreted as a failure signal. Turning to other non-verbal signals, it could be argued that the communication function known as 'emoting' is an approximate analogue of kinesic and paralinguistic cues. To take two invented examples, let us suppose that the following commands are typed by a MOO user named 'Joe':

```
4. :scratches his head
5. :wonders what Stefan means
```

These would produce, respectively, the following output on the screen of each user present in the same room as Joe:

4a. Joe scratches his head
5a. Joe wonders what Stefan means

The emote command < : > simply prefixes the user's MOO name to any third-person verb phrase the user chooses (in fact, to any character string at all). Within the quasi-narrative conventions of MOO discourse this facilitates the communication of gestures, as in example 4, states of mind, as in 5, or indeed any kind of action, observation and so forth that a user might wish to communicate outside the framework of normal conversational MOO utterances. But although their function is analogous to the various non-linguistic communication devices used in face-to-face communication, they are in fact linguistically encoded; hence it is not clear that signals communicated in this way belong within Varonis and Gass's category of 'non-verbal response'. In any case, there are no instances of emotes being used as signals in the data.

There are some instances where orthography is used in a way that could be seen as analogous to non-verbal cues; the following are two examples:

6. You [GE] say,
"....?? ;-) Try in English, ich hab Dich nicht verstanden! *[I don't understand you!]*"

7. GE says, "?"

But in most cases, as in example 6, the marked use of orthography supplements linguistic encoding of the signal, and is perhaps better considered an analogue of intonation. (Example 7 is the sole case of a purely orthographic failure signal.) In summary, then, the 'non-verbal' category will not be applied to the present data.

A new category of signal emerges from the data, however: explicit suggestions for resolution of the problem, an instance of which can be seen in example 6 above – *Try in English*. This is not in principle restricted to either the online setting or the tandem framework, since even in face-to-face and NS-NNS dialogue one might explicitly ask for a reformulation or a repetition. In this context, though, four out of the five instances of explicit requests for resolution come from German partners asking for an English version of the problem utterance. The one remaining case is an Irish student apparently asking for a repetition of the sentence:

8. IR19 says, "Ich verstehe nicht die ganze satz - konnst du es wieder schreiben bitte?"
IR19 says, "I don't understand the whole sentence – can you write it again please?"

Presumably this learner means to elicit a reformulation rather than a repetition, since the sentence in its original version remains available for reading on his screen.

Even with these adjustments, Gass and Varonis's inventory of signal types emerges from the data analysis as too rigid. Many of the attested signal utterances are combinations of two or more of the Gass and Varonis types. Rather than attempting to shoe-horn hybrid signals into a single type, some of them were given multiple classifications. The following table gives the breakdown of the 95 signals in the data into the categories identified above, together with examples of each type:

Clarification requests

Explicit indications (*wh*-questions and statements) 48

9. IR12 says, "Was bedeutet genauern?"
IR12 says, "What does genauern *[more precise (dative plural)] mean?"*

10. IR15 says, "Ich verstehe nicht"
IR15 says, "I don't understand"

Suggestions for repair 2

11. GE3 says, "can you repeat the last sentence in english"

Overt correction 0 (found only in hybrid signals)

12. GE7 says, "Wolltest du mit "fast" "nicht annähernd" sagen?"
GE7 says, "Did you mean by "fast" *[nearly]* "nicht annähernd" *["nothing like" (as many)]?*

Echoes 13

13. IR1 says, "are [you] going to sue the guy?"

[…]

GE1 says, "sue...?"

Expressions of surprise 0

(found only in hybrid signals – see below)

Inappropriate response 4

14. [signal:] IR10 says, "Fur meine Sunden ich bin auch ein Kavallier!! Ist das schlect?"
IR10 says, "For my sins I'm a gentleman too! Is that bad?"

GE10 says, "Ich verstehe deinen letzten Satz nicht. Mein letzter Satz war: So, you are a gentleman?"
GE10 says, "I don't understand your last sentence. My last sentence was: So, you are a gentleman?*"*

[NB: In this case IR's response was perceived by GE as irrelevant and she deduces that IR has misunderstood; therefore she attempts repair through translation. In fact, the response was appropriate and the repair unnecessary. The problem lay not in IR's comprehension of GE's preceding turn, but in his unidiomatic reply and her (GE's) failure to understand it.]

Orthographic 1

15. GE15 says, "?" [= example 7]

Confirmation checks

Summary/reformulation 6

16. IR25 says, "[*]Was arbeit muss du machen fur die 10 monat?"
IR25 says, "What work do you have to do for the 10 months [of community service]?

[signal:] GE25 says, "Welche aufgaben hat man in den zehn Monaten?"
GE25 says, "What tasks does one have in the ten months?"

Hybrid signals

wh-question + summary/reformulation 5

17. IR8 says, "Wir wissen nicht […] aber die Leuten sind da, ich bin [*]positiv"
IR8 says, "We don't know […] but the people are there, I'm positiv*"* [false cognate: IR means "positive" in the sense of "certain"]

[…]

[signal:] GE34 says, "WIe du bist positv. HIV-positiv?"
GE34 says, "How do you mean you're positiv*. HIV-positive?"*

wh-question + echo 3

18. GE25 says, "I understand the corrected text, but

it was hard for me to formulate the text like this"

[…]

[signal:] IR25 says, "like this?? What do you mean?"

_wh_-question + explicit statement 2

19. GE22 says, "And then there is time to celebrate Christmas on the two Christmas days"

    GE22 says, "Can I say this: to celebrate Christmas?"

    [signal:] IR22 says, "yes thats perfect though the sentence doesn't really make sense"

    IR22 says, "what do you mean?"

_wh_-question + expression of surprise 1

20. IR8 says, "How do you mean, your not sure if you want to break up with him yet you live together???"

Explicit statement + instruction/suggestion 4

21. GE13 says, "Could you just repeat that in english? I don't understand you."

Explicit statement + echo 1

22. GE23 says, "fussy ?? / i don't know fussy / i only know fuzzy-logic from my washing-machine... ;-)"

Explicit statement + overt correction 1

23. GE17 says, "your sentence doesent make sence, there is no verb!!! / […] / the translation of your sentence wouls be.. / i will, about computer, bad are. / […] / not very logic isn't it"

Echo + summary/reformulation 2

24. IR25 says, "Heer? Is das ein Typ soldat"
    IR25 says, "Heer*? [infantry] Is that a kind of soldier"*

Echo, summary/reformulation + overt correction 1

25. GE25 says, "You speak it [Irish] flowly?"

    [signal:] IR25 says, "flowly?? U mean fluently? I[f] you do then Yes"

Summary/reformulation + overt correction 1

26. GE7 says, "Wolltest du mit "fast" "nicht annähernd" sagen?"
    GE7 says, "Did you mean by "fast" *[nearly]* "nicht annähernd" *[nothing like]?"*

These data highlight the variety of signals used by both native and non-native speakers in the MOO-based tandem setting; it also shows that confirmation checks only manifest themselves as summaries/reformulations, which in turn are necessarily semantic or pragmatic in focus. This does not follow necessarily from the definition of *confirmation check*: in speech, checks may just as well be morphosyntactic ("*Days* [as opposed to *day*]?"), lexical ("*Several* [not *seven*]?"), or phonological ("Her name is *Johanna* [not *Joanna*]?"). Such checks are not uncommon even in NS-NS speech. But note that even in these (invented) morphosyntactic and lexical examples, the source of the problem is originally acoustic/phonological. The fact that in MOO discourse confirmation checks are relatively infrequent and that where they occur they are always semantic or pragmatic suggests by contrast that these kinds of negotiation, in speech, serve mainly to clarify phonological difficulties. Perhaps they serve, as a side-effect, to reinforce forms in the phonological loop. It may be that in the MOO the fact of reading and perhaps re-reading not only obviates the need to confirm one's perception of forms, but also focuses attention adequately on those forms.

The presence in the data of many hybrid signals undermines the value of Varonis and Gass's exhaustive classification, even as adapted to the current data. The fact that some signals include the illocutionary force of both clarification requests and confirmation checks (e.g., 17, 24, 25 and 26 above) means that we cannot rely on this higher-level classification either. A potentially more useful, though looser, distinction is made by Gass and Varonis (1985) between *direct* and *indirect* signals. Direct signals 'directly express unaccepted input, leaving no doubt that there has been a lack of understanding', while an indirect signal 'is a more gentle means of indicating that comprehension has been in some sense incomplete' (Gass & Varonis, 1985, p. 154). Unfortunately, Gass and Varonis do not exhaustively specify which of their signal types they consider direct and which indirect. Though making the distinction is more difficult in practice than the dichotomy would lead us to believe (there is a continuum rather than a

dichotomy between 'direct' and 'indirect' speech acts), I nonetheless propose the following as a meaningful categorisation of the above signal types:

Direct signals	**Indirect signals**
Explicit indications of non-understanding – *wh*-questions and statements	Echoes
	Summaries and reformulations (=confirmation checks)
Overt corrections	Surprise reactions
Suggestions for repair	Orthographic expression

Table 5.9: Signal types reclassified as direct and indirect

This still leaves the question of hybrid signals. It is clear that a direct formulation supersedes the indirectness of, for example, an echo; hence any hybrid signal that contains within it a direct formulation will be classified as direct, while those hybrids composed only of indirect formulations will be classified as indirect. Table 5.10 summarises the absolute numbers and proportions of direct and indirect signals in the various categories and subcategories.

	IR		GE		Totals		
NS	Direct 8	Indirect 3	Direct 21	Indirect 3	Direct 29 Indirect 6		*Ratio: 4.83:1*
	Ratio: 2.67:1		*Ratio: 7:1*				
NNS	Direct 28	Indirect 12	Direct 12	Indirect 8	Direct 40 Indirect 20		*Ratio: 2:1*
	Ratio: 2.33:1		*Ratio: 1.5:1*				
Totals	Direct 36	Indirect 15	Direct 33	Indirect 11			
	Ratio: 2.4:1		*Ratio: 3:1*				

Table 5.10 Direct versus indirect signals: absolute numbers and proportions in all tandem categories

Grand totals are as follows:

Direct signals:	69
Indirect signals:	26
Ratio:	*2.65:1*

The overall predominance of direct over indirect signals is substantial at 2.65 to 1, and direct signals also predominate in all negotiation categories, though to different degrees. The asymmetry is most marked along the NS/NNS axis: an arbitrary NNS negotiation taken from these transcripts is twice as likely

to have been initiated by a direct signal as by an indirect one, while in NS negotiations direct signals are nearly five times more common than indirect. Nationality is a weaker predictor (2.4:1 among Irish students as against 3:1 among German students), though German students show both the more marked preference for direct signals in their role as native speakers (7:1) and the less marked preference as non-native speakers (1.5:1). The difference between the characteristics of the Irish and German groups is difficult to interpret, but we can safely conclude that learners in this setting show a greater preference for direct signals when in the tandem role of native speaker than in that of non-native speaker. This probably has to do with the fact that trigger (problem) utterances in NS negotiations are probably speaker mistakes and readily identifiable as such by native speakers, while triggers in NNS negotiations are more likely due to gaps in one's own (the hearer's) knowledge. To signal failure in an NS negotiation is to identify a gap in one's interlocutor's knowledge, while to signal difficulties in an NNS negotiation is to admit shortcomings in one's own target-language proficiency. Hence, one is more likely to be direct in the former than in the latter situation.

Whatever of the finer details, the overall pattern is unmistakeable. Though we must be careful about comparing this result to that of Gass and Varonis (1985) – since they analysed NNS-NNS interaction, and since they are not explicit about the scope of the terms *direct* and *indirect* – it is nonetheless worth noting that this is the reverse of their findings, and that the overall ratio of direct to indirect signals, at 2.65 to 1 overall, is substantial. The reasons that these learners are far more apt to use direct strategies for signalling communication difficulties are likely to be complex. Some compound of the two factors of interest seems likely to be involved:

1. *Tandem learning as a pedagogical setting:* it may be the case that partners' awareness of the learning purpose of the exchange, and of their shared status as learners, leads them to use direct failure signals that would in non-pedagogical situations be regarded as face-threatening to their non-native partners (in NS negotiations) or to themselves (in NNS negotiations).

2. *The MOO medium:* most negotiation studies have been based on transcribed audio tapes, so that much non-linguistic – kinesic, facial, gestural – and paralinguistic information is lost. It may be that the linguistic expression of indirect signals in these studies is only one component of the information conveyed, and that in fact information from other channels does some of the work of signalling incomplete communication – that is, it provides redundancy. In the MOO, there are no means other than linguistic to convey comprehension difficulties. The burden of communication thus falling entirely on utterances, it may be necessary to preclude any ambiguity by making signals as explicit as possible.

Whether or not these are in fact the principal factors at play in promoting direct strategies in signalling failure among tandem MOO learners, we can reasonably postulate that the predominance of direct signals is a positive factor in the fostering of awareness of language form. Direct signals by definition make more explicit the *fact* that communication has been incomplete, and in some cases – certain *wh*-questions, all overt corrections, and indeed hybrid signals which include an echo – they also serve to pinpoint the source of the problem. Indirect signals, on the other hand, and especially summaries/reformulations, tend to maintain focus on meaning.

To this point we have focused on signals in meaning negotiation routines: the negative input provided to non-native by native speakers, and by non-native to native speakers. The data has given us insight into the range of signal types manifested in this pedagogical / technological setting. Possible explanations for the pattern of signal types emerge from medium-related technical factors and from affective factors related to the setting. We turn now to the *focus* of negotiation. That is, if attention does in fact turn towards language during negotiation, at what linguistic level is it brought to bear?

We could look to any of three of Varonis and Gass's (1985) 'primes' in attempting to answer this: to the *trigger*, the *signal* or the *response to signal*. Pellettieri (2000) – who is also concerned with online, synchronous communication – opts

to examine triggers, while Pica (1994) looks both at signals and responses to signals. Now, NNS triggers might give an insight into the state of interlanguage, but they need not tell us anything about what comes to be focused on in the course of negotiation, since the speaker is not necessarily aware of the nature of the problem in the utterance, beyond the fact that comprehension has not been complete. Likewise, in the case of NS-triggered routines, it is what the NNS calls attention to in signalling a problem that is likely to become the focus of negotiation. In any case, as noted previously (p. 183), in so far as it is possible to determine the problematic component of the trigger utterance, we can do so only by examining the rest of the negotiation routine, and in particular the signal utterance. Responses to signals may be revealing also; these are dealt with in the next section. Here we will look at the linguistic level focused on by listeners in their signals.

Pica (1994) focuses mainly on what she calls 'simple structural segmentation' (p. 515) in signals (and responses), finding that 61% of NNS signals in her data involved segmentation. She concludes that 'learner signals focused primarily on the structure of NS utterances, and that in signalling about NS message meaning, the learners were particularly sensitive to smaller segments of NS input' (p. 515). One of her instances of simple structural segmentation (her example 17, p. 515) is reproduced here as example 27:

27. NS: are they facing one another?
    NNS: [signal:] Facing?
    NS: um are the chairs at opposite ends of the table or –
    NNS: yeah

Though Pica classifies this and similar instances as structural, it must be stressed that she does not mean 'structural' in the sense of *morphosyntactic* as opposed to *lexical* focus. It is clear that in example 27 as in other cases cited by Pica, what is at issue is lexical meaning; and although segmentation (through echoing or otherwise re-using a word or phrase) is a favoured mechanism for identifying problematic components in the trigger utterance, the focus of attention is not morphosyntax. As she later points out, 'negotiation seems to work most readily on lexical items and larger syntactic units. Negotiation over grammatical

morphology is rare, at least on the various communication tasks that have been studied to date' (p. 518); hence, much of her signal data involves re-use of chunks of one word or more, and her use of the label 'structural' ought not to be construed as implying a truly morphosyntactic focus. Furthermore, though she does not say so explicitly, it seems that a great deal of the NNS negotiation in Pica's data has to do with segmentation of the acoustic speech stream, which is clearly not an issue in text-based communication. In sum, most of the signals in her data focus on lexis or multi-word chunks that are not themselves internally segmented. I consider the proposition that such signals lead to focus on morphosyntax, which seems implicit in Pica's use of the label 'structural segmentation', to be highly speculative.

Pellettieri (2000) distinguishes between three types of negotiation in her data (as determined by trigger rather than signal, as noted above): lexical, morphosyntactic and content. Data from five tasks shows that overall negotiations were triggered mostly by lexis (more than 50% of negotiations in all but one task), followed by content (semantics), followed by morphosyntax. There was one task in which more morphosyntactic negotiation took place than semantic: Pellettieri notes that this task required the production of a piece of text and that most of the morphosyntactic triggers arose from this text. (In the present study, cases where metalinguistic discussion is triggered by students' texts are considered separately – see below, section 5.2.3 – and have been excluded from the current analysis.) She notes that this finding, the predominance of lexis in negotiation, corroborates much earlier research, citing Brock et al. (1986), Sato (1986) as well as Pica (1994).

A taxonomy that is not directly related to negotiation research but which is nonetheless useful for present purposes is presented by Fortune and Thorp (2001). These authors are in fact concerned with what have come to be known as Language-Related Episodes (LREs: see also Ellis, 2000; Swain, 1995; Swain & Lapkin, 1995, 2001). LREs (in this sense, which is more specific than that otherwise used in this thesis) are metalinguistic, often negotiation-like episodes that occur in the course of collaborative L2 production tasks. That is, they occur when the focus of the interaction is the production of discourse, usually written,

separate from the interaction itself. They distinguish between the following linguistic levels: lexical, grammatical, discourse and orthographic. (Note that while orthography is irrelevant to oral negotiation, it is relevant to LREs in written tasks and might also apply to negotiation in text-based synchronous communication.) In the case of lexical episodes, they make a further distinction, on the basis of the cognitive processes presumed to be involved, between lexical *identification* and lexical *selection*. Identification involves retrieval of an item where the required meaning is already established, while selection involves choosing among (already retrievable) homophones, collocates, modal verbs, pronouns and so forth. Their 'grammatical' category also has further subcategories, such as determiners, subject-verb agreement, prepositions, and so forth, while their 'discourse' category includes as subcategories connectors, lexical cohesion and connectors.

The taxonomy chosen for the present study is more fine-grained than that of Pica (1994) or Pellettieri (2000), less so than that of Fortune and Thorp. The transcript data suggest the following levels of analysis:

- Lexical selection
- Lexical semantic
- Sentence semantic
- Pragmatic
- Idiomatic
- Morphosyntactic

The lexical-selection category is similar in principle to Fortune and Thorp's subcategory: it applies to cases where what is in doubt is the speaker's choice of word or lexical phrase, not its meaning. But since Fortune and Thorp are concerned with NNS-NNS collaborative dialogue around L2 production tasks, their lexical-selection episodes look quite different to those in the MOO transcripts. Since lexical selection is usually unproblematic for native speakers, at least in informal conversation, and since in any case non-native speakers are unlikely to suggest that a native has selected an inappropriate word, all the cases of negotiation at this level involve the NS partner drawing attention to a word

that does not make sense in context. There are only five such instances in the data, exemplified by 28 below:

28. IR12 says, "Wer war er [*]irgendwie?"
IR12 says, "Who was he somehow?"

GE12 say, "irgendwie? what do you mean by that?"

In this example IR12 presumably meant to convey the pragmatic force of the English adverbial / discourse particle *anyhow*. His partner clearly understands the word *irgendwie* – 'somehow' – but cannot make sense of it in the context of this sentence. The miscommunication is not characterised as an issue of pragmatics (see below), since the problem lies in a lexical mis-selection which renders the whole sentence uninterpretable in *any* discourse context, not just the current one.

The *lexical semantic* category covers those cases where a word is not understood at all, a situation which arises in both NS and NNS negotiations:

29. IR25 says, "I use Irish when i dont want people to know what im sayin. When I was in France i used Irish because otherwise they would think i was English."

GE25 says, "You speak it flowly?"

IR25 says, "flowly?? U mean fluently? I[f] you do then Yes"

30. GE10 [to IR11]: "Ist er immer so muffelig wenn er müde ist?"
GE10 [to IR11]: "Is he always so grumpy when he's tired?"

IR11 says, "Was bedeutet muffelig?"
IR11 says, "What does muffelig *mean?"*

Example 29 is an NS negotiation: the German non-native presumably made an educated guess at an English equivalent of German 'fliessend' (a derivative of 'fliessen', to flow), which the NS fails to understand, though he deduces the intended word. Example 30 shows an NNS negotiation, which is more common (see below, Table 5.11, p. 206): a non-native speaker encounters an unfamiliar target-language word in the input.

Negotiations are classed as sentence-semantic if the signal either pinpoints a (non-lexical, non-idiomatic) phrasal structure, or else does not isolate at all the source of the problem: the category stands in opposition principally to the lexical semantic, pragmatic and idiomatic categories. These signals typically comprise some combination of *wh*-question, explicit statement of non-understanding and request for translation. Of course, it is always possible that

even in the case of very general indications of complete failure, the hearer can in fact recreate some portion of the speaker's intended meaning but decides on a global rejection as more appropriate for some reason – such as efficiency of communication, if precision would require too much effort and time. Nevertheless, even if this were the case, in the absence of any more precise indication the speaker must respond to the signal as though his or her utterance had failed entirely.

Examples 31, 32 and 33 illustrate sentence-semantic failures that are signalled by a *wh*-question, an explicit statement and a translation request respectively:

31. GE3 says, "In Deutschland hat es zugenommen in den letzten Jahren..."
GE3 says, "In Germany it has increased in recent years…"

GE3 says, "und viele Dinge kann man über das Internet erledigen."
GE3 says, "and one can do many things on the Internet."

IR3 says, "Was bedeutet Dein letzten satz?"
IR3 says, "What does your last sentence mean?"

32. GE8 says, "Vielleicht denke ich zu positive *[sic]* über die Menschheit"
GE8 says, "Maybe I think too positively about humanity"

IR8 says, "Ich verstehe nicht"
IR8 says, "I don't understand"

33. GE13 says, "Hast du ein Berufsziel?"
GE13 says, "Do you have a career in mind?"

IR13 says, [*]"Nein Ich habe nicht aber berfuf in der zukunft denken, und du?"
[Likely interpretation:] *IR13 says, "No I haven't thought about a career in the future, and you?"*

GE13 says, "Could you just repeat that in english? I don't understand you."

NS sentence-semantic negotiations (such as 33) represent a productive failure of the learner's interlanguage, while NNS negotiations (such as 31 and 32) represent receptive deficiencies in learner competence. Both are, of course, quite dramatic kinds of failure – impressionistically, it seems rare enough by comparison in NS-NS interaction that an utterance cannot be interpreted at all – and presumably these situations require correspondingly drastic solutions. We will look later at how speakers respond to sentence-semantic failure signals.

The pragmatic category applies to cases where the literal meaning is evident to the hearer, but where speaker meaning is either misinterpreted (example 34 below) or not understood at all (example 35):

34. [NB: all names in the following extract have been changed] GE23 says, "by the way the guy sitting next to me wants to know who girl #[X] is ?? [reference to an online photograph of an Irish student]"

    IR23 says, "Jane is her name"

    […]

    GE23 says, "he is talking about her with his partner joe at the moment

    GE23 says, "he likes her"

    IR23 says, "joe???"

    IR23 says, "hmmmm I seee"

    GE23 says, "no his partner"

    IR23 says, "Ohhhhh rightie then"

35. [discussing the text produced by IR17:] GE17 says, "but you are just translation english sentences into german"

    GE17 says, "abit complicatetd"

    IR17 says, "how was your doctors appointment?"

    GE17 says, "ok"

    GE17 says, "he didnt give me quite new infos"

    IR17 says, "yes, you are right, I should have kept it more simple"

    GE17 says, "häh?"
    GE17 says, "huh?"

    IR17 says, "ich soll es [*]mehr leicht machen?"
    IR17 says, "I am to make it more easy?"

    IR17 says, "is that right"

    [SIGNAL:] GE17 says, "waswillst du leichter machen?"
    GE17 says, "what do you want to make easier?"

    IR17 says, "die Text"
    IR17 says, "the text"

The difficulty in 34 is caused by ambiguous pronominal reference of a kind that could as easily arise in oral interaction, since neither of the potential referents (Irish student Joe or his German partner) is present and available for

disambiguation through gesture or gaze. Example 35, on the other hand, shows pragmatic confusion creeping in through a phenomenon typical of text-based synchronous communication, the interlacing of topics. In this case, IR17's introduction of a new topic – GE17's visit to the doctor – is apparently, and naturally, taken by the German partner to be a definitive topic change. But the fact that IR17 returns to the previous topic – his text – probably indicates that at the time of the topic change GE17's remark that his text was 'complicated' had not yet appeared on IR17's screen. Upon reading that utterance, IR17 responds to it, in effect switching back to the previous topic. GE17, meanwhile, attempts to interpret this utterance in the light of what is for her still the current topic, her doctor's visit. Since speaker meaning is disambiguated in part by reference to current topic, and since there are in this exchange two topics on the field of play – a rare occurrence in oral interaction – one utterance becomes uninterpretable and a direct signal is required in order to initiate repair and continue the dialogue.

A negotiation is deemed to be *idiomatic* if the cause of failure lies in interpretation or use of an idiom, on the assumption that it is so identified by the hearer. The following examples are clear-cut:

36. IR11 says, "Hello Luise [GE10 – name changed] how are you today"

    […]

    GE10 says, "Fine, but a little bit lonely. Tony [her partner, IR10 – name changed] is a "treulose Tomate""
    [literally 'unfaithful tomato']

    IR11 says, "What is a "treulose Tomate"?"

37. IR11 says, "I'm 18"

    GE10 says, "Since when?"

    IR11 says, "Since February I'm one of the youngest in the year I get a lot of stick"

    GE10 says, "What meant by A lot of stick?"

    IR11 says, "made a joke of you know for a laugh"

Less obvious are those cases where a non-native speaker misinterprets an idiom, since in these instances the exchange has the quality of a pragmatic failure:

38. GE26 says, "[…] i will do my english text by this weekend and then send it to you, ok?"

GE26 says, "you can looking forward to getting and correcting it"

[…]

IR26 says, "I cant wait!"

GE26 says, "but i don't have any text done yet, should i bring something up now? "The history of the internet has started in 1969 with the first connection of four of the main computers ...""

[…]

IR26 say, "I didn't mean that I couldn't wait for you. It is just a saying that we use that means I am looking forward to it."

GE26 says, "that's a funny misunderstanding mistake, i am ashamed"

The miscommunication in 38 arises from the German partner's unfamiliarity with the idiom *I can't wait*, which she misinterprets as meaning that her partner is unprepared to wait until after the weekend to receive her (GE26's) text. The decision to assign this and similar cases to the idiom category rather than the pragmatic one is based on the assumption that the hearer recognises the source of the problem. This is clearly so in 38, though in other cases it remains just that, an assumption.

The final category, morphosyntactic negotiation, is represented by one solitary occurrence:

39. GE17 says, "now, lets plan the essay"

[…]

IR17 says, "Ich werde uber wie schlect Komputer sind"
IR17 says, "I will about how bad computers are"

[…]

GE17 says, "your sentence doesent make sence, there is no verb!!!"

IR17 says, "werde?"

IR17 says, "is that not will"

IR17 says, ""will""

IR17 says, "sein" [*to be*]

```
IR17 says, "I mewant [meant] at the end"

IR17 says, "oops"

GE17 says, "the translation of your sentence wouls [would]
be..."

GE17 says, "i will, about computer, bad are."

IR17 says, "he he"

GE17 says, "not very logic isn't it"
```

This exchange does not fit into the sentence-semantic category since it is seems likely that GE17 does in fact understand her Irish partner's intended meaning, thanks to the co-text in which the topic (selecting an essay theme) has been made perfectly clear. The exchange includes explicit metalinguistic remarks concerning sentence structure, even if the key concept – the need for a main verb in the matrix clause – does not come overtly to light.

Table 5.7 (p. 187) summarised the negotiations occurring in the transcript corpus by current tandem role and native language. The following table summarises negotiations as classified by the foregoing levels of linguistic analysis:

Linguistic category	IR-NS	GE-NS	IR-NNS	GE-NNS	*Total*	%
Lexical semantic	3	3	22	10	**38**	**40**
Sentence semantic	2	12	16	4	**34**	**35.8**
Pragmatic	5	3	1	2	**11**	**11.6**
Idiomatic	1	0	1	4	**6**	**6.3**
Lexical selection	0	5	0	0	**5**	**5.3**
Morphosyntactic	0	1	0	0	**1**	**1**
Total	*11*	*24*	*40*	*20*	***95***	***100***

Table 5.11: Negotiations classified by level of linguistic analysis in signal

There is a considerable gap between the two most common kinds of negotiation, lexical-semantic and sentence-semantic, and the next most common, pragmatic. Together the two top categories account for 75.8% of negotiations. In the lexical-semantic category, NNSs account for 84% of the miscommunications, which is as we would expect in a text-based medium: apart from cases of extremely deviant spelling, whether due to mistyping or to actual orthographic uncertainty – e.g., a 'German' word **wehlunga*, 'English' words **surving* and **exploy* – native speakers will rarely fail to recognise a written word,

whereas NNS phonological difficulties can more easily obscure the meaning of spoken words.

It was noted above that a sentence-semantic negotiation, which arises from problems with either a complete sentence or with a phrase, indicates quite a severe communication breakdown, and it is notable that 82% of such miscommunications emerge from German-language exchanges (i.e., GE-NS + IR-NNS), further evidence of the proficiency gap. In contrast to the lexical-semantic category, in sentence-semantics this proficiency factor is more influential than the NS / NNS distinction (14 NS vs. 20 NNS negotiations). That is, non-native speakers in this sample, whether German or Irish, are only slightly more likely to focus on overall sentence meaning in negotiation than native speakers, suggesting that more difficulties are created by NNS receptive than productive proficiency. However, such routines are much more likely to occur in German-language than in English-language exchanges, whether triggered by NSs or NNSs.

With just eleven, six, five and one occurrences respectively, it is more difficult to generalise about the pragmatic, idiomatic, lexical selection and morphosyntactic categories. However, we might note that native speakers signalled more than twice as many pragmatic difficulties as non-natives (8:3). As was indicated above, many of these pragmatic or speaker-meaning problems arise from use of idioms: for the purposes of this study they are distinguished from idiomatic negotiations by whether the hearer recognises the problem as arising from an idiom (idiomatic category) or not (pragmatic category). Examination of the various cases of pragmatic failure suggests that many are caused by NNS language that is not formally incorrect, but unidiomatic and thus vague or otherwise unclear, as in example 40:

40. GE25 says, "I understand the corrected text, but it was hard for me to formulate the text like this"

    IR25 says, "like this?? What do you mean?"

A possible explanation is that in such cases the lack of disambiguating clues from other non-linguistic channels increases the likelihood of communication failure. But this explanation assumes also that NNSs do not have corresponding

problems in interpreting idiomatic NS utterances, that they usually find them referentially clear. Yet the evidence from idiomatic negotiations, such as it is, runs counter to such a claim (5 NNS vs. 1 NS negotiation). In any case, the evidence is highly limited and further research might well prove this finding not to be stable.

The fact that all five cases of negotiation emerging from lexical selection are GE-NS warrants comment. Recall that this category comprises instances where a recognised lexical item is not understood in context – that is, the reason for its selection is at issue. First, the fact that there are no NNS negotiations of this kind suggests that where a lexical item known by a NNS is not understood in the context of an NS's sentence, the NNS will not focus on the lexical item, perhaps instead escalating the signal to a more general failure of comprehension, such as sentence-semantic. A native speaker can more readily identify a contextually inappropriate item as the source of miscommunication. As to the German-Irish imbalance, the most obvious generalisation is simply that the Irish students mis-select L2 lexical items more than do the German students. Examination of the five cases reveals that three of them involve false cognates, two of these (41 and 42) occurring within directly-translated idioms:

41. GE8 says, "Mein Vater hat Opel Vectra"
GE8 says, "My father has an Opel Vectra"

IR8 says, "Opel!!!!! Das ist sehr [*]gross in Irland!!!!"
IR8 says, "Opel!!!!! That is very big in Ireland!!!!"

[…]

GE8 says, "Was meinst du gross?"
GE8 says, "What do you mean by gross*?"*

42. [Discussion of privacy on the Internet:]
GE8 says, "Wer will schon deine persönliche Briefe auffangen?"
GE8 says, "Who wants to intercept your personal letters?"

[…]

GE34 says, "Der CIA oder der BND...."
GE34 says, "The CIA or the BND *[*Bundesnachrichtendienst, *German intelligence service]*

[…]

IR8 says, "Wir wissen nicht [GE34's name deleted] aber die Leuten sind da, ich bin [*]positiv"
IR8 says, "We don't know […] but the people are there, I'm

positive [i.e., 'certain']

[…]

GE34 says, "WIe du bist posit[i]v. HIV-positiv?"
GE34 says, "How do you mean you're positive. HIV-positive?"

43. GE13 says, "[…] Wie ist denn deine Meinung zur Todesstrafe?"
GE13 says, "[…] So what's your opinion on the death penalty?"

[…]

IR13 says, "Ich bin im zwei meinung (two minds) uber [*]die facher, und du?"
IR13 says, "I'm in zwei meinung *[literally, 'two opinion'] (two minds) about* die facher *[approximates* die Fächer, *literally 'the (curricular) subjects']*

[…]

GE13 says, "Huh? Was meinst du mit "die Fächer"? Die Angelegenheit?"
*GE13 says, "Huh? What do you mean by "*die Fächer*"? The issue?"*

IR13 says, "The subject"

GE13 says, "Das Thema."

It is natural that matters of form in negotiation are of interest to interlocutors only in so far as they bear on meaning, but questions of the relation of form to meaning rarely become overt in these data. Those levels of negotiation that have most potential for a focus on form would seem to be idiom, morphosyntax and lexical selection, but these three are the least well represented, making a total of only 12.6% of negotiations. The other 87.4% of negotiations comprise lexical-semantic, sentence-semantic and pragmatic issues. It is thus clear from these data that when communication difficulties arise in the tandem MOO setting, learners focus above all on meaning in global terms (especially sentence-semantic) and the primary meaning-bearing units, words. That is to say, they signal their difficulties not in terms of form but in terms of intended meaning. In particular, the predominance of a concern for disambiguation of word meaning corroborates most previous research into meaning negotiation (e.g., Brock et al., 1986; de la Fuente, 2002; Pellettieri, 2000; Sato, 1986; Wesche, 1994). Such research has shown that in NS-NNS interaction, little attention is paid (as evidenced by negotiation routines) to such elements as morphology, which typically have at least a degree of redundancy built in (though to different

extents in different languages). While one might be tempted to hypothesise that the increased burden carried by the segmental dimension of language in the synchronous text-based context should lead to an increased awareness of such elements, these data do not support the hypothesis: interlocutors remain concerned with global meaning, and tend to be minimally specific with regard to the formal expression of it. Where they are specific, it is mostly in the terms of lexical units. It should be noted also, though, that this data does not overturn the more general hypothesis that interlocutors notice and take opportunities for attention to form *outside* negotiation routines: the data cannot be interpreted as negative evidence in this regard. Any instances where the (by hypothesis) more favourable conditions for attention to idiomatic and morphosyntactic form *are* used effectively cannot be identified through a study such as this that focuses only on the end product of communication rather than moment-by-moment cognitive processes. However, in section 5.3 we will go some way towards identifying learners' perceptions of opportunities for increased metalinguistic awareness.

5.1.4 Responses to signals – strategies and focus on form

We turn now to interlocutors' *responses* to signals. In NNS negotiations, these responses represent modified input from a native speaker; in NS negotiations, responses are modified or 'pushed' output produced by learners. Pica (1994) reports that '[t]ypically, what learners did was to segment portions of their initial utterances and use them to form their responses' (p. 516). In her data 27% of 550 learner responses involved structural modification, of which 56% involved either simple segmentation or segmentation plus further linguistic modification. Pica further notes that, in contrast to NS modifications in response to NNS signals, modifications are made less consistently by NNSs, and whether they occurred at all was in part dependent on the kind of signal: open questions (e.g., 'What?' – i.e., explicit indications of non-understanding) were more likely to elicit structurally or semantically modified responses than were 'repetitions or modifications of the learner's message' (p. 516) – i.e., echoes, summaries and reformulations – to which NNSs were more likely to reply with

'yes' or similar simple confirmations (see also Pica, Holliday, Lewis, & Morgenthaler, 1989). Pellettieri (2000), in her study of online interaction between NNSs, makes the same distinction between lexical, morphosyntactic and content (or semantic) modifications in responses as she does in her treatment of triggers (see p. 197). Across her broader categories of explicit and implicit feedback (i.e., responses to triggers), she found 20 lexical, 9 morphosyntactic and 2 semantic modifications.

Once again it has been necessary to create a new taxonomy to suit the specificities of the tandem MOO situation. The following categories of response have been derived from examination of the transcripts. They are not mutually exclusive: a response may fall into two or more categories. It is also the case that not every kind of response is possible in every negotiation: signal type and level of analysis in the signal will influence the kind of response that is possible or likely, as will become clear in the discussion of each of the response categories:

- translation – phrase/sentence
- translation – word
- semantic/pragmatic elaboration or paraphrase
- lexical substitution or paraphrase
- metalinguistic elaboration
- self-correction
- simple confirmation
- assisted reformulation

Translation – phrase/sentence and **translation – word**: here, 'translation' means any switch from the language of the trigger utterance or problematic part of the trigger utterance, whether constituting a direct translation or not. Thus a translation may also be a paraphrase or elaboration. Translation of a sentence is exemplified by 44, translation of a word by 45:

44. GE3 says, "Weißt du wie man unter Options ein Bild einfügt?"

    IR3 says, "ich kann nicht verstehen"
    IR3 says, "I can't understand"

    [Response:] GE3 says, "I asked: Do you know how to change the icon under options?"

45. IR12 says, "Wer war er [*]irgendwie?"
IR12 says, "Who was he somehow?"

GE12 says, "irgendwie? what do you mean by that?"

[Response:] IR12 says, "anyway??"

GE12 says, "dann würdest du sagen: überhaupt. z.B. Wer war er überhaupt?"
GE12 says, "then you would say: überhaupt*. e.g.* Wer war er überhaupt*?"*

In 44, an NNS negotiation, the Irish student's indication of generalised incomprehension leads his German partner to translate his utterance directly into English. In the NS negotiation in 45, only a single lexical item is at issue, and the Irish partner provides the English word that he was attempting to express. This further elicits pedagogical feedback from the German partner, including an appropriate model of the problem sentence, though strictly speaking this is not part of the negotiation routine: comprehension of the utterance had been achieved as soon as the Irish partner indicated that he had meant 'anyway'.

Both the sentence- and word-translation strategies can in principle be used in response to a signal of any form (e.g., echoes or *wh*-questions), but obviously word-translation is most likely to be used in response to signals referring to the lexical-semantic or lexical-selection levels.

Semantic/pragmatic elaboration or paraphrase: This category applies to cases where the speaker tries to clarify his or her intended meaning through paraphrase or by specifying the appropriate context for interpretation:

46. IR7 says, "[…] Wo [*]arbeiten du?"
IR7 says, "[…] Where do you work?" [verb arbeiten *wrongly conjugated]*

GE7 says, "I am working for an internet company [web address deleted] where I am responsible for Online-Marketing. - Are you getting lots of good wine in this supermarket? "

[Trigger:] IR7 says, "Or arbeitest du?"
IR7 says, "Or arbeitest du *[do you work]?" [verb now correctly conjugated]*

[Signal:] GE7 says, "Wie bitte?"
GE7 says, "Pardon?"

[Response:] IR7 says, "It doesnt matter..ICh sollte arbeitest du,nicht arbeiten du schreiben!!Thats all.. […]"
IR7 says, "It doesnt matter..I should have written arbeitest du*, not* arbeiten du*!!That's all.. […]"*

GE7 says, "got it"

In 46, for example, the trigger utterance is a self-repair in which the Irish student has noticed a morphological mistake in his previous utterance and corrects it: the utterance 'Or arbeitest du' is meant to be construed as 'Or rather, what I should have written is *arbeitest du*, not *arbeiten du*'. By the time of the correction, however, the German partner has introduced a new topic through a question, and in that context can make no sense of the repair utterance. The Irish partner's response is to elaborate on the sense of the trigger utterance. Note that here once more we see problems of interpretation arising through the interweaving of topics produced by lag in the medium; in this case, one of the topics is a metalinguistic one 'pushed down' from the main line of discourse.

This strategy too may be used in response to failure signals of any form.

Lexical substitution or paraphrase: these are cases where the speaker introduces a synonym or paraphrase for a word flagged as causing difficulty, the synonym or paraphrase being in the same language as the trigger:

47. [Trigger:] IR2 says, "NO! Please ignore the most horrible photo of me that is up. Everybody thinks it's hilarious. NOt fair!!!"

    [Signal:] GE2 says, "Tell me which photo! ...and what does hilarious mean? […]

    […]

    [Response:] IR2 says, "[…] Hilarious means really funny"

48. IR23 says, "[GE23] what topic do you want to discuss???"

    […]

    GE24 says, "What about: Has the Internet the potential to change the world?"

    GE23 says, "not that bad"

    IR23 says, "I don't mind"

    […]

    IR23 says, "Although what ever you think I'm not _that_ fussy... usually :)"

    GE23 says, "fussy ?? "

    GE23 says, "i don't know fussy "

    GE24 say, "i only know fuzzy-logic from my washing-

machine... ;-)"

[…]

IR23 says, "oh and fussy.. is umm well..... ehhh ... it's not an important word :)"

GE23 says, "ok ok "

GE24 says, "tell us, anyway! "

GE23 says, "so i have to check my dictionary"

GE23 says, ":)"

IR23 says, "I don't think it will be in there"

IR23 says, "it's kind of like.. well have you ever heard of the expression "making a fuss about something??""

IR23 says, "I'm not too fussy, is the same as I don't mind"

Example 47 is an instance of fairly straightforward substitution. (What is to an extent hidden by the elisions is the degree to which this negotiation was interwoven with a different topic running in parallel with it.) Example 48 shows a lexical negotiation that proved somewhat more problematic, with even the native speaker finding it difficult to paraphrase the trigger word 'fussy', preferring initially to avoid the issue altogether as unimportant. Here the response is spread over several utterances, and the speaker had to be cajoled into dealing with it. It is not clear that the base meaning of the word 'fussy' is clarified for the two NNS interlocutors, though the sense of the utterance 'I'm not fussy' probably is (there is no reaction to the response to indicate whether the word or the utterance has been adequately clarified). This seems to be a case of a negotiation which has run its course, whether or not the problem has been resolved. It has been the focus of several turns and the conversation must move on; in Varonis and Gass's (1985) terms, they must 'pop back up' to the main line of discourse.

Responses of this kind are, *a priori*, most likely to occur in response to signals at a lexical level, however the signal may be formulated. Some signal forms are less likely to elicit lexical substitution/paraphrase, however. Where a hearer uses a summary/reformulation signal, for example, the speaker will only use a lexical response strategy if he/she can identify a particular lexical item as

having caused the problem, since such a signal does not specify the source of the problem.

Metalinguistic elaboration: this comprises the provision of additional information on the grammar or usage of the problem item or structure; such an elaboration can take the form of an example of usage. By definition this is a supplementary response strategy in the sense that elaboration must be appended to a response such as a lexical substitution:

49. GE13 says, "Schön. Da sollen wir heute drüber reden, nicht wahr?"
GE13 says, "Great. We're supposed to talk about that today, aren't we?"

IR13 says, "druber reden?"

GE13 says, "darüber reden = talk about it"

IR13 says, "Ja das hort gut"
IR13 says, "Yes that sounds good"

GE13 says, "wir sagen oft kurz drüber anstelle von darüber"
GE13 says, "for short we often say drüber *instead of* darüber"

50. IR17 says, "platt = tired?"

GE17 says, "platt = tired yes, but dont use it in written language or with adults!"

IR17 says, "he he"

IR17 says, "I get it"

The response in example 49 is a lexical translation followed by a brief metalinguistic remark concerning the relationship between the colloquial short form and the full form of the prepositional pronoun *darüber*. In 50, GE17's metalinguistic supplement to her response concerns the register of the slang *platt*, which literally means 'flat'.

Being a supplementary strategy, metalinguistic elaboration can potentially be deployed in response to any kind of signal at any linguistic level.

Self-correction: This arises in cases where the trigger utterance was an error by the speaker (in practice, frequently a typing error) and is resolved by simple correction of that error, as in 51:

51. IR6 says, "Foe the worlds most powerful nation, they sure are messed up."

GE6 says, "What does Foe mean ?"

IR6 says, "sorry.....for the worlds....."

Errors can in principle trigger any kind of signal at any level, but naturally error-correction is a possible response strategy only where the trigger utterance was in fact an error recognised as such by the speaker. Occurrence of this kind of response is thus likely to be highly restricted.

Simple confirmation: These are brief positive responses to confirmation requests:

52. IR25 says, "Is it OK with you?"

    GE25 says, "The topic or what do you mean…"

    IR25 says, "Yes"

    GE25 says, "yeah, its quite interesting…"

By definition, this kind of response is only possible where the signal is a confirmation check – i.e., where it is expressed as a summary/reformulation (see p. 194).

Assisted reformulation: There is only one exchange that falls into this category, presented below as example 53. It seems to warrant a category of its own since it has a collaborative dimension absent from most other kinds of response, and because it would seem in principle to be a potentially highly effective mechanism for resolving communication difficulties. In assisted reformulation, an NNS speaker enlists the help of the NS partner in reformulating the problem utterance; the native speaker thus provides a kind of scaffolding:

53. IR17 says, "o god, ich kann nicht [*]kontresiert"
    IR17 says, "o god, I can't kontresiert*"*

    GE17 says, "hä??????????????????????????"

    IR17 says, "he he"

    IR17 says, "how do you say concentrate?"

    GE17 says, "konzentrieren"

    IR17 says, "that is what I meant"

    GE17 says, "na gut"
    GE17 says, "right then"

    IR17 says, "ich kann nicht konzentrieren"

Although there are other cases where NNSs elicit lexical items from their partners, this is the only one where the NNS goes on to reformulate the utterance, even though it seems likely that the comprehension problem has been resolved and the reformulation is in that sense superfluous. If the Irish partner here feels it is beneficial to reformulate, it may well be out of a pedagogical concern, perhaps a desire to reinforce the structure (which is not only lexically but also morphologically different from his original utterance: *konzentrieren* is infinitive where **kontresiert* was third-person singular) for the sake of his own learning. This kind of response could be used in reply to any form of signal and, as this sole attested instance shows, may even be used for lexical signals.

The incidence of these response types is broken down according to negotiation type in Table 5.12. It will be recalled that negotiation types are classified according to the nationality and current tandem role of the partner who *signals* a problem; hence in an NS negotiation both the trigger utterance and the response will be from a non-native partner, and *vice versa*. It should also be borne in mind that the categories are non-exclusive, hence some responses are represented twice or more (i.e., they fall into two or more categories).

	IR-NS	GE-NS	IR-NNS	GE-NNS	*Total*	*Number of possible negotiations / Percentage of possible negotiations*
Translation: word	0	5	18	2	***25***	***43 / 58.1%***
	5		20			
Translation: phrase/sentence	0	9	17	2	***28***	***95 / 29.5%***
	9		19			
Semantic/pragmatic elaboration or paraphrase	5	7	9	7	***28***	***95 / 29.5%***
	12		16			
Simple confirmation	2	1	0	1	***4***	***15 / 26.7%***
	3		1			
Lexical substitution or paraphrase	0	0	4	5	***9***	***43 / 20.9%***
	0		9			
Metalinguistic elaboration	0	0	7	0	***7***	***60 / 11.7%***
	0		7			
Assisted reformulation	0	1	0	0	***1***	***95 / 1.1%***
	1		0			
Self-correction	3	0	0	3	***6***	***unknown***
	3		3			

Table 5.12: Occurrence of response types broken down by negotiation type

The total number of responses to signals recorded in the data is in fact 80, as against 95 recorded signals (see Table 5.7, p. 187); that is, 15 signals did not issue in negotiation routines. Since the occurrence of some response strategies is constrained by signal type and/or level, absolute incidence of response types (the *Total* column) is not an informative guide to their relative 'popularity'. Hence, in examining the incidence of strategies, account must be taken also of the number of opportunities for their use. The first figure in each cell of rightmost column represents the number of occasions (i.e., signals) at which the corresponding strategy might in principle have been applied (for simplicity's sake the maximum, 95, corresponds to the total number of signals, not to the number of signals, 80, that in fact led to a response). In the case of the *Translation: word* and *Lexical substitution* categories, there are 43 signals that might have led the speaker to employ these strategies, that is, in response to 38 lexical-semantic and 5 lexical-selection signals. The *Simple confirmation* response category can apply only to signals taking the form of confirmation checks, of which 15 instances are attested. Metalinguistic elaboration is a strategy likely to be employed only by a native speaker, which is to say, in response to a problem signalled by a non-native speaker; thus there are a maximum of 60 occasions (the total number of NNS negotiations) on which this strategy might be employed. Self-corrections are an exceptional case, since where they can occur depends not on the signal but on the nature of the trigger. That is, this strategy can be used only where (i) the miscommunication trigger contains an error, (ii) miscommunication has been signalled, and (iii) the speaker recognises the error once the miscommunication has been brought to his/her attention. It is possible to identify cases where the first two criteria are met, but not the third, since the speaker may recognise an error but be unable or unwilling to correct it, resorting, for example, to a translation strategy instead. It is therefore not possible to assess the number of possible occasions for error-correction. All of the other response types could in principle have been used in any negotiation.

The second figure in the rightmost column represents the percentage of the total potential occasions on which the strategy was actually employed. This is the figure used as the metric in ranking the response strategies, and it can be

interpreted as follows: the *Translation: word* strategy was used on 58.1% of the occasions where it was possible to do so, while *Translation: phrase or sentence* and *Semantic/pragmatic elaboration or paraphrase* were both employed on 29.5% of the occasions where they were feasible. Given their small sample sizes (each occurring no more than ten times), the percentages must be considered unreliable for the remaining categories.

The question at hand is, to what extent do these strategies make possible a focus on language form in the context of communication of meaning? We will consider each of the strategies in turn. In general, **translation** – by which is meant a strategy of resort to the language other than the one in which the problematic utterance was formulated – is potentially a highly effective way of bypassing all focus on L2 form. The learner who formulates an L1 translation as a response to his NS interlocutor's signal obviates any need to 'push' his or her output; the learner who receives a translation in his/her L1 as a response to his/her own signal receives unmodified input, and even though the originally problematic input may be thus rendered comprehensible, there is no pressing need to return to the trigger utterance in order to work out the form-meaning correspondences that are in principle available for consideration. There may be differences nonetheless between word- and sentence-translation in this regard: words being the simplest autonomous meaning-bearing units, they are more likely both to be retained in short-term memory and to support mapping between form and meaning than phrases and sentences, which are by definition formally and semantically complex. The likelihood is, then, that while the phrase/sentence translation response strategy renders problematic input comprehensible, it makes superfluous further attention to its form. The word-translation strategy might be more successful in facilitating consideration of form-meaning correspondence, but only at the simplest formal and semantic level.

Semantic/pragmatic paraphrases and elaborations typically suggest more sensitivity on the part of the speaker to the cause of miscommunication than do translations, and in some cases, such as example 54, interlocutors go to

considerable joint efforts to clarify intended meaning (the topic of this extract is the Irish student's effort in the text writing/reformulation task):

54. IR4 says, "how was my German?"

[…]

GE33 says, "hmmmmm it was what we call *holprig*"

IR4 says, "holprig?"

[…]

GE33 says, "let me see ... it was not fluently to read, and many different mistakes ..... mostly concerning the verbs"

IR4 says, "holpring means all that? :)"

GE33 says, "holprig is a road, with many holes and hills ..... so you cannot drive without stopping"

IR4 says, "here in Ireland, we call it a 'boreen'"

GE33 says, "ah, and something is boreened ..?"

IR4 says, "no it's not a verb. just a road."

GE33 says, " ahhhh i understand :)"

As is quite clear from GE33's elaborations, *holprig* translates as *bumpy* in relation to roads, or as *jerky* or *clumsy* in relation to writing. In this exchange, the German partner is 'pushed' to reflect on precisely what is meant by *holprig*, and to formulate her reflections in English. In the course of doing so she deals with both the figurative and literal meanings of the word, resulting in quite a rich account of the word and its meanings for the benefit of the non-native partner. It is clear that there is some confusion over the syntactic category of the two words at issue (*holprig* is an adjective, *boreen* a noun). So here the meaning of the German partner's original utterance – the problematic part being a single German word – is clarified for the non-native speaker. In clarifying it, the German student is required to produce further L2 output, but, in doing so, also to reflect more deeply on the semantics of the word. It is evident that the broad sense of her original remark is made clear to his partner, who also clearly engages with the spirit of this metalinguistic discourse, offering in exchange an exotic dialect word (a *boreen* in Hiberno-English is a narrow, often poorly-surfaced country road).

It is not certain, on the other hand, that the precise meaning of the problem word becomes clear to the Irish partner who, after all, seems to have misconstrued the word's syntactic category. And it is a frequent, though not universal, characteristic of this kind of response that the nature of the form-meaning correspondences at issue is not made explicit. Example 55 provides a further illustration:

55. GE19 says, "Ach und duz mich doch. Die Anrede mit "sie" ist sehr förmlich und wird nie in einem Chat benutzt.""
GE19 says, "Oh and why not address me with du. *Calling people "*sie*" is very formal and is never done in a chat."*

IR19 says, "Ich verstehe nicht die ganze satz - konnst du es wieder schreiben bitte?"
IR19 says, "I don't understand the whole sentence – can you [uses familiar form] write it again please?"

[…]

GE19 says, "Ah! Jetzt hast Du es! Du hast eben "Sie" statt "Du" geschrieben. Das macht man nicht in einem Chat""
*GE19 says, "Ah! Now you have it! A moment ago you wrote "*Sie*" instead of "*Du*". You don't do that in a chat".*

IR19 says, "OK! Danke fur dass!"
IR19 says, "OK! Thanks for that!"

There are a number of possible sources of difficulty for the Irish student in the trigger utterance, notably the imperative *duz* of the verb *duzen*, 'to address using familiar 2nd-person pronoun and verb forms', but though the response clarifies the speaker's meaning, none of the trigger forms are focused on in the response. The negotiation happens to have an explicit language focus, but this is only because the problem utterance itself happened to be metalinguistic. The focus of the response is not on the form(s) that caused the miscommunication. The paraphrase/elaboration clarifies the message, but it is doubtful that we can speak of modified input in the absence of any recapitulation of the problem forms.

Lexical substitution or paraphrase is a strategy that in principle offers both the disambiguating effect of word translation and opportunities for pushed output (in NS negotiations) and modified input (NNS negotiations) and the focus on language form that these can bring. However, all of the nine attested examples of this response strategy are in fact NNS negotiations, i.e., it is the native-speaker partner who triggers the negotiation by using a problematic word, the non-native partner who signals difficulty, and the native speaker who

employs the substitution/paraphrase strategy. Hence the only pedagogical advantage accruing from this in practice is in the form of additional input to the learner; and here again it is doubtful that the term 'modified' input is appropriate.

Metalinguistic elaboration by definition involves focus on language, in one of many different ways, such as register and usage ('kotzen [to puke] is a rather rude word'; 'platt=tired yes, but don't use it in written language or with adults!'), additional examples of use ('abstürzen heisst "crash" / like in a planecrash or a computer crashes / […] / Flugzeugabsturz = Plane crash'), and morphosyntactic detail ('Fächer ist plural'). It was noted above that this strategy is, *a priori*, the preserve of the native speaker (i.e., it occurs only in NNS negotiations); the data shows furthermore that all seven uses of it are by German students. Finally, it seems clear that **simple confirmation** and **error correction** necessitate little or no substantial focus on form in either NS or NNS negotiations.

The overall ranking of these response strategies as set out in Table 5.12 (p. 217) suggests that, once more, the existence of a *lingua franca* in the tandem situation leads to a heavy reliance on translation to resolve difficulties, a finding which corroborates that of Schwienhorst (2002a). This reliance on translation is not evenly distributed across categories of negotiation, however, as emerges from analysis of the figures according to current tandem role (NS or NNS) and language. The following table compares, for each of the four most-used response strategies in absolute terms, the proportions of NS and NNS negotiations where the strategy is actually used (*Occurring*) with the proportions of NS and NNS negotiations in all of the exchanges where the strategy could have been used (*Expected*):

Strategy	*Expected balance (NS-NNS split in all relevant negotiations)*		*Occurring breakdown*	
	NS	**NNS**	**NS**	**NNS**
Translation: word	25.6%	74.4%	20%	80%
Translation: phrase/sentence	36.8%	63.2%	32.1%	67.9%
Semantic/pragmatic elaboration or paraphrase	36.8%	63.2%	42.9%	57.1%
Lexical substitution/paraphrase	25.6%	74.4%	0%	100%

Table 5.13: Expected and occurring NS-NNS breakdown for four response strategies

The table should be interpreted as follows: The first two data columns represent the NS-NNS balance in all negotiations where the relevant response strategy is potentially applicable. For the *Translation: word* and *Lexical substitution/paraphrase* categories, this means all lexical-semantic and lexical-selection negotiations, a total of 43 (see Table 5.11, p. 206). This population comprises 25.6% NS and 74.4% NNS negotiations. If the native-speaker/non-native speaker factor is not influential, we would expect the direction of the balance to be identical and its magnitude to be similar. In the case of the *Translation: phrase/sentence* and *Semantic/pragmatic elaboration or paraphrase* categories, the population of occasions where the strategies are applicable corresponds to the number of signals of all kinds, and here there is a 36.8% to 63.2% NS/NNS split. It can be seen that for the first three categories, the direction of the balance in negotiations where the strategies are actually employed is indeed as we would expect, and the magnitude is similar: only in the case of *Semantic/pragmatic elaboration* do the expected NS and NNS incidences differ from the actual incidences by more than 6 percentage points. Only *Lexical substitution/paraphrase* differs appreciably in magnitude: as noted previously (p. 221), this strategy is employed only in NNS negotiations (i.e., by NSs in their responses to NNS signals). Though this is not necessarily so – it is quite possible for a non-native speaker to attempt to paraphrase or substitute a word that has proved problematic – it is certainly more likely that a native speaker would

resort to such a strategy. In addition, it should be borne in mind that the sample size is small in this case: there are only nine occurrences of the strategy.

So it seems that neither the tandem role of native speaker nor that of non-native speaker disposes speakers to the use of any of the main response strategies. We turn now to the *language* axis: responses in English-language (IR-NS + GE-NNS) and German-language negotiations.

Strategy	***Expected balance (English-German split in all relevant negotiations)***		***Actual balance***	
	English	**German**	**English**	**German**
Translation: word	30.2%	69.8%	8%	92%
Translation: phrase/sentence	32.6%	67.4%	7.1%	92.9%
Semantic/pragmatic elaboration or paraphrase	32.6%	67.4%	42.9%	57.1%
Lexical substitution/paraphrase	30.2%	69.8%	55.6%	44.4%

Table 5.14: Expected and occurring English-German breakdown for four response strategies

In both *Translation* categories there is a substantial difference in magnitude between the predicted and actual balance across negotiation language. It appears that the great majority of instances of translation occur where the communication difficulty has arisen in German; and that this majority is considerably greater than we would expect from the language breakdown of those negotiations where these strategies are possible. This means that Irish students resort to English when their German fails, and/or German students resort to English when the Irish students fail to understand German input, substantially more often than partners of either mother-tongue will revert to German to overcome difficulties with English. It seems clear that this is yet another effect of the gap in proficiency between the two sides of the exchange, with English being perceived as the *lingua franca*.

The situation is different for *Semantic/pragmatic elaboration or paraphrase*: this strategy is employed more often in negotiations where English is problematic than we would expect from the overall English-German breakdown, and

correspondingly less in German-triggered negotiations. But since this strategy by definition involves remaining with the language that has triggered the problem, we are led to a similar conclusion: when a German partner signals difficulties with the Irish partner's English, the Irish partner is likely to paraphrase or elaborate in English; when an Irish partner signals his/her failure to understand the German partner's English, the German partner is also likely to continue using English. This too is indicative of a heavy reliance on English and is symptomatic of a notable gap in proficiency.

Finally, *Lexical substitution/paraphrase* reverses the expected balance. Overall there are more German lexis-triggered negotiations than English, yet looking only at negotiations where the lexical substitution/paraphrase response strategy is used, we find more English- than German-language instances. That is, English-language lexical problems are more likely to be solved by English-language paraphrase than German-language lexical problems are to be solved by German-language paraphrase – a further demonstration of the dominance of English in the exchange.

5.1.5 Summary of negotiation analysis

Negotiation of meaning, it was suggested in the previous chapter, is best seen not as a direct route to acquisition, but as an opportunity for increased attention to language form which can contribute to processes of acquisition in the various ways described in the model set out in Chapter 2. Accordingly, in this section I have sought to describe the nature of negotiation of meaning in the tandem MOO setting, taking it to be one of the most readily identifiable kinds of form-focused discourse (other kinds of form-focused discussion will be dealt with in the next section), and making no assumptions as to the effects of negotiation on the acquired language system. Varonis and Gass's (1985) model of negotiation has been used throughout, focusing in particular on failure signals (sometimes called *indicators*) and responses to these signals. The nature and context of the negotiation data in this study is quite different from that found in most other studies in the following respects: (1) most obviously, it is textual in origin, not transcribed from speech; to that extent, little information pertinent to

the original interactions is missing from the records; (2) the data is naturalistic rather than elicited by tasks; (3) whereas most negotiation studies have focused on NS-NNS and NNS-NNS discourse, the interlocutors in online tandem alternate the roles of native and non-native speaker and share two languages, though to different levels of proficiency. This last characteristic means that negotiations can be characterised by the nationality and current tandem role of the interlocutor who signals a problem: that is, as IR-NS, IR-NNS, GE-NS and GE-NNS. NNS negotiations in principle represent opportunities for exposure modified input, while NS negotiations constitute opportunities for pushed output.

The question posed at the beginning of this section was whether the online, text-based medium or the tandem framework can be shown to have an effect on the negotiation of meaning. The following points have emerged in regard to the medium.

The taxonomies of signal and response types used in the literature cannot be applied unmodified to negotiation in the MOO. Most obviously, Varonis and Gass's (1985) *non-verbal* category is irrelevant: MOO users do not employ 'silence' (non-response) as a non-understanding signal, and there are no other available non-verbal channels. A corollary of this is that the burden of feedback falls squarely on language, though occasionally this is supplemented or even substituted by typographical means. To capture the range of strategies employed in the MOO, more fine-grained taxonomies of linguistic level (in signals and, by extension, negotiations generally) and of response strategies have been necessary. It was also noted that a great many signals were compounded of two or more of the generally recognised signal types. It may be that the need for explicitness leads speakers to employ a wider range of response types; but this is speculative and not capable of confirmation without reference to the original data of previous studies.

What is clear is that, in contrast to speech-based negotiation studies, MOO users employ more direct than indirect failure signals, and this may be so in part because of the complete reliance on the verbal channel (cf. Feenberg, 1989 on the general tendency towards increased explicitness in text-based online

environments). It is tempting to speculate that the use of direct signals leads to relatively greater focus on form, since direct signals are more explicit about the fact that communication has been incomplete, and in many cases pinpoint the source of the problem. This hypothesis needs to be tempered by the observation that interlocutors do not show any tendency to focus on formal aspects of problematic utterances in resolving communication difficulties. Rather, they remain focused on global meaning (semantic or pragmatic), and where they are specific, it is mostly in relation to words, as has been found again and again in negotiation research. Indeed, the pragmatic focus in particular may be exaggerated by one particular property of discourse in this medium, namely, the interweaving of topics caused by 'lag', the lapse of time caused by (i) the dissociation of utterance formulation from transmission, and (ii) delays caused by network-related conditions. Though experienced users of online synchronous communication may become accustomed to this phenomenon and develop strategies for dealing with it, the situation is clearly more difficult where a second language is involved. Thus there are several instances of incomplete communication apparently caused by uncertainty as to the relevant context of an utterance – or more precisely, its relevant co-text.

Finally, the fact that all confirmation checks in the data are based on semantic or pragmatic difficulties highlights the extent to which miscommunication in speech has to do with acoustic/phonological difficulties. Many of Pica's (1994) examples bear this out, even if the repair strategies employed can be described as structural in a sense. This factor cannot be an issue in text-based discourse, and the linguistic level which is its nearest analogue – orthography – only rarely poses problems (and where orthography does cause a difficulty it is usually perceived and treated as a lexical one). This highlights one of the most pertinent properties of MOO discourse from a psycholinguistic perspective: permanence and visibility of the linguistic product. It seems probable that many utterances that might cause difficulties in speech because of the processing load and reliance on a limited-capacity short-term memory – specifically, the phonological loop – are unproblematic in MOO dialogue, at least in the sense that they do not lead to overt miscommunication, because the

hearer has more time to reflect on the form of the utterance. It may also be the case that potential communication difficulties are pre-empted by pre-transmission repair or reformulation of utterances. These are matters that transcript analysis can shed no light on; they are addressed by other means in section 5.3.

When we consider the effect on negotiation behaviour of the tandem framework, it is evident that the proficiency imbalance and the consequent *lingua franca* status of English has a substantial impact. The effect is so clear in so many different dimensions of the data that one might well wonder whether it is in fact obscuring any effects that the medium might have. We saw that the German language triggered more than twice as many negotiations as English, in both NS- and NNS-initiated routines, although there are five times as many English utterances as German; that four out of five cases of one particular signal type – explicit suggestions for repair, in practice calls for translation – were from German students seeking English translations of problematic utterances; that 82% of instances of one of the most-used linguistic categories of negotiation – sentence semantic, indicative of the most generalised kind of comprehension failure – were triggered by German language problems, contrasting starkly with the five-to-one English-German ratio. We saw that in responding to failure signals, both partners are more apt either to paraphrase words or sentences in English, where the problematic utterance was in English, or to switch to English where the problem was in German. These strategies of English paraphrase and English translation are by far the most common.

This is the most salient effect of the tandem framework on negotiation in the MOO, and it is one that deserves to be taken very seriously in the design of further tandem exchanges. German students presumably benefit from the sheer volume of L2 input and output, but also from the increased metalinguistic focus I believe arises from modified input and pushed output; Irish students correspondingly lose out in all of these areas. If their L1 is seen as the preferred and most effective solution to most communication problems, we can scarcely expect increased focus on target language form. While we should not draw hasty conclusions about the consequences for learning – either among the stronger

(German) or the weaker (Irish) side of the exchange – the magnitude of the various measures described shows that a significant gap in proficiency, and the attendant *lingua franca* effect, substantially alters the linguistic, pedagogical and affective nature of a tandem exchange. This constitutes empirical corroboration of what has long been intuitively recognised in the field of tandem learning: that partners ought to be as closely matched in proficiency as possible (see, e.g., Little et al., 1999). This is, of course, far easier said than done, and in the ongoing exchange arrangement under discussion, every effort has indeed been made to match classes by proficiency. Where the gap in unavoidable, other strategies may mitigate the ill effects – raising students' awareness of the need for bilingualism and 'pushed output' in advance of the exchange, most obviously. Technical tools may also play a role: a system has just been developed in the Centre for Language and Communication Studies that will display language-balance and other pertinent statistics to MOO users after each session, on the basis of an automatic and transparent analysis of the session transcript. Where there is clear over-reliance on one language or the other, it is hoped that this system will draw both partners' attention to it and encourage them to make efforts to correct it.

5.2 Form-focused discourse 2: Other language-related episodes

5.2.1 Self-repair

We turn now to other episodes that are indicators of, or opportunities for, metalinguistic reflection. The first of these is self-repair. Van Lier (1988) suggests that self-repair is more pedagogically valuable than other-repair since it is less face-threatening; for the purposes of this study, of course, its interest lies in the possibility that it either indicates or promotes metalinguistic processes.

Reference was made in Chapter 2 (p. 57) to the view of Marshall and Morton (1978) that metalinguistic awareness in children arises through the operation of an independent mechanism monitoring output for failure, together with consciousness. Self-repair is the outward sign of the operation of this mechanism and hence, in cases where consciousness is also implicated, of metalinguistic awareness itself. Tunmer and Herriman (1984) criticise this view

on the grounds that awareness of failure is not necessarily the same thing as awareness of linguistic structure, and that children's attention is focused on situational meaning and interlocutor's intention rather than on form. On this view there is no need to posit that metalinguistic awareness is concomitant with communication failure and self-repair. Bialystok (1991a) considers the metalinguistic status of self-repair to be contentious: it is one of a number of behaviours that are considered metalinguistic by some researchers while belonging to 'ordinary language use' for others – less because empirical facts are in dispute than due to lack of definitional precision. Karmiloff-Smith (1986) nevertheless deals with this question as an empirical one: her studies draw on spontaneous self-repair in children and on their spontaneous and elicited metalinguistic statements. It is a key part of the evidence for her developmental model (discussed at length in Chapter 2) that ability for repair precedes ability for verbalised metalinguistic judgements; hence, awareness is not necessarily the constant companion of repair.

The objections of Tunmer and Herriman and of Karmiloff-Smith clearly have merit; nevertheless, I will argue that, for the purposes of the present study, self-repair ought to be considered an indicator of attention to linguistic form at a level that may approach the properly metalinguistic. First, it should be noted that neither Karmiloff-Smith nor Tunmer and Herriman deal with the question of repair in adults: it is, after all, quite possible that different cognitive processes come into play once the various cycles of representational redescription have given rise to mature representations. Anecdotal evidence would suggest that in situations of communication failure and consequent negotiation of meaning, children develop an increasingly strategic approach to discourse repair: while it is not uncommon for a three-year-old, for example, to rely on simple repetition to get a troublesome message across, we would not expect to find such an approach used by a ten-year-old. If we can assume that this evolution is facilitated by an increasing capacity for reflection on form-meaning correspondences, it is at least possible that self-repair in the sense that the term is used here – that is, spontaneous repair of one's own errors – is likewise enhanced by awareness of form once the capacity for metalinguistic reflection

develops. To Tunmer and Herriman's point that awareness of failure is not awareness of linguistic structure one might reply that, nonetheless, the ability to implement appropriate repairs in the light of such failures – where complex syntax or long-distance dependencies are involved, for example – might well necessitate focus on form. There is no need to assume that this is so in every situation, but it makes sense to hypothesise that it is in at least some situations – those that Bialystok would characterise as 'high-control'.

The situation that we are concerned with here, an online tandem exchange, is precisely such a high-control situation, by virtue of three of its defining properties: (1) the fact that the partners are non-native speakers of one of the languages they must use; (2) the fact that the overt purpose of the exchange is language learning, and (3) the fact that the medium is text-based. Most second-language situations, whether pedagogical or not, require a higher degree of control of cognitive processing (though there is presumably a differential between the degree of control required by the German students and that deployed by the Irish, given the gap in proficiency). A high-level awareness of the ultimate language-learning purpose of the exchange also means, at least if we assume a certain level of motivation on the part of the student, an increased attention to language form. And the fact that monitoring of one's own output is supported not only by quasi-acoustic traces in the phonological loop, but by a 'tangible', visible on-screen artefact, suggests that a higher level of awareness is likely to be associated with repair behaviour. It is thus reasonable to assume that the self-repair behaviour of adults in such a setting is likely to be characterised by a relatively high degree of awareness of linguistic form.

Before turning to the transcript data, it is important to distinguish between two kinds of self-repair that are possible in the MOO. The first kind is post-transmission repair – that is, repairs that are made after the erroneous utterance has been both composed and transmitted. Both error and repair are visible to those co-present in the room and, of course, visible in the transcripts. But any pre-transmission repairs or revisions are not visible either during the meeting or in transcripts. Section 5.3 attempts to elicit subjective, retrospective data regarding this potentially revealing self-monitoring behaviour. In the meantime

it is worth noting the observations of Pellettieri (2000), whose technical set-up allowed her to record real-time revisions to utterances. (It should be noted, though, that the system used in her study, *ytalk*, is a letter-by-letter system in which one's interlocutor sees each character as it is typed; this kind of interaction is structurally quite different, since it does not have discrete transmission points.) Pellettieri reports during-turn repair of typographical and/or spelling errors as well as of morphology. She also reports quite elaborate morphosyntactic revisions resulting in output more accurate than is usual in the speech of learners at the level of her subjects, and suggests that this precision in 'cognitively demanding aspects of grammar' is attributable to the comparatively greater time available and to the fact that utterances are visually displayed.

As always, instances of self-repair in the present study were tagged for speaker's L1, for utterance language (L1 or L2) and for level of linguistic analysis. Relevant linguistic levels for this phenomenon are *Pragmatic*, *Lexical* (which in this case corresponds to what was previously called *Lexical selection* rather than *Lexical-semantic*), *Morphosyntactic* and *Orthographic* – though occurrences of repair at some of these levels are very thin on the ground.

Pragmatic repair, to begin with, occurs only once. On the face of it, this could mean that pragmatic difficulties are uncommon in MOO discourse, perhaps because participants pre-empt them through careful formulation or revision before transmission. But whatever the extent of such behaviour, we know that in fact 11.6% of meaning negotiations in our corpus are triggered by pragmatic difficulties (Table 5.11, p. 206). The alternative interpretation is that participants are not highly conscious of potential pragmatic difficulties.

The sole instance of pragmatic repair is nonetheless interesting for what it suggests about the speaker's psychological processes:

56. [Discussing Hallowe'en festivities:] IR7 says, "Yeah i went to a party in a club here in Dublin called the Redbox.It wasnt that good and it cost £10 to get in.Everyone was dressed up...I felt a bit out of place because i was!!! […]" IR7 says, "I meant i wasnt dress[ed] up"

It is impossible to be sure, but the most obvious interpretation of these utterances is that IR7 felt the statement 'I felt a bit out of place because i was' was unclear or ambiguous due to the ellipsis: my assumption is that he meant 'I

felt out of place because I *was* out of place', and his repair utterance 'I meant i wasn't dress[ed] up' is an effort to clarify this. Given that a further sentence (omitted in the extract) intervened between the ellipsis and the repair, it is unlikely that the problem utterance was still 'fresh' in echoic memory. If this is so then it seems highly likely that the potential ambiguity came to the student's awareness on re-reading the problem utterance after transmission, hinting at one possible metalinguistic benefit specific to the medium. The prevalence of this and similar behaviours is investigated by other means in Section 5.3, below.

The *Lexical* category comprises cases where students substitute one word for another, having reconsidered their initial choice. Example 57 is an instance of L2 repair and example 58 of L1 repair:

57. IR8 says, "[name], if you want to see my picture it is number [X]"

    GE8 says, "Have you seenmy picture"

    IR8 says, "yes"

    GE8 says, "OH, you are pritty"

    GE8 says, "I mean handsome"

58. IR26 says, "If you can understand what I was trying to send could you rewrite in a simpler and more easy to understand way"

    IR26 says, "sorry, trying to say, not trying to send"

Morphosyntactic repair refers to instances of correction to sentence structure, such as missing auxiliary verbs, or to morphology, such as agreement:

59. IR7 says, "[…] Wo *[*]*arbeiten du?"
    IR7 says, "[…] Where do you work?" [agreement error on verb arbeiten*]*

    […]

    IR7 says, "Or arbeitest du?" *[agreement error repaired]*

It is not certain, of course, that this and other errors categorised as morphosyntactic actually arise from errors that are psycholinguistic rather than typographical in origin: *arbeiten* could be simply a typing error that happens to have emerged as an actual German verb form. But even if some such cases are mere typing mistakes, it does seem likely that the act of noticing and then

repairing the error will trigger attention to morphosyntactic form, and it thus seems reasonable to classify them accordingly.

The final category, orthographic repair, comprises instances where learners have corrected spelling or typographical errors (two different kinds of error that are not always distinguishable from one another on the basis of the transcripts):

60. GE32 says, " i mean i no batman comic Gotham CIty is located on the dark side of the monn, when you know what i mean"

    GE32 says, "in no"

61. GE1 says, "In Koeln (cologne) heisst "Zwiebel" (onion) zum Beispiel "Uellisch""
    GE1 says, "In Koeln (cologne) for example "Zwiebel" (onion) is called "Uellisch""

    IR1 says, "really? i didnt know thta"

    IR1 says, "that"

62. GE25 says, "Oh, by the way, my personal emailadress (no i have internet at home) is:"

    GE25 says, "[e-mail address deleted]"

    […]

    GE25 says, "now i have intenet at home"

The incidence of these repair categories is summarised in Table 5.15:

	NS		NNS		*Total*	
	IR	**GE**	**IR**	**GE**	***IR***	***GE***
Pragmatic	1				*1*	
	1				*1*	
Lexical	4		2	2	*6*	*2*
	4		4		*8*	
Morphosyntactic			4	6	*4*	*6*
			10		*10*	
Orthographic	37	7	8	38	*45*	*45*
	43		46		*89*	
Total	*42*	*7*	*14*	*46*	*56*	*53*
	49		*60*		*109*	

Table 5.15: Self-repair episodes: speaker language, utterance language and linguistic level

To repair perceived morphosyntactic errors is the most purely metalinguistic of these behaviours, since such errors need not inhibit the communication of meaning – as can be seen in example 59 above. Lexical repair too, where it is concerned with appropriateness more than with pre-emption of communication difficulties – as in examples 57 (*handsome* for *pretty*) and, to a lesser extent, 58 (*say* for *send*) – may entail a relatively high degree of focus on language for its own sake. However, both these and the pragmatic categories are poorly represented

in the data compared to orthographic repair. There are too few occurrences of any of these three to attempt to draw conclusions, beyond noting that no L1 utterances are subject to morphosyntactic repair, which is much as one would expect.

Orthographic repair is by far the most common in absolute terms. Orthography being the most superficial manifestation of linguistic structure in this medium, no claim can be made regarding metalinguistic processes of the kind that concern us. The frequency of this kind of repair, however, is evidence, albeit limited, that participants re-read their utterances after transmission; it seems likely that errors noticed during typing would be corrected before the <Enter> keypress that transmits the utterance. This is investigated further in Section 5.3 below.

Finally it should be noted that the language balance both for orthographic repair and for repairs overall is much as we would predict from the overall language balance in the transcripts:

Language balance across all utterances in all sessions: 5.3 : 1 (see p. 178)

Orthographic repair:

English (IR-NS + GE-NNS) = 37 + 38 = 75

German (IR-NNS + GE-NS) = 7 + 8 = 15

English : German = 75: 15 = 5 : 1

All repairs:

English (IR-NS + GE-NNS) = 42 + 46 = 88

German (IR-NNS + GE-NS) = 7 + 14 = 21

English : German = 88 : 21 = 4.2 : 1

This suggests that language proficiency does not substantially influence self-repair behaviour, in contrast to the phenomena that we have examined to this point and others that we will explore below.

5.2.2 Corrections and other native-speaker feedback

The next class of metalinguistic episode to which we turn comprises cases of native-speaker feedback not arising from miscommunication: notably other-

correction in the conventional sense, but other cases of feedback will also be subsumed under this term. These events can be broken down into two types: spontaneous and elicited NS feedback. Spontaneous feedback is unasked-for; elicited feedback is sought by the NNS through an utterance which will be called a *cue*. The term *correction* in these cases might more precisely be termed a *response to a cue*, but there is no reason to suppose that there is any dissimilarity between the cognitive processes involved in formulating a spontaneous correction to an NNS utterance and replying to an explicit request for such feedback, with the possible exception of cases where the 'correction' is merely an affirmative response to a confirmation request.

Though such cases clearly show a shift of focus from the *communication* of meaning and towards consideration of the linguistic *encoding* of meaning, these episodes also demonstrate awareness of the pedagogical purpose of the tandem framework. If learners have taken on board the importance of maintaining one's own learning focus and also the reciprocity of responsibility in this regard, one would expect to find a notable incidence of spontaneous feedback and of the elicitation of feedback. The learner who elicits feedback from his partner concerning an L2 utterance thereby shows commitment to the learning goal, and the learner who elicits help in formulating an L2 utterance demonstrates a tenacity in using the target language that exceeds that of the learner who resorts to L1 when in difficulty. Likewise, the native speaker who spontaneously supplies corrective feedback shows awareness of and commitment to the pedagogical nature of tandem learning. As suggested in the previous paragraph, however, there may be little metalinguistic benefit accruing to corrections that are simple confirmations.

There are indeed many instances of other-correction and similar feedback, exemplified by extracts 63 to 66:

63. GE25 says, "lets discuss what we do now!"

    IR25 says, "Ja, ich [*]vereinbaren"
    IR25 says, "Yes, I agree"

    […]

    GE25 says, "ja, ich stimme zu!"
    GE25 says, "yes, I agree!"

64. IR13 says, "Wie viele [*]jahr haben Sie bevor du fertig [*]ist?"
IR13 says, "How many years do you have before you're finished?"

GE13 says, "Correct: Wie viele Jahre hast du bevor du fertig bist?"

65. GE23 says, "it is the former capitol of germany"

GE23 says, "is it capitol ??"

[…]

IR23 says, "capital ;)"

GE23 says, "OK"

GE23 says, "capitol is a building in washington !?"

IR23 says, "I think it could be :)"

66. GE3 says, "Ok, so what title do we take? Communication via internet?"

IR3 says, "Yep thats fine with me "Communication via Internet". Whats that in German? "

IR3 says, "Kommunikations uber das Internet>"

IR3 says, "?"

GE3 says, "Kommunikation im Internet oder über das Internet. Ich bin nicht sicher."
GE3 says, "Kommunikation im Internet *or* über das Internet. *I'm not sure."*

GE3 says, "I think you would usually use the term "im" internet, which means in the net."

IR3 says, "I just asked [the teacher of the Irish class] and he said the same"

GE3 says, "technically correct would be "über das Internet!" (via)"

IR3 says, "so which will i use? im oder uber"

GE3 says, "Use "im" . […]"

67. IR12 says, "Wer war er irgendwie?"

GE12 says, "irgendwie? what do you mean by that?"

IR12 says, "anyway??"

GE12 say, "dann würdest du sagen: überhaupt. z.B. Wer war er überhaupt?"

Examples 63 and 64 are straightforward unsolicited corrections, the former to lexis and morphology, the latter resolving several errors at once through

reformulation. Examples 65 and 66 show how elicited NS feedback can give rise to quite extended metalinguistic 'push-downs' from the main topic; and 67 illustrates how a negotiation can contain a *cue-correction* exchange within it as the resolution of a communicative difficulty. The signal here is an echo+*wh*-question hybrid (which isolates the problem item and directly seeks clarification); the response is a translation. But this response is also a cue, the reply to which is, according to the definition set out above, a correction.

There are 93 instances of NS feedback of this kind in the transcripts (excluding discussions related to writing-task texts, discussed below), which break down as follows:

	Spontaneous		Elicited	
	IR-NS	GE-NS	IR-NS	GE-NS
	9	35	24	25
Totals	***44***		***49***	
	93			

Table 5.16: Spontaneous and elicited NS feedback, broken down by nationality

Spontaneous feedback is nearly as frequent as elicited (44 and 49 instances respectively), but there is an evident difference in the breakdown of nationality in these two categories: German students are far more likely to spontaneously correct their partners than Irish students (9 Irish to 35 German), while elicited feedback is about evenly divided between German and Irish students (24 Irish to 25 German). Turning to language balance, we find that, as has been the case throughout this investigation, all of the relevant proportions are contrary to what would be predicted under the null hypothesis (here, that other-correction is like any other kind of non-metalinguistic utterance, and therefore occurs in the same proportions as any other kind of utterance): as against the overall 5.3:1 English to German ratio (see p. 178), among spontaneous corrections there is a 3.9:1 German to English ratio, and a near one-to-one balance in elicited corrections. There are far more German-language other-corrections, in other words, than we would expect from the overall language balance in the data corpus.

There are at least three likely reasons for the discrepancy in the *Spontaneous* category, some or all of which may be at play. The first two relate to culturally-influenced attitudinal differences: first, the German students may take the

pedagogical purpose of the exchange more seriously, and second, the Irish students may find unasked-for correction to be more face-threatening than do the Germans. There is additional evidence for this latter possibility: the data contain seven instances of responses to corrections that can be considered self-critical, self-justificatory (defensive) or otherwise tending towards face-saving. Six of these are uttered by Irish students. Example 68 is clearly self-critical, while I interpret IR12's utterance and 'emote' (*IR12 grins*) in 69 as an effort at face-saving through levity:

68. IR17 says, "damn it, my german is progresivly getting worse"

69. [discussing the possibility of further use of the MOO beyond the period of the official exchange:] IR12 says, "Ich weis nicht. Es gibt kein Grund, nur fur Ubung zu [*]corrigeiren"
IR12 says, "I don't know. There's no reason, just for practice [and?] to correct"

GE12 says, "korrigieren"

IR12 says, "grrrrrr"

IR12 grins

There is, too, an exchange involving the partnership of example 69 – partnership 12 – where the sometimes undesirable social effect of enthusiastic spontaneous correction becomes clear:

70. IR12 says, "Okay. You're making me feel very insecure with all those corrections"

IR12 grins

GE12 say, "ohoh"

GE12 blush[es].

GE12 says, "well"

IR12 says, "I'm sure your concern is genuine"

The third possible reason for the discrepancy in spontaneous other-corrections is, once again, related to language proficiency. The Irish students' German is more error-prone than their counterparts' English, so there is simply more to correct.

In the *Elicited* category, however, the occurrence of errors does not account for the almost even English-German divide, since here the initiative is taken by the learner rather than the native-speaker respondent. The negligible difference

between English and German elicited corrections is explicable (if not necessarily explained) by the observation that the motivated, linguistically-aware and highly proficient L2 learner is probably at least as likely to elicit native-speaker feedback on his/her output as is the weaker learner whose cues are motivated by doubt as to the effectiveness of his output. (In this context it should be noted that some proportion of cues – impressionistically, a small minority – comprises confirmation requests, and a proportion of the corresponding corrections are simple confirmations.)

But though the breakdown differs between spontaneous and elicited correction/feedback, we find yet again that overall more metalinguistic incidents occur in relation to German than English in spite of the fact that far more English is spoken; and again, the conclusion is inescapable that this has to do with the fact that there is a great gap in proficiency that favours the German side of the exchange. None of this, though, should distract from the more salient fact that such pedagogically and linguistically aware behaviour takes place to the extent that it does: Ellis (1994) cites findings of Chun, Day, Chenoweth and Luppescu (1982) and Gaskill (1980) to the effect that other-repair is uncommon in NS-NNS discourse. It is not feasible, given the size of the corpus, to calculate the incidence of correction as a proportion of total errors (as Chun et al. do); however, it is noteworthy that with 93 instances, nearly as much other-correction takes place in absolute terms as self-repair (109 instances: see Table 5.15, p. 234) and negotiation (95 instances: Table 5.11, p. 206). Chun et al. (1982), according to Ellis (1994), also found that 'it was "factual" errors and "discourse errors" (for example, inappropriate openings, closings, and refusals) rather than lexical or syntactic errors that were more likely to attract repair from native speakers' (R. Ellis, 1994, p. 262). This contrasts sharply with the linguistic level of other-corrections found in the MOO corpus. For the purposes of comparability with the data of Chun et al., Table 5.17 summarises only spontaneous other-corrections, omitting other kinds of NS feedback:

	Example	N	%
Lexical	IR4 says, "ich habe kein Internet- [*]zugridd" *IR4 says, "I don't have Internet access"* IR4 says, "zugriff" *[typographical repair:] IR4 says, "zugriff" [access]* GE4 says, "Internetzugang"	18	40.9
Morphosyntactic	GE19 says, " Do you have had a happy Haloween? :-)"" GE26 says, "yes, i had thanks -hicks-" IR19 say, "You should say "DID you have a happy halloween"! Get that grammar right [GE19]!"	9	20.5
Generalised (see discussion below)	IR18 says, "About the topic, Computer Gaming - wir konnen sprechen ueber die manche Spieler die existieren und die viele Stunden Leute verbringt spielen. […]" *IR18 says, "About the topic, Computer Gaming – we can talk about the many players that there are and who spend many hours playing"* GE18 says, "a little correction (if it is anoying you just tell me and i won´ do again): ..sprechen über manche spieler die viele stunden mit Spielen verbringen." *GE18 [provides an idiomatically and grammatically improved formulation of IR18's utterance]*	7	15.9
Idiomatic	GE10 says, "Oh, you meant normal sig file is boring! You see i´m not in today." IR10 says, ""Not with it today" :-)"	4	9.1
Orthographic	IR25 says, "[…] mein worter buch sagen [*]Herr = army" *IR25 says, "[…] my dictionary says [*]Herr = army"* GE25 says, "Heer is the name for a troop on the ground" GE25 says, "mit zwei ee aber!" *GE25 says, "with two ee though!"*	4	9.1
Sociolinguistic	IR23 says, "Was machen sie in programmierung??? Wir machen Java" *IR23 says, "What are you [formal form] doing in programming??? We're doing Java"* GE23 says, "nicht sie! du ;-)) […]" *GE23 says, "not* sie! du *;-)) […]"*	2	4.5

Table 5.17: Incidence of spontaneous other-corrections by linguistic level

In this MOO tandem setting, it is precisely lexis and morphosyntax that are most likely to attract unelicited repair from native speakers. Most of the other kinds of other-repair have a strongly code-focused character also, the possible exception being the *Generalised* category, which comprises cases where several errors are corrected at once, often by means of reformulation.

The data on NS feedback can readily be understood in the context of the pedagogical framework: such feedback, and other-correction in particular, is the most obvious kind of pedagogical behaviour, and the language-learning purpose of the exchange has been made clear to participants. That German students are responsible for more correction than Irish students, both in absolute terms and even more so in light of the overall dominance of English, comes by now as no surprise; this may be explained by the proficiency gap and/or by cultural/attitudinal differences. The high incidence of other-correction when set beside negotiation and self-repair suggests that the framework is successful in supporting this kind of pedagogical/metalinguistic behaviour. Though there is some evidence that this is occasionally found to be intrusive, there are also some cases of partners requesting correction and negotiating correction strategies. As regards the entities that are subject to correction, the stark contrast between this data and that of Chun et al. (1982) may suggest an effect of the medium as well as of the pedagogical framework: the persistence of a MOO utterance together with the greater time available for examining it before formulating a response may facilitate more precise diagnosis of errors in L2 output, and especially increased attention to matters of lexis and morphosyntax.

5.2.3 Text discussions

Finally, we turn our attention to discussions of L2 texts and corresponding native-speaker reformulations. It will be recalled that students were given a three-week task in which they were to (i) choose a topic on which to write a short text (100 words); (ii) discuss the topic, paying particular attention to L2 vocabulary, idioms and structures that might be useful to them in composing their text; (iii) exchange completed texts; (iv) reformulate their partner's text in

idiomatic English or German, maintaining the intended meaning; (v) discuss the reformulation, i.e., what they changed and why. The purpose of this exercise was to provide a meaning-focused task that would form the basis for metalinguistic discussion, so that explicit consideration of form and idiom would be rooted in the process of conveying meanings originated by the learner.

All text discussions occurred in Session C, as scheduled. The text reformulation task was raised in 21 of the 24 partnership meetings that took place that week, although the degree of engagement with the task varies widely. An impression of this variation is provided by a simple count of the number of utterances in each text discussion (though this is a crude measure, since the length and therefore information content of turns also varies – see p. 174 – and since a small number of text discussions contain substantial digressions): discussion length ranges from 5 to 104 utterances, with an average of 34.9 and a median of 23.5. More informative is a fourfold classification according to depth of engagement with the task as evidenced by explicit reference, or absence thereof, to specific aspects of the original NNS text and its NS reformulation. At the most superficial level of engagement with the task, Level 1, are those exchanges where the only discussion comprises uncritical generalisations such as 'it all seems to be okay' (IR16); 'I didn't have to change anything in your text!' (GE2); 'I didn't make any corrections to yours cos it was pretty perfect' (IR9).

Level 2 includes discussions with critical generalisations about linguistic aspects of at least one text, but with no reference to specific passages; for example:

71. GE33 says, "[IR4], could you have had the impression, the text was not written by a non-native speaker?"

    IR4 says, "yes. sometimes, the German preposition was used instead."

72. GE11 says, "You have used the grammar building of the sentences as it is in english normal, but in German you have to use sometimes another grammar form of sentence building (Puh, that´s difficult for me, because I use german out of feeling, I can´t explain your faults (they were not so numerous you think perhaps) so good at an purely grammatical sight of things, but I hope it will help you a little bit. "

73. GE5 says, "one thing that was noticeable to me was that you often put the verb at the end of a sentrence. in german we do so, when there is a Subordinate clause (that isn't the right expression,i think)"

IR5 says, "Yes subordinate clause I think these are wenn und weil usw yes, when I translate I usually think of the english then translate directly word by word to german this is probably not agood way to do it, I know the words, the vocabulary but not the word order "

Level 3 comprises exchanges in which selected parts of at least one text are discussed, as in the following illustrative extracts:

74. GE1 says, "you only forgot one "," and said "In Wahrheit ist..." but i think "Tatsache ist jedoch, dass..." klingt besser aber deine Form geht auch..."
GE1 says, "you only forgot one "," and said "In Wahrheit ist…" *[lit. "In truth,…"] but I think* "Tatsache ist jedoch, dass…" *["The fact is, however, that…"] sounds better but your form is alright too…"*

75. GE22 says, "There was one thing, I want to tell you about the word "Kid" in you essay. […]"

IR22 says, "[…] What about kid?"

GE22 says, "We don´t say "Zicklein" in Germany. We say "Kind" or we use the word "Kid""

[…]

IR22 says, "ok, thanks"

IR22 says, "in yours, the language is all correct, [but] just when you said "in the latest history", we say "in recent history""

IR22 says, "and the language was almost too formal"

GE22 says, "Oh, good. And what does it mean when I say latest history?"

GE22 says, "I think the Formal language is a problem, which comes up if you only learned English at school"

IR22 says, "latest means "the most up to date", it implies yesterday or very recently"

IR22 says, "Zicklein, means "little one" doesn't it? I thought that was wrong!"

[…]

GE22 says, "Zicklein means eine kleine Ziege *[a little* Ziege*]*. I don´t know what is "Ziege" in English"

IR22 says, "it means kid or baby goat!"

GE22 says, "Oh, yes, goat is the word. Do you use in English the word kid fora child? Or is it more natural to say Child?"

IR22 says, "we use both"

IR22 says, "it's weird"

IR22 says, "!"

IR22 says, "kid would be more informal"

IR22 says, "than child"

GE22 says, "Sometimes it is difficult, because we often use English words in our language"

IR22 says, "but we use kids to denote a group of children, rather than saying children!"

IR22 says, "like "there's a group of kids!""

In Level 4 discussions, those that engage most deeply with the metalinguistic dimension of the task, partners go through at least one text systematically, attempting to deal with each reformulated sentence:

76. GE26 says, "very good, now let's see: first sentence"

GE26 says, "you should say just "eines" instead of "irgendeines", Irgendeines means it dosen't matter, which one of severel, and eines means one common"

[…]

IR26 says, "I also think that if there is a way of writing something in a better way you should tell me"

[…]

[…]

GE26 says, "if talking about periods, as das 13. Jahrhundert *[the 13th century]*, you can say "IM 13. Jahrhundert", but when you talk of the 50ties or the 60ties, you should say "in den (frühen) 60er Jahren" *[in the (early) 60s]*"

IR26 says, "Don't worry I am taking all of this in"

GE26 says, "you will get a chance for revenge soon. the followring sentence is quite difficult to understand, because the grammar is mixed up"

IR26 says, "I don't think I can even remember what I was trying to say!"

[…]

GE26 says, "i would suggest [to] write it this way: "..., welche den möglichen Nutzen und den großen Anteil sahen, den Computer in Wissenschaft und Forschung einnehmen könnten. […]"
GE26 says, "I would suggest [to] write it this way: "…, which saw the possible usefulness and the great role that computers could play in science and research."

[etc.]

Four of the 21 exchanges are categorised as Level 1, which represents near-total absence of engagement with this part of the task. It might be that students benefit from the writing and from examining the reformulation; even so, it is scarcely imaginable that there is genuinely nothing to say about either the NNS or NS versions or their relationship to one another. More probably these students saw no point in discussing the texts, considering the task to be substantially complete once they had written their text and received a reformulation. That is, they may have been focused on written outcomes, seeing no learning benefit in the process of making explicit any thoughts about aspects of language that may have occurred in writing, reading the NS reformulation, or indeed writing an L1 reformulation for their partner. Of course, such metalinguistic discussion, and the cognitive re-representation of explicit knowledge I assume it to engender, constituted a large part of the purpose of the exercise.

Seven exchanges reached Level 2 (critical generalisations on linguistic matters, but without reference to particular parts of the text). The potential value of such exchanges of course depends in great measure on their specificity. The NS feedback in example 71 above, for instance, is specific as to part of speech (prepositions), and might prime the NNS partner to notice mismatches between the German and English prepositional systems; but as a pedagogical intervention it would likely have been more effective if set in the context of specific examples. The German speaker of example 72 points to sentence structure as a problem area, but this seems so vague a remark as to be entirely unhelpful. Example 73 is more grammatically precise, and both partners use appropriate metalanguage in reaching a common understanding of the point in question. This would thus seem to be a more useful exchange than those of 71 and 72, embodying as it does – indeed, possibly engendering – quite sophisticated metalinguistic reflection.

The kind of remarks that are made in the course of discussions at this level range over morphosyntax, lexis, idiomaticity and style, as illustrated in examples 77 to 80, sometimes combining observations at various levels into a single utterance:

77. [Generalised:] IR18 says, "Well, all i changed in yours was the word order in one sentence, put in some commas, and replaced oftentimes with often, your text was really good so it saved me having to do work ;-)"

78. [Lexis, morphosyntax:] GE12 says, "see, your vocabulary is good but the order in a sentence isn't"

    IR12 says, "Tenses? Verb endings? Everything?"

79. [Idiomaticity:] GE33 says, "i had the impression, you translated your english sentences directly into german ..."

80. [Style/register:] GE12 says, "there sure are more complicated way of saying what you said, but that wouldn't have been of much use i think"

    GE12 says, "i guess there are more complicated and elaborated ways of expressing what i wrote too"

    GE12 shrugs.

    IR12 says, "Yeah. But is serves no real purpose to do so."

The focus of these discussions (lexical, morphosyntactic, etc.) is in a sense only nominal. The discussions exemplified by 77 to 80 meet the requirements of the task to the extent that they constitute discussions centred around the text, but their potential to promote in the learner attention to, and restructuring of, metalinguistic representations seems minimal. In so far as they succeed in raising awareness of strategic considerations in the composition of text, though – e.g., avoid word-for-word translation from L1; pay particular attention to word order when revising – Level 2 discussions may reach a certain degree of pedagogical effectiveness.

Eight exchanges attained Level 3 – metalinguistic discussion of specific parts of the text. Of course, these exchanges also contain many – in some cases, mostly – generalisations of the same kinds found in Level 2 exchanges. Where specifics of texts are addressed in individual utterances or exchanges, they deal with orthography, morphosyntax and pragmatics, sentence meaning, lexical meaning, idiomaticity, and lexical selection. The following gives a flavour of the discussions:

81. [sentence meaning, lexical selection, idiomaticity:] GE23 says, "there was one sentence i didn't understand"

    IR23 says, "ok "

    IR23 says, "I think it was the halbe diese Dort or something"

GE23 says, "exactly"

IR23 says, "I was trying to say Half way there"

GE23 says, "ahh I see"

GE23 says, "you should say: […]"

GE23 says, "Wenn man einen guten Manager oder hat Kontakt mit einer Rekordfirma gehabt, dann hat man es fast geschafft"
GE23 says, "When one has a good manager or has had contact with a record company, then one has nearly made it"

GE23 says, "YES"

IR23 says, "thankyou"

IR23 says, "what is geschaft??"

GE23 says, "schaffen = etwas erreichen "
GE23 says, "schaffen = to achieve something"

GE23 says, "to make it"

IR23 says, "thankyou .. That makes way more sense"

GE23 says, "I nearly made it = Ich habe es fast geschafft"

82. [lexical selection, idiomaticity:] IR13 says, "were you able to understand what I was trying to say throughout my text?"

GE13 says, "pretty much so, yes. Only your translation of death row would have been difficult if I hadn't known the English word."

IR13 says, "What would you say?"

GE13 says, "I didn't find a German equal, so I tried to find a way around."

[…]

GE13 says, "If you really needed to say death row, I would leave it untranslated."

[…]

GE13 says, "I'll try to find something similar."

GE13 says, "someone on Death Row is "ein zum Tode Verurteilter" *[literally, 'one sentenced to death']*"

Finally, just two partnerships attempted to discuss systematically every reformulated sentence in at least one text (Level 4). This is quite a lengthy process which left little time for the generalised remarks that we find in Level 3, and the sentence-level focus appears to promote greater attention to matters of form: there are 14 instances of morphosyntactic focus, far more than in any of

the other text discussions. There are also eight cases of attention to lexical selection, and six of attention to idiomaticity. Other remarks deal with sentence meaning, lexical meaning, register and style, and orthography. The extracts in 83 and 84 (which was previously presented as example 76) exemplify the discourse in these exchanges:

83. GE24 says, "your 1st sentence: Das Handy *[*]*hast *[*]*ein sehr grosse Einfluss in normale Leben. "
*GE24 says, "*your 1st sentence: *The mobile phone has a very great influence in normal life. "*

GE24 says, "reformulation: Das Handy hat einen sehr grossen Einfluss im normalen Leben."

GE24 says, "I´ll try to explain it in German. Interrupt, if anything is not clear... ;)"

GE24 says, ""sehr grossen Einfluss" ist Akkusativ, 4. Fall im Deutschen..."
GE24 says, ""sehr grossen Einfluss" *is accusative, fourth case in German…"*

GE24 says, "Das Handy ist 3. Person Singular (er, sie, es hat) , deswegen hat (hast ist 2. Person, du hast)"
*GE24 says, "*Das Handy *is 3rd person singular (he, she, it has) , therefore* hat *(*hast *is 2nd person,* du hast)*"*

GE24 says, "2nd sentence: Man kann praktisch überall hingehen, und man [*]siehst ein Mobiltelefon"
GE24 says, "2nd sentence: One can go practically anywhere, and one sees a mobile telephone"

GE24 says, "reform: Man kann praktisch überall hingehen, und man sieht ein Mobiltelefon. "

GE24 says, "Eigentlich fast gleich, gleicher Fall wie eben, man hat immer die 3. Person (er, sie, es sieht)"
*GE24 says, "Actually almost the same, same case as before, we still have the 3rd person (*er, sie, es sieht)*"*

GE24 says, "Eine umgangssprachlichere Version wäre: Man kann nirgendwo mehr hingehen ohne ein Mobiltelefon zu sehen..."
GE24 says, "A more colloquial version would be: One can't go anywhere without seeing a mobile telephone…"

GE24 says, "3rd sentence: Ich habe ein Handy, und ich finde *[*]*das mein"
GE24 says, "Leben schwieriger wäre, wenn ich *[*]*habe es nicht."
GE24 says, "3rd sentence: I have a mobile phone, and I find that my"
GE24 says, "life would be more difficult if I didn't have it."

GE24 says, "reform: Ich habe ein Handy, und ich finde das mein Leben schwieriger wäre, wenn ich es nicht hätte."

GE24 says, "den letzten Teil würde man so nicht im Deutschen sagen können."
GE24 says, "you couldn't say the last part like that in German."

GE24 says, "umgangssprachlicher könnte man das auch so ausdrücken: Ohne Handy könnte ich nicht (über)leben."
GE24 says, "You could also put it more colloquially like this: I couldn't live (survive) without a mobile."

IR24 says, "ja, das ist bessere"
IR24 says, "yes, that is better"

84. GE26 says, "very good, now let's see: first sentence"

GE26 says, "you should say just "eines" instead of "irgendeines", Irgendeines means it dosen't matter, which one of severel, and eines means one common"

[…]

IR26 says, "I also think that if there is a way of writing something in a better way you should tell me"

[…]

[…]

GE26 says, "if talking about periods, as das 13. Jahrhundert *[the 13th century]*, you can say "IM 13. Jahrhundert", but when you talk of the 50ties or the 60ties, you should say "in den (frühen) 60er Jahren" *[in the (early) 60s]*"

IR26 says, "Don't worry I am taking all of this in"

GE26 says, "you will get a chance for revenge soon. the followring sentence is quite difficult to understand, because the grammar is mixed up"

IR26 says, "I don't think I can even remember what I was trying to say!"

[…]

GE26 says, "i would suggest [to] write it this way: "..., welche den möglichen Nutzen und den großen Anteil sahen, den Computer in Wissenschaft und Forschung einnehmen könnten. […]"
GE26 says, "I would suggest [to] write it this way: "…, which saw the possible usefulness and the great role that computers could play in science and research."

[etc.]

Two aspects of these, the most detailed text discussions, are particularly noteworthy from the point of view of pedagogical effectiveness. First, long stretches of the discussion resemble monologue, the native speaker taking control and the non-native speaker adopting a mostly passive role. Unlike many

discussions classified as Level 2 or 3, there is little back-channeling. Second, the sentence-by-sentence focus makes it natural and feasible to focus on details of form, and to use the metalanguage of grammar in doing so, as we see in example 83. Given the psycholinguistic and pedagogical model set out in this study, this latter quality, detailed metalinguistic talk, is an important element of the kind of discourse that we would wish to promote. However, its benefit is attenuated by the former quality, the monologic nature of the discourse. The roles in this discussion are highly traditional, the native speaker playing expository teacher, the non-native the passive recipient of authoritative information. The intention of the discussion phase of the task was that learners would critically assess aspects of their interlanguage knowledge, as crystallised in their original texts, in the light of the native-speaker reformulations; but that they would do so in negotiation (in the broad sense) with the native speaker. The hope was that learners would play an active role in shaping the discourse, making explicit their existing assumptions and revising them appropriately in discussion with native speakers who themselves had considered closely both the meanings and the forms used by their non-native counterparts. The evidence of these two exchanges suggests that, at best, these learners are considering their partners' revisions and criticisms in silence, and attempting to absorb them ('Don't worry I am taking all of this in', remarks IR26 in example 84).

Data from the questionnaire (see Appendix C) provides an insight into students' perceptions of the effectiveness of the discussion phase of the task. Question 8 reads:

> The final writing/reformulation task session was for discussion of the changes made to your partner's text and your own. Was this session useful? If so, in what ways? Or, if not, why not?

There were 33 responses to this question, excluding seven to the effect that the respondent 'didn't really discuss that many changes because neither text was changed too much' (IR2), and six indicating that the question was not applicable because the student had missed the session or because texts had not been exchanged. There were 19 positive responses, 8 negative, 5 identifying both positive and negative aspects, and one that was non-evaluative, stating only that

'We decided I should re-write the text and try again' (IR17). By nationality, the *Positive*, *Negative* and *Both* responses break down as follows:

Positive:

Irish – 12 responses, e.g.,

> Yes, it made me learn from my mistakes + also how a native would say it which is EXTREMELY important. (IR19)

> Yes you could then see what mistakes you made & compare it to the reformulated text your received. You can quiz them on why you [were] wrong & not just that it was wrong. (IR11)

German – 7 responses, e.g.,

> Very useful! Exchanged vocabulary and expressions -> gives great insight into other language. (GE13)

> It was usefull, because my partner gave me several hin[t]s how to formulate the text in a better way (GE6)

Negative:

Irish – 2 responses:

> I don't think that session worked very well. It is very hard to explain to someone why you changed their text or why you moved something. If they have seen it before or have been told the word by a teacher, they can't see why it needs to be changed. (IR23)

> My partner's text was pretty much perfect so there was nothing for me to do & since he had helped me with my work there wasn't too much for him to do. I think its hard to change something when you can't spot a specific problem. (IR9)

German – 6 responses, e.g.,

> It wasn't useful because I could see the changes by myself. (From an anonymous questionnaire)

> No, it wasn't. I don't think my partner did really understand <u>why</u> I changed his phrases the way I did. And even when he would have asked me, I'm probably unable to explain him correctly why I changed his text. It has a lot to do with my natural feeling for my native language. (GE5)

Both:

Irish – no responses

German – 5 responses, e.g.,

> In my opinion communication in the MOO is too slow to discuss many points. Of [or?] the MOO should take an hour an a half for example to give on [one?] more time to discuss. But some points were discussed, I now know that my English is partially formal but I don't know how to change this. (GE22)

> It was useful for explaining general mistakes, but for the more detailed corrections my own grammatical sense of German is not so good. Besides it is very boring to talk about failures you make for an hour (There weren't so many faults also). (GE11)

There was a wide range of positive responses (i.e., 'pure' positives and the 'positive' element of responses categorised as *Both positive and negative*). The most

common observation (8 responses) was that the discussion assisted the learner in understanding the source of errors, and/or clarified the reasons for reformulation. Four respondents identified the fact that errors were highlighted in the discussion (without stressing the role of understanding), with a further two specifying the kind of problem that was highlighted: one stylistic point relating to register (GE22; response quoted above, under heading *Both – German*), the other 'general mistakes' as opposed to 'more detailed corrections' (GE12). In the latter case, it is interesting to note that the respondent interpreted the usefulness of this task phase as applying only to his partner rather than to him. Three responses stressed the importance of a native-speaker model, three spoke of 'learning from one's mistakes', and three – all German – said they believed it had been useful for their partners – though, by implication or assertion, not for them. Two respondents mentioned the importance of seeing alternative formulations even where there was no actual mistake. Five further remarks pointed to the fact that the original and the reformulation could be compared; to the interactive nature of the discussion ('You can quiz them on why you where wrong & not just that it was wrong' – IR11); to the possibility of self-evaluation; to the fact that new vocabulary was made available; to the insight into the target language that was afforded; and to the comprehensiveness of the discussion as an error-correction exercise.

The most common negative remark (from the *Negative* and *Both* categories) was that there were few or no mistakes to correct – mostly in reference to a German partner's English text – and therefore little or nothing to discuss. More interestingly, the next most common response was that it was difficult to explain why reformulations were made:

> It was useful for explaining general mistakes, but for the more detailed corrections my own grammatical sense of German is not so good. […] (GE11)
>
> I don't think that session worked very well. It is very hard to explain to someone why you changed their text or why you moved something. If they have seen it before or have been told the word by a teacher, they can't see why it needs to be changed. (IR23)
>
> No, it wasn't. I don't think my partner did really understand <u>why</u> I changed his phrases the way I did. And even when he would have asked me, I'm probably unable to explain him correctly why I changed his text. It has a lot to do with my natural feeling for my native language. (GE5)

> Discussion was very complicated. You can explane changes in grammar or spelling. But how do you explain changes in reformulation. You can only say: we don't say so. (GE10)

Other responses stated that the discussion was redundant since the learner could already see and understand his/her errors (an anonymous German student); that the reformulation of his/her partner's 'mostly incomprehensible' text was so all-encompassing as not to give itself to discussion (a second anonymous German student); that his partner didn't understand the rationale behind his reformulations (GE5); that her partner was uninterested (GE33); that communication was too slow for the time available (GE22); that while a problem of style was identified, no solution was found (GE22 again); and that it is boring to talk about mistakes for an hour (GE11).

The most frequent positive response – that the discussion facilitated identification of the sources of error and the rationale for particular reformulations – as well as some other positive responses, point to the effectiveness of the exercise in deepening reflection on specific instances of language beyond what occurs in the production of the text and perusal of the reformulation. But many other responses identify benefits that are not peculiar to the discussion phase. This is due at least in part to the fact that, as it emerges from the discussions, many partners read the reformulated text for the first time immediately before, or even during the discussion session. Hence these two phases, which were intended to be distinct, were in practice conflated in some instances.

Among the negative responses, the second most frequent was that making explicit the reasons for reformulation was too difficult. Two of these respondents referred explicitly to their instinct as native speakers of the language, and the difficulty of making explicit what is normally implicit underlies the other two responses also. This of course goes to the heart of the discussion phase of the task. On the basis of the broadly Vygotskian conviction that to engage in dialogue is potentially to reach new kinds and depths of understanding – and that what remains implicit may also remain unanalysed (Little, 1996a) – the purpose of discussing reformulations was precisely to require of students, whether native or non-native, a kind of metalinguistic reflection that does not

necessarily come easily, particularly in relation to the native language and more especially again in relation to idiomaticity, as opposed to morphosyntax. The fact that the four students quoted above found this too difficult is unfortunate. But it is also evidence that, when properly engaged with, the text discussion phase had the desired effect of bringing about metalinguistic thought at a level that was unaccustomed and challenging. For the native speaker, this might well bring to light new insights into the mother tongue (IR22's apparently sudden realisation that the English word *kid* is perhaps more common in the plural than in the singular is a case in point: see example 75, p. 244). Not only can such insights be shared with the non-native partner, but this reflection-through-dialogue may serve to promote a more general language awareness, at least for the duration of the exchange, with corresponding benefits for both partners.

One final aspect of the text discussions seems worthy of note: the affective dimension of learners' utterances when discussing text. There is a strong tendency for students who regard their texts as weak – in practice, mostly Irish students – to engage in behaviours that I construe as face-saving in intent: e.g., pre-emptive self-criticisms, drawing unfavourable comparisons with the partner's L2 proficiency, and self-deprecating jocularity:

85. IR19 says, "Yeah, I thought [your reformulation] was VERY helpful - I made so many STUPID mistakes! Your English is like 10 times better than my German!"

86. GE1 says, "Did you recieve [my text]? Its not great i know but i only had a few minutes that morning..."

87. GE1 says, "Ok... I´ll write it a hundred times on the board in the classroom like Bart Simpson :-)"

88. GE22 says, "Okay. I think we are supposed to talk about our essays"

    IR22 says, "yeah, what did you think of mine!?"

    IR22 says, "i apologise for it!"

    GE22 says, "Why do you appologize for it?"

    IR22 says, "my German is so bad compared to your english!"

    GE22 says, "I think it is grammatic which is difficult, isn´t it"

    IR22 says, "yeah"

    IR22 says, "its just so different to english!"

89. IR24 says, "ich wünschte das ich habe nicht so viel blode Gelaber geschreiben :)"
IR24 says, "I wish that I hadn't written so much stupid prattling :)"

In example 88, both partners collaborate in making allowances for the Irish partner's self-diagnosed weakness. Similarly, partners making corrections often balance observations that might be perceived as critical with encouraging remarks:

90. GE1 says, "you only forgot one "," and said "In Wahrheit ist..." but i think "Tatsache ist jedoch, dass..." klingt besser aber deine Form geht auch..."
GE1 says, "you only forgot one "," and said "In Wahrheit ist…" *[lit. "In truth,…"] but I think* "Tatsache ist jedoch, dass…" *["The fact is, however, that…"] sounds better but your form is alright too…"*

91. IR1 says, "your text is good enough"

IR1 says, "it just has minor mistakes"

IR1 says, "my english isnt perfect either"

92. IR4 says, "yes. sometimes, the German preposition was used instead."

IR4 says, "but it was very good :)"

Utterances and exchanges like these show that this phase of the task, where the pedagogical dimension of the tandem exchange is to the fore, is potentially face-threatening. The potential for social difficulties may be perceived as greater than at other times because this is the only occasion where the linguistic 'authority' of the native speaker is quasi-formalised – hitherto they should in principle have interacted as peers – and, in the case of GE-NS text discussions, because the gap in proficiency is so evident.

We have seen that there is a wide range of engagement with the discussion phase of the writing/reformulation task, which for simplicity of analysis was divided into 4 levels, from avoidance to forensically detailed engagement with the text. The most superficial level is clearly of little pedagogical value; the most intense engagement, however, also harbours certain pitfalls. It tends towards discursive monologue rather than the collaborative building of understanding that was intended, it takes a lot of time, and it may contain more information than can be dealt with by the non-native speaker – especially in the absence of active participation in the discourse. The kind of engagement that I called Level

3 – where partners deal with at least some textual specifics, but not in the comprehensive detail of Level 4 – is perhaps the most effective and sustainable way of dealing with this task phase. Here the learner has some control over the range and depth of analysis of the text and reformulation, allowing him/her to steer the discussion towards those elements that proved problematic and were thus *noticed* at the composition stage. Unfortunately, though the task specification (see Appendix A) called for students to note in their online diaries what difficulties they had in composing their texts, none of the diaries recorded specific points, but rather generalisations; e.g.,

> The difficulties with the text [were] the usual in finding the correct vocabulary and also the correct syntax. Specific text was the hardest to find as it is not something that would have been taught in school, computer games [were] not part of the curriculum. (IR11)

In the absence of evidence as to specific difficulties encountered in composition, it is not possible to ascertain whether learners focused on problem forms in their text discussions.

The task succeeded in eliciting metalinguistic discourse at levels that are rarely addressed in the spontaneous metalinguistic episodes examined previously (negotiation of meaning, self-repair, other-correction). In particular, there were a great many instances of discussion of morphosyntax, which was otherwise scarce. However, the quality – i.e., depth of analysis – of the metalinguistic talk and reflection does not necessarily rise above what individuals are capable of in any case; i.e., it is not scaffolded, hence not stimulated to grow or deepen. But I draw this conclusion on the basis of a single trial of a single task. It may be the case that the consistent application of a pedagogy like this one would indeed show improvements in the analytic depth of metalinguistic discourse. On the other hand, it may be that more teacher input – more provision of sociocultural (metalinguistic) knowledge – is needed if growth in metalinguistic knowledge is to be promoted. The form that such input should take, though, is an open question: should it be expository? Or should it take a form that prompts and further stimulates deeper, more analytical and rigorous reflection? How could such input be incorporated into an online exchange scheme that values above all the independence of the learners in creating their own learning experience? These questions related to the more general debate on strategy training;

important though they are, they cannot be addressed further in the present study.

Finally, feedback elicited by questionnaire suggests that the majority of students either responded positively to the discussion phase of the task, or else saw positive aspects as well as negative aspects. This is reinforced by an impressionistic overview of diary entries; I will conclude with the words of student GE11, in a particularly thoughtful diary entry after the text discussion session:

> Puh, es ist sehr viel schwieriger über die Fehler zu diskutieren als den Text für das Projekt zu schreiben.
> *Phew, it's very much harder to discuss errors than to write the text for the project.*
>
> Da ich auch nicht gerade ein super Talent in Deutsch bin (hatte schon immer meine "Problemchen" mit dem Satzbau und der Kommasetzung etc.), ist es sehr schwierig für mich die Fehler zu erklären die John gemacht hat, Englisch unterscheidet sich im Satzbau nämlich ganz schön vom Deutschen.
> *Since I'm not exactly a super-talent in German (always had my 'little problems' with sentence construction and commas etc.), it's very hard for me to explain the mistakes that John made: English sentence construction is rather different from German.*
>
> Wie ich gesagt habe, hat es sich glaube ich bei diesem Projekt deutlich gezeigt das wir es sehr viel einfacher haben als unsere Irischen Partner solch einen Text zu schreiben, beim Reformulieren wohl eher andersrum.
> *As I said, I think this project has shown clearly that we have it much easier than our Irish partners in writing such a text, but in the case of reformulation it's probably the other way around.*
>
> Es hat auf jeden Fall mal wieder Spass gemacht, auch wenn es diesmal mit ein bisschen Arbeit ausserhalb der FH verbunden war
> *In any case it was fun once again, even if it was connected with a little work outside the FH* [technical college]

5.3 Introspective assessment of the effect of the medium[23]

It was noted in section 5.1.3 that MOO session transcripts can give us only limited insight into the individual experience of using the MOO, into the processes of producing and reading text as part of a dialogue and in particular into the actual, as opposed to potential, attention to language form that arises in MOO interaction. Think-aloud protocols are a possible way of examining such processes, but the think-aloud process would almost certainly constitute a serious impediment to spontaneous communication, hence an unacceptable interference with the very processes under observation. The instrument used in this study to elicit subjective impressions of MOO interaction was the semi-

[23] This section is abridged and adapted from O'Rourke & Schwienhorst (forthcoming).

structured online interview, conducted in the MOO as soon as possible after the project had finished (the exchange project ended with the teaching term in December, and the interviews took place as early as feasible in the following term, in early February). Twelve Irish and three German students took part in the interviews, which were conducted one-to-one in the MOO. Transcripts were thus immediately available to the researcher.

The interview aimed to address the following research questions:

1. Do MOO participants consciously perceive the opportunities provided by the medium for metalinguistic reflection?
2. Even if they do perceive these opportunities, to what extent do they in fact exploit them?
3. Does metalinguistic reflection follow automatically from use of real-time text medium?

Of the questions asked, the following were intended to elicit insights into the moment-by-moment processes of using the MOO:

1. Were you more or less careful than usual about your [L2] when using the MOO, as compared to writing and to face-to-face conversation with native-speaker assistants?
2. Did you ever look back at your partner's German to remember, or even re-use, words, phrases, expressions, and so on?
3. Did you ever read transcripts of previous MOO sessions?
4. Do you think as you type, or think and then type?
5. Did you (or do you) read or revise what you type before hitting the 'Enter' key? Is there any difference between how you type English and German in this regard?
6. Did you find – or do you find now, as you do this interview – that you re-read what you have typed *after* you press the Enter key?

This research instrument naturally required a degree of retrospection on the part of the interviewees, but it was possible to cross-check retrospection against introspection, since while 'listening' and replying to questions they were engaged in precisely the kind of communication that was the subject of the interview.

Many of these questions concern the various identifiable points in MOO interaction where reflection can take place:

- before or during typing;
- after typing but before transmission (which occurs when the *Enter* key is pressed);
- immediately after transmission but before receipt of a response, at which point the message is irrevocable and visible to all in the room;
- after one or more further conversational turns have taken place; and
- after the MOO session is over, at which point the session transcript is automatically made available to each participant through system-internal mail.

Though we cannot draw very robust conclusions from such interviews, the students' responses were highly suggestive. We will consider each of the three research questions in turn.

First, these MOO participants were indeed aware of the medium-specific factors that afford opportunities for reflection. For example, in response to interview question 1, nine out of fifteen respondents claimed to be more careful about using their L2 when using the MOO than in face-to-face conversation with native speakers of L2. Of 13 reasons given for this perceived effect, eight responses point to factors intrinsic to the medium:[24]

- *The visual nature of the medium* – 3 responses: e.g., 'errors in grammar are easier to c / for example... / dem and den sound very similar in speech / but the difference is obvious when you type them out' (IR10); 'cause it is easier to see mistakes when writing / I feel when you are talking to them it is easier to hide mistakes but you have to be more accurate when typing' (IR14)
- *The permanence of utterances* – 1 response: 'when you write text you are normally more careful about your formulation of your text. You think about your text, you change parts of your formulation before sending

that. Spoken text is a "one-time" communication. Once a word has been said you cannot take it back' (GE24)

- *The speed of interaction* – 3 responses: e.g., 'I could afford to be more careful about it because I had more time to answer the person' (IR22)
- *Absence of non-verbal affective cues* – 1 response: 'You tend to be more careful. A big disadvantage of text is that you cannot express emotions very well. Sure there are emoticons, however if I speak to someone I can use mimic and gesture to underline my opinion. In a chat room I have only text for that.' (GE24)

Responses to other questions also indicate awareness of possibilities for reflection. In answer to interview question 4, IR3 states that he thinks before typing in L2: 'i would have to form the sentences in my head in German before i start typing it, whereas in English i would just think of the start of the sentence and then form it as i type'. IR11 reports, in reply to the same question, that

> I thought about what I was going to say in German first and then typed it as I already knew what I was going to say in english […] / as the conversation is slower in the moo as you have to form the sentences and you may be stuck for vocab for easy words that you may have forgotten due to lack of practice.

IR22's response to question 5 ('Did you (or do you) read or revise what you type before hitting the 'Enter' key?') is a particularly vivid illustration of how the MOO makes language tangible and available for cognitive manipulation – how words are not just as a medium of communication, but *representations* of language that have become 'extensions of thinking and objects in their own right', that can be 'stored, viewed, considered and manipulated' (Sharples, 1999, p. 10):

> IR22: it can give better results when correcting the german because if you read it backwards you can sometimes better structure the sentence / I know that sounds weird but thats what i found / !
>
> Researcher: Do you really mean read it *backwards*?
>
> IR3: well from right to left rather than left to right / lol [laughing out loud]

---

[24] In transcriptions, a slash – / – represents a point at which the participant transmitted the message thus far by pressing the Enter key.

> Researcher: Would you read what you wrote from right to left, word by word?
>
> IR3: well it only helps sometimes / […] German sentence structure is so different from English that you have to look forward in the sentence before you look at the start, we're not used to that / our brains get confused woth [with] the verb being at the end of the sentence, so reading last word first restores the objective of the sentence, allowing our brains to do what natural german speakers do
>
> Researcher: Are you aware of any similar process on your part when you're listening to German spoken, face-to-face?
>
> IR3: no when speaking, it's hard to wait for the verb / if you're trying to translate the rest of the sentence in your head, you could miss the verb

The second research question was, To what extent do students in practice exploit the opportunities for reflection, where they perceive them? A clear pattern emerges here. Near the time of utterance production – i.e., before typing utterances, before transmitting them, and especially immediately after transmitting them, students exploited the reflective opportunities with reasonable consistency:

- 12 out of 15 reported either always thinking before typing, or doing so in the case of L2 (question 4);
- 11 out of 14 respondents to the relevant question (question 5) reported re-reading their utterances before transmitting it, of whom eight did so solely or especially for L2;
- 13 out of 15 reported re-reading their own utterances after transmission (question 6), of whom two did so only for L2.

On the other hand, at a distance from particular utterances or from the MOO session, students show little inclination to review the language produced. The first pertinent question here is, 'Did you ever look back at [utterances in your L2 produced by your partner] to remember, or even re-use, words, phrases, expressions, and so on?' (question 2). Only five affirmed having done so, while all ten remaining respondents had not. Of those who did not, three believed that looking back over previous utterances would interrupt the flow of the conversation (presumably because they would be distracted from the part of the conversation currently unfolding), while another five said that the possibility

simply did not occur to them. In either case, conversational flow was obviously the determining factor: to this extent, the speech-like aspect of MOO dialogue seems to have been uppermost in the minds of most respondents.

The other question that relates to reflection 'at a distance' is reviewing of transcripts after session end (question 3). While ten claimed to have re-read transcripts of MOO sessions, five of these did so only in connection with the writing task, in which they were explicitly advised to examine transcripts, and a further five never did.

The pattern that emerges, then, is that learners are more inclined to exploit those opportunities for reflection that present themselves around the time of utterance generation and transmission – and especially immediately after transmission – than they are at a distance from utterance generation and transmission.

The third and broadest research question posed above was, Does the medium intrinsically encourage metalinguistic reflection? That is, are MOO participants drawn into a metalinguistic mode of thought by the mere fact that they are using the MOO? Only in the case of reviewing utterances *after* transmission do we have compelling reason to believe that this might be so. As noted, the overwhelming majority of respondents (13 out of 15) take this opportunity; but it is especially notable that a significant number of respondents (5) reported re-reading their utterances simply because it is possible, due to availability of time and visibility of their words:

> IR6: Yes, i do, just glance over really
>
> Researcher: What do you think makes you do that?
>
> IR6: I don't know really. I just do it while i'm waiting. I'm quite an impatient person

> IR3: Yes I nearly always re-read after I press the Enter-key.
>
> Researcher: Again, is there any difference between English and German in this regard?
>
> IR3: No, no differnce. I think its just habit. / It sometimes depends on how long i am waiting for a response

However, the reasons most students give for exploiting the medium's metalinguistic affordances concern factors independent of the medium:

- learning-strategic factors (e.g., 'I understood most of what was said and made a mental note, if there was any important vocab I wrote it down' – IR5);
- pedagogical factors relating to one's partner's learning (e.g., 'I tried to be careful and not to write kind of colloquial german... / because I know how confusing this is in the first time one learns a language' – GE7);
- communication strategies (e.g., 'I found myself writing short simple sentences. / I tried to avoid complicated german' – IR6);
- social-affective factors, especially face-saving (e.g., 'it was actually a bit embarrassing, how bad my German was compared to her English / I guess i tried to make up for it by checking what i was writing' – IR22).

It seems, then, that even if writing is indeed metalinguistics, simply using this medium does not automatically compel reflection on form at each of the many available opportunities. The learner interacting with another in a MOO has opportunities for metalinguistic reflection that are not available, or not as tangibly so, in oral conversation. But learners will only exploit these affordances for what they perceive as good and pressing reasons – such as reviewing and correcting their L2 utterances in order to save face. More generally, there seems to be in operation an L2 cognitive/communicative strategy of devoting more resources to reflection on L2 than on L1; but this is most likely common to all L2 communication. Taken together with the finding that learners are more likely to focus metalinguistically on current utterances than past ones, we can conclude that learners are more inclined to *local, expedient, tactical* exploitation of metalinguistic affordances than to *displaced, strategic, considered* exploitation. The most plausible interpretation is that reflection is metered according to its perceived immediate utility – for face-saving or for successful communication principally, with learning considerations a runner-up.

These data suggest three categories of reflective opportunity within the MOO system. One category includes those properties that positively compel

reflective behaviour on the part of users: the opportunity to re-read utterances immediately after transmission falls into this category. A second category includes those opportunities that are less immediately compelling, but that learners tend to take advantage of given medium-extrinsic pressures to do so: this category includes editing utterances before transmission. The third category comprises those properties that are not immediately apparent to learners, and which are likely to be exploited only by virtue of awareness and strategic thinking on the part of the learner, or in deference to positive pressure from task or teacher. This framework leads naturally to the speculation that training or awareness-raising might be an important factor in allowing learners to make the most of CMC, or indeed any CALL applications, or perhaps even pedagogical tasks more generally: if some reflective processes are likely to occur *nolens volens* while others require a greater or lesser degree of extrinsic pressure, then it seems likely that learners will benefit from having their attention drawn to the possibilities offered by the medium, or the software application, or the task. Training in strategies is, after all, widely considered to be one of the key goals in the promotion of learner autonomy.

5.4 Summary and conclusions

This chapter has examined closely the linguistic interactions of partners in an online bilingual tandem exchange, analysing utterances and exchanges that I believe indicate and/or promote attention to the language code in the context of meaningful communication. These language-related episodes were of two kinds: those that arose spontaneously in the interactions of tandem partners, and those that were prompted by an assigned writing/reformulation task. The purpose has been to describe such metalinguistic behaviours and assess as far as possible the effects of the pedagogical (i.e., tandem) framework and of the online, text-based medium (the MOO), and to describe and evaluate the effectiveness of the final, discussion phase of the assigned task in fostering metalinguistic discourse. Finally, student introspection as elicited in online interviews was used in an attempt to gain some insight into the cognitive processes involved in participating in MOO dialogue.

The proficiency gap identified in Chapter 4 resulted in a tendency to resort to English as a *lingua franca* whenever problems arose, but also to a greater metalinguistic focus on German than on English. These effects are seen again and again in various aspects of the interactions of partners. It is possible that this *lingua franca* effect is exaggerated by the reduced-cues nature of the medium; that is, a strategy of resort to the partnership's stronger language (the weaker partner's L1) may be more likely in the absence of non-verbal communication channels.

A range of phenomena was examined that I believe may lead to increased focus on language form and its relation to meaning. According to the model presented in Chapter 2, this in turn may prompt the restructuring of conscious knowledge, which plays a role in language performance and thus in facilitating unconscious acquisitional processes.

The first such phenomenon to be examined was negotiation of meaning. It emerged that German-language utterances, whether from native- or non-native speakers, triggered the great majority of negotiation routines. With regard to the form of failure signals, it was found that confirmation checks were infrequent and that where they occurred, they were often semantic or pragmatic in their focus. It is possible that in spoken communication, confirmation checks are triggered by acoustic/phonological difficulties, which cannot occur in a textual medium; a related effect of the medium is that non-phonological problems may be resolved in the MOO through re-reading more effectively than they can by reference to an acoustic trace in short-term memory. Applying the broad notions of *direct* and *indirect signals*, it emerges that, contrary to the findings of Gass and Varonis (1985, from whom the distinction was adopted), direct signals were more frequent than indirect. This is probably attributable to a combination of the tandem pedagogical framework – since the purpose of the situation is overtly pedagogical, signalling difficulties is less face-threatening to both native- and non-native speakers – and the medium – the absence of non-linguistic channels makes it important to preclude any potential ambiguity. Since direct signals tend to be more form-focused than indirect ones, the predominance of direct signals can be taken to be a positive factor.

Examination of the linguistic level of analysis to which failure signals refer showed that students tended to focus on global meaning rather than isolating specific formal difficulties, such as idiom or morphosyntax, a finding which fails to corroborate, but does not negate, the hypothesis that the textual medium encourages greater focus on form than is usual in oral settings: most research on negotiation in speech has also found the explicit focus of interlocutors to be on meaning rather than form in negotiations. It remains a possibility that there is a greater form-focus outside negotiations, but that it remains 'underground', in the mind of the individual, and does not become overt in dialogue.

The chief strategies used in response to failure signals were *Translation: word*, *Translation: phrase/sentence*, *Semantic/pragmatic elaboration or paraphrase*, and *Lexical substitution/paraphrase*. Translation strategies involve reversion to the language other than that of the trigger utterance: reversion to L1 in NS and to L2 in NNS negotiations. Hence, this strategy allows non-natives to bypass further concern with L2 when a native-speaker partner signals a problem, but provides an opportunity for pushed L2 output where a non-native speaker fails to understand a native-speaker utterance. The data suggest once again the dominance of English, evident especially in the reliance on translation as a strategy. Nor do any of these strategies make matters of form particularly salient. It was speculated that the interweaving of topics that is characteristic of the medium (due to 'lag') may cause more pragmatic difficulties than are typically found in spoken communication, since the relevant co-text for the current utterance is not always readily identifiable. Thus it is possible that this aspect of the medium may in fact draw attention away from matters of language code.

The examination of negotiation exchanges yielded no positive evidence of a tendency of the medium to increase focus on form, and the chief effects of the tandem framework that it revealed were the predominance of the weaker shared language – German – in triggering problems, and the tendency to rely on the stronger shared language in resolving them.

The next phenomenon to be examined was self-repair, by which was meant post-transmission repair, the only kind visible in MOO transcripts. The kinds of repair that most clearly signal focus on the language code, namely lexical and

morphosyntactic, are poorly represented in the data by comparison with orthographic repair. Focus on orthography is a lower-level phenomenon than we are concerned with for the purposes of this study: nonetheless, its prevalence suggests that, as hypothesised, MOO participants do attend to their own utterances after transmission, a conclusion that is supported by the interview data reported in section 5.3.

Cases of correction – a term that was used to cover any kind of spontaneous or elicited linguistic feedback from a native speaker – demonstrate both a metalinguistic focus and an awareness of the pedagogical purpose of the exchange. There were almost as many instances of correction as there were of negotiation, with nearly equal numbers of spontaneous and elicited correction. Here again there are more incidents relating to German than to English. More positively, the prevalence of correction contrasts with the findings of previous research, and this may be attributable to learners' awareness of the pedagogical purpose of the exchange. Further, *lexical* and *morphosyntactic* are the best-represented categories of correction in the MOO data, also in contrast with previous research: this may reflect the influence of the medium, specifically, the fact that addressees have more time to consider the formal details of speakers' utterances than is the case in oral communication.

Having examined three behaviours that arose spontaneously in the interactions of tandem partners, we next looked at a prescribed activity intended to stimulate metalinguistic discussion, namely, the discussion phase of the writing/reformulation task. Learners engaged with this activity to varying degrees, and accordingly the depth and quality of metalinguistic focus was variable. It was concluded that the exchanges most likely to be pedagogically effective are those where partners are selective in the parts of the texts/reformulations that they talk about, rather than attempting to explain each reformulated sentence in precise detail on the one hand or, on the other, making only generalised critical comments. Among those who engaged with the activity at a sufficiently deep level (Level 3 or 4), the task was successful in promoting overtly-signalled attention to aspects of form that were relatively neglected in spontaneous metalinguistic exchanges. There was some evidence that this

overtly pedagogical activity could be perceived as face-threatening, but overall learner response to the activity, as evidenced in survey data, was quite encouraging.

The analysis of metalinguistic behaviours focused on the visible record of interaction, which has the advantage over transcribed oral interaction that very little information is lost that was available to the interlocutors during the dialogue. Indeed, the only pertinent dimension that cannot be reconstructed from the transcripts is the speed of interaction, which is to say, the length of the pauses between the appearance on screen of one utterance and the next. But if we are concerned with cognitive processes, there is a limit to how much we can deduce from analysis of the recorded product of interaction. We must also attempt to gain some insight into the minds of MOO participants. This was attempted through online semi-structured interviews, part of which elicited participants' recollections and introspections as to their attentional focus during the process of MOO interaction. Such questions focused on certain distinct points in the process: re-reading one's own utterances before transmission, immediately after transmission, after one or more further turns have taken place, and re-reading the transcript after the session. These interviews led to the suggestion that, as a rule, MOO tandem participants' exploitation of these opportunities is guided by tactical communicative and affective considerations more than by strategic learning considerations; but also that some properties of the medium did seem to compel re-reading (and thus probably reflection) to some degree. Specifically, re-reading of one's own utterances after transmission seems to be a common and natural behaviour that occurs independently of any other pressures. The pervasiveness of self-repair corroborates this. It was suggested that, in summary, we are not justified in assuming that the MOO medium promotes reflection by its very nature. A more differentiated model was suggested. The MOO medium – and the model may apply equally to other media – offers three different kinds of opportunity for metalinguistic reflection: *pressures*, which are properties of the medium that compel attention to form; *affordances*, which are opportunities for reflection that will tend to be exploited only where there are immediate motivations extrinsic to the medium for doing

so; and *potentials*, of which users of the medium may not even be aware, and whose exploitation requires promotion through external means, such as awareness-raising by teachers or specially designed tasks.

My conclusions and evidence-based conjectures as to the effects on learners' metalinguistic behaviour of the MOO medium, the tandem framework, and the discussion phase of the writing/reformulation task are summarised below.

Effects of the medium

1. It is possible that the reduced-cues nature of the medium causes weaker learners to resort more readily to the stronger L2, since there are no non-linguistic channels available for disambiguation. A further possible factor is discussed under 'Effects of the tandem framework', below.
2. Confirmation checks are infrequent because (a) phonological difficulties are precluded by the medium, and (b) many non-phonological difficulties can be resolved by re-reading.
3. Direct failure signals are more common than indirect, in contrast to previous research, perhaps in part because the communicative burden carried by the linguistic channel necessitates precision. A further possible factor is discussed under 'Effects of the tandem framework', below.
4. The focus of failure signals tends to be on global meaning rather than form, a finding which fails to corroborate, but does not disconfirm, the hypothesis that the medium promotes a focus on form that is less prominent in speech.
5. The phenomenon of 'lag' sometimes causes problems in identifying relevant co-text, and hence difficulties of pragmatic interpretation. The resultant negotiations tend not to be focused on difficulties of language form.
6. Evidence from interviews and from transcript self-repair data – specifically, the prevalence of orthographic repair – corroborates the hypothesis that learners re-read their utterances. This is the only area in which we can justifiably conclude that the medium probably does compel learners to reflect on form – to the extent that re-reading one's utterances

constitutes reflection on form – in the absence of other pressures to do so.

7. Other-repairs are mostly lexical and morphosyntactic, which contrasts with the findings of previous research. This may be because learners have more time to consider partners' output than in spoken communication. But the prevalence of other-repair is attributable to the pedagogical framework rather than to the medium.

Effects of the tandem framework

1. Consciousness of the language-learning purpose of the tandem exchange may make acceptable certain pedagogical behaviours that would otherwise be regarded as face-threatening:
    a. Direct failure signals predominate over indirect signals. As noted, the reduced-cues nature of the medium may also be a factor in this.
    b. Other-correction, both spontaneous and elicited, is highly prevalent (occurring approximately as frequently as meaning negotiation), a finding which contrasts with previous research.
2. Some degree of mismatch in proficiency between tandem partners is unavoidable in any exchange. The proficiency mismatch in this particular project makes clear the consequences of a substantial proficiency gap for tandem learning:
    a. The stronger L2 (here, English) predominates over the weaker – in these transcripts, by a ratio of 5.3 utterances to 1. There is thus far less input and output of any kind in the weaker than in the stronger L2.
    b. More miscommunications are caused by the weaker L2 (here, German), which is thus more frequently the object of overt metalinguistic focus.
    c. There is a marked tendency to resort to the stronger L2, English, in overcoming difficulties; consequently, many opportunities for 'pushed output' go unused.

Success of the task in promoting metalinguistic discussion

1. There is great variation in the degree of engagement with the discussion phase of the writing/reformulation task. At the extremes, students may avoid discussing the text altogether by remarking that the partner's text was 'perfect' (which in turn may reflect a failure to engage critically with the partner's text at the reformulation stage), or they may engage in a discussion so detailed that it lapses into monologue.
2. Among those who engaged appropriately in the discussion phase – dealing with specific passages, but not attempting to cover everything – this task phase was successful in promoting attention to form at levels that were relatively neglected in self-repair and negotiation, especially morphosyntax.
3. This task phase risks being perceived as face-threatening. Notwithstanding, this, positive student responses predominated over negative ones.

Conclusion

The purpose of this thesis has been threefold: first, to elaborate a model of instructed second language acquisition based in cognitive perspectives on second language acquisition but also incorporating the insights of Vygotsky's learning theory; second, to identify the central features of a pedagogy informed by the model; and third, to apply this pedagogy in a computer-mediated communication environment, evaluating it in terms of the model and attempting to identify possible influences of the medium and the pedagogical framework on relevant learner behaviours.

The starting point for the development of the model was a critical consideration, in Chapter 1, of existing Vygotskian approaches to second language learning. I chose two influential strands of research and theory: the analysis of learner discourse in terms of 'control' functions, and construals of first and second language development in terms of internalisation. I concluded that much of the research on learner discourse, in striving after ecological validity and holism, ends up being highly subjective and unreliable. Moreover, I argued, the widespread assumption that the notion of learning as internalisation of social processes cannot apply in any simple way to the learning of either a first or a second language. This assumption may rest on the superficial commensurability of such a model with the communicative approach to pedagogy and the SLA theories that underlie it. The oft-repeated claim that Vygotsky's theory challenges mainstream linguistic and applied linguistic thought is also unfounded: on closer examination, Vygotskian learning theory emerges as entirely compatible with innatist accounts of language and internalist views of language development. There is much to be learned from a Vygotskian perspective on language learning, but this emerges only when the neglected internal aspect of his approach is given due regard.

The model of instructed SLA was then elaborated in Chapter 2, which began with a review of research on consciousness in SLA. Particular attention was paid to Schmidt's noticing hypothesis and Truscott's cogent critique thereof. I concluded, essentially in agreement with Truscott, that noticing relates

to conscious linguistic knowledge and does not have any direct bearing on the underlying system. Specifically, the problem of which linguistic entities are noticed – i.e., at what level of analysis – can be resolved by postulating that the level of analysis of existing metalinguistic representations determines what aspects and levels of input become available for intake; but that furthermore, this 'intake' is intake to the metalinguistic or learned system, not the acquired system (in Krashen's sense). Taking up this theme, I examined conceptions of the metalinguistic capacity and its development, concluding that metalinguistic reflection is a kind of metacognition; that (following Gombert, 1992) worthwhile distinctions can be drawn between metalinguistic knowledge/awareness and metalinguistic processes, and between truly metalinguistic behaviours (which are conscious and operate on the linguistic representations in the stored linguistic system) and epilinguistic behaviours (at a lower level of consciousness and operating episodically on particular linguistic occurrences).

The relationship between metalinguistic knowledge and unconscious knowledge was explored through Karmiloff-Smith's model of representational redescription. She holds that behaviour at any point in development and in any domain – e.g., language, physics – can be based on co-existing representations at any one of a number of levels. These levels are, in order of emergence in any given domain, (1) implicit and inaccessible to introspection – level I; (2) explicit but inaccessible to introspection – level E1; (3) explicit and accessible but unverbalisable – level E2, and (4) explicit, accessible and verbalisable – level E3. Once knowledge is represented in level E3 structures which, crucially, are *in linguistic format*, it is communicable, recordable, and manipulable through more or less formal processes of reasoning. When knowledge matures in this way, then, we are capable not only of successful performance, but also of reflection on that performance, and of useful generalising thought about our performance in terms of the representations that underlie it. While earlier stages of knowledge representation in a given domain allow us to perform tasks, more explicit representations give us conscious control over performance. I argued that this model can be applied to language development if we assume that initial

acquisition in L1 or L2 is lexical and procedural in nature – level I. I suggested a modification of the model according to which increasing explicitness (a purely formal property) does not equate with increasing accessibility to consciousness. Conscious knowledge (E2 and E3) results from naïve theories based on performance: in the case of language, this means that basic metalinguistic knowledge emerges endogenously, but not automatically, and without any guarantee of accuracy. Once it emerges, such knowledge is then available for integration with socioculturally mediated (external) knowledge. The dialectical processes involved in this integration, which amounts to true conscious learning, can be explicated in terms of Vygotsky's notions of spontaneous and scientific concepts and the dialectical nature of their intertwined development.

This provided the kernel of the model of instructed SLA. Its key features are as follows:

1. Initial acquisition is unconscious, takes the form of minimally general procedures that have access to the lexicon, and emerges only through practice in communicative language use. Endogenous processes of representational redescription lead to the emergence of explicit – hence general – but unconscious representations, i.e., linguistic competence.
2. Higher-level representations develop through processes of naïve theory building (level E2), through detection of linguistic forms in input (noticing), which is itself influenced by existing E3 knowledge; and through engagement with socioculturally-mediated knowledge.
3. Sociocultural (external or scientific) knowledge can be immediately encoded in long-term memory, but it becomes properly internalised only through the give-and-take of contrast and comparison with level E2 (naïve, spontaneous) knowledge.

The concern of Chapter 3 was to move from this abstract model to a practical pedagogy implementable in CMC. I began by identifying three features that a pedagogy based on the model must have. Drawing on Swain's recent Vygotskian perspective on interactional modification, I argued that noticing (in our modified sense) occurs in the spontaneous language-related episodes of

interactional modification, and that the integration of sociocultural knowledge is facilitated by an overt metalinguistic focus. These assumptions yield the first two pedagogical features. The first is meaningful L2 communication, which engages the processes by which initial acquisition (at level I) is triggered but which also gives rise to negotiation of meaning and thus noticing (which is at least epilinguistic and may attain the metalinguistic). The second is learning dialogue, i.e., dialogue with an overt metalinguistic focus. This was theorised through the Vygotskian notion of internalisation, on which our model allows us to put a more precise construction in terms of interaction between representational levels. Such dialogue was held to result potentially in mature conscious knowledge (level E3), but this is most likely to occur where individual, 'off-line' reflection is also facilitated; thus the third feature is promotion of individual reflection outside of communicative situations.

I advocated tandem language learning as an arrangement that inherently supports meaningful L2 communication and, with appropriate pedagogical activities, can also support metalinguistic learning dialogue and offline reflection. It was contended that engagement with written language can foster metalinguistic reflection, under certain circumstances at any rate. The text-based communication environment known as a MOO was shown to have properties of writing and speech which can support a more reflective relation to language than in oral settings. There is thus at least a *prima facie* case, beyond cost-effectiveness and convenience, for using the MOO for tandem exchanges.

Chapter 4 introduced the exchange project which was the subject of the empirical study into tandem learning in the MOO, and also a writing/peer-reformulation task intended to promote metalinguistic dialogue as well as off-line reflection. The chapter also presented the results of a preliminary analysis of participational, interactional and language-balance measures. It was found that the target norm of stable pair partnerships was not widely met; that pairs have an interactional style characterised along a scale from many, brief utterances to fewer, longer and (presumably) more complex utterances. The goal of balanced bilingualism was not met: English was used more than five times as much as

German, a factor which emerged as problematic in relation to metalinguistic interactions.

Finally, Chapter 5 examined the tandem exchange from the perspective of behaviours I consider to reflect at least epilinguistic, at best truly metalinguistic mental processes. We looked first at negotiation of meaning. It is worth stressing the uniqueness of the data available to us here by virtue of the MOO environment: it is naturalistic, spontaneously occurring and complete – i.e., practically no data of communicative relevance is lost –, in contrast to the task-elicited speech data of most negotiation research. The Varonis-Gass model of meaning-negotiation yielded evidence concerning the form and linguistic level of communication failure signals and strategies used in responses to such signals. To synthesise a range of findings, the negotiation data by itself did not support the hypothesis that the medium compels a focus on form. It also showed a strong tendency to resort to use of the stronger shared language in resolving the many problems triggered by the weaker shared language. Instances of self-repair were dominated by the correction of spelling/typographical mistakes, suggesting that learners re-read their own utterances after transmission. The evidence of spontaneous and invited other-repair showed a high degree of awareness of the pedagogical purpose of the exchange, but also a greater tendency to focus on lexical and morphosyntactic issues than was apparent in other language-related episodes.

The discussion phase of the writing/reformulation task yielded mixed results: there was a wide range of degrees of engagement with this activity. I identified one style of discussion that was most likely to yield metalinguistic specifics without overwhelming the learner with detail and reducing dialogue to monologue. The overall subjective response was mixed, but with positive responses predominating somewhat. This activity could be improved in a number of ways. First, the purpose of the discussion phase should be made clearer; second, learners should be given explicit guidance as to how to frame their discussion of their partners' texts (such guidance might take the form of a preliminary workshop activity on the basis of invented texts); and finally, the

apparent authenticity of the activity could be enhanced if there was a clear outcome: for example, texts might be posted on a class website.

Interview data led to the conclusion that we need a more refined model of the effect of medium on metalinguistic focus. Rather than supposing that a medium simply does or does not focus attention on linguistic form, it was suggested that features of the medium might amount to *pressures*, *affordances*, or *potentials* for such a focus. Where the medium provides pressures, no intervention is required. Affordances for reflection will be taken advantage of only where other factors – e.g., affective or communication-strategic – make it natural or necessary. Pedagogical intervention may encourage learners to take advantage of affordances. Potentials, such as re-reading MOO transcripts, may be entirely invisible to learners, and are unlikely to be used by any but the most autonomous among them. Pedagogical intervention, perhaps in the form of appropriately designed tasks (such as the writing/reformulation activity) is absolutely necessary if the majority of learners are to take advantage of potentials for reflection.

I cannot categorically claim on the basis of this research that the text-based CMC medium has positive effects on the metalinguistic behaviours of learners. But it is important that we have been led from causal hypotheses regarding the effects of medium on metalinguistic behaviours to a framework for analysing media in general, and computer applications in particular, in terms of their ability to promote reflection. Evaluation efforts should therefore include analysis of such applications in terms of the three categories of reflective opportunity, and attempt to identify appropriate kinds of pedagogical intervention that will allow learners to gain optimal metalinguistic benefits from their use of technologies. This framework might be applicable also to pedagogical tasks generally.[25] With regard to the effects of the tandem framework, the two main conclusions to be drawn are that students are quite willing to engage in

[25] Peter Skehan (personal communication) points out that this framework is to some extent analogous to one proposed by Loschky & Bley-Vroman (1993), according to which a grammar structure may be natural, useful or essential to the completion of a task.

behaviours that they might consider face-threatening in other situations; and that large gaps in proficiency have considerable, and mostly negative consequences for language-learning.

There are five areas in which I hope that this thesis has made a contribution to relevant fields. The first is in identifying more clearly the relevance of Vygotsky's highly suggestive vision of mind, society and learning to second language acquisition, and in showing that it does not conflict with current understandings of language and learning or with existing second language research. The second is in elaborating a model of language knowledge that stresses its complex and dynamic relations between internally represented and externally mediated knowledge, and highlights the multiple roles of conscious knowledge of different kinds in both performance and learning. The third contribution stemming from this model is the provision of a novel theoretical basis, rooted in both SLA and Vygotskian theory, for three widely-held pedagogical principles, of which one, meaningful L2 communication, is long established and uncontroversial, the other two, metalinguistic/learning dialogue and opportunities for off-line reflection, perhaps somewhat less so. The fourth contribution lies in a detailed consideration of the potential benefits to language learners of text-based CMC based on a careful consideration of the relationship between literate processes and products on the one hand and metalinguistic awareness on the other. And the fifth contribution I hope to have made lies in a detailed exploration, rooted in theory and sustained by data, of the metalinguistic behaviours of learners in a CMC-based tandem exchange.

Obviously there remains a great deal to do in the various fields addressed in this thesis. The instructed SLA model proposed cannot stand without further investigation of its assumptions and its predictions; but it is a very broad model, and detail-level implications would need to be teased out before appropriate research designs could be formulated. Happily, since the model is so greatly indebted to the work of Karmiloff-Smith, there is a thriving research tradition to be drawn on. The relationship of text and metalinguistics has been written about very cogently, but to a large extent speculatively; this is an area where further experimental research might be fruitful, and it may well transpire that text-based

CMC, apart from deserving further research in its own right, might prove a useful research tool in examining the text-metalinguistics relationship. Finally, and related to the foregoing point, there has been a good deal of analysis of the linguistic products of CMC, a corpus of research to which the present study is a further contribution. The online interviews conducted for this study were a modest attempt to get at issues of processing. If appropriate methodologies were devised for investigating the psycholinguistics of CMC, I would not be too surprised if we learned not only about communication via keyboard and screen, but also about communicative processes more generally. Worthwhile though CMC research is on its own terms, its value might ultimately extend beyond what we currently imagine.

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Appendix A: Writing/peer-reformulation task specification

BAICT
Senior Freshman German
MOO project weeks 5-7: Writing and reformulation task

This is a task that involves (i) **discussing** a topic of your choice in the MOO; (ii) **writing**, in German, a short text on the topic, and (iii) helping your partner by **reformulating –** *not* correcting –, in idiomatic English, the text that he or she produces. Your partner will likewise reformulate your text in idiomatic German.

The task will take three MOO sessions and a small amount of work between the sessions.

- **First MOO session, 9 November: Decide on a topic** on which to write a 100-word text (yours in German, your partner's in English).

  Choose something controversial: rather than 'computer gaming', for example, you might choose 'Computer gaming is addictive / is better than cinema / is an art form / leads to violence'. You can each choose different topics, or you might prefer to agree on the same topic. Ideally the topic(s) chosen should be of interest to both you and your partner: a hobby, a strongly held opinion, or an aspect of ICT or computers, for example. Some topic suggestions will be posted in the MOO.

  Begin planning the text/discussion by talking about exactly what you have to say about the topic. Use this opportunity to glean from your partner language you're likely to need – vocabulary, etc. What about the title? Your partner can help you to formulate it. You can refer back to your log of this session when you write the text.

  In your MOO notebook entry at the end of the session, consider whether the session was effective in clarifying what you want to write about and in beginning the planning process. How could it have been better?

- **Second MOO session, 16 November: Discuss or debate your topic** in German.

  You may or may not have begun to write the text at this point. This session should help you to clarify your ideas about the topic. The language that your partner uses will help you when it comes to completing your text. In your MOO notebook entry note difficulties of any kind that you had in the discussion, as well as any positive points. To what extent do you think the discussion transcript will help you in completing your text?

- **By Friday, 18 November (evening), at the latest: Have your text written and send it to your partner**, *by MOO mail*.

  Send your partner a conventional e-mail as well, letting him know that he/she can now read your text in the MOO. You might want to compose it in the MOO mail window. In a MOO notebook entry note down any difficulties you had in writing it. Consider what you found difficult in general, but also specific problems with the language, vocabulary, etc. How happy are you with your text? Try to evaluate the outcome of your efforts.
  NB: When using MOO mail, the address is simply your partner's MOO name. If in doubt, use the Search button in the MOO toolbar.

- **By Wednesday, 22 November (evening): Reformulate** your partner's text in English that a native speaker would use, and send it back by MOO mail.

  The changes you make might involve, for example, restructuring sentences, or correcting spelling or grammar, or choosing different words. Some changes will be minor, others more extensive. But don't change the meaning of the text, and don't comment on the

changes you make. (If the meaning isn't clear at any point, provide the closest interpretation you can make.)

Send the text to your partner *by MOO mail*, including both the original and the reformulated version, so that he/she can compare them easily on screen.

Make a MOO notebook entry on what struck you about your partner's text and English, how you went about reformulating it, and anything else that struck you about the process of reformulation.

- **Third MOO session, Thursday 23 November:** Take it in turns to **discuss** what you changed in your partner's text, and why you changed it.

This time, you're discussing *language*, not content. Naturally, this should be a dialogue, and each partner should do his/her best to learn as much as possible from the discussion. So you should actively ask questions and pursue points you don't understand. The point is to try to help each other learn.

Your MOO notebook entry at the end of this session should consider whether you felt you learned anything from discussing your text with your partner; whether anything struck you in the course of discussing your partner's text; and so forth. You can deal with general impressions as well as with specific language and other points.

Completion of this writing/reformulation task will constitute the greatest part of your coursework component for Michaelmas Term. Since the task is quite open in character, however, the **quality of texts**, notebook entries and discussions **will not be evaluated**. Rather, **completion** of the sub-tasks listed below is the criterion for assessment.

Checklist of sub-tasks (tick the boxes as each task is completed)

1. ☐ MOO session 1: decide on topic and begin planning
2. ☐ *MOO notebook entry on session 1*
3. ☐ MOO session 2: discuss or debate your topic in German (and your partner's in English)
4. ☐ *MOO notebook entry on session 2*
5. ☐ Write 100-word text, send to partner *by MOO mail*
6. ☐ *MOO notebook entry on writing of text*
7. ☐ Reformulate partner's text and return *by MOO mail, along with original*
8. ☐ *MOO notebook entry on process of reformulation*
9. ☐ MOO session 3: discuss texts and reformulations (own and partners)
10. ☐ MOO notebook entry on session 3

Appendix B: Interview questions relating to reflection and awareness.

1. Were you more or less careful than usual about your [L2] when using the MOO, as compared to writing and to face-to-face conversation with native-speaker assistants?
2. Did you ever look back at your partner's German to remember, or even re-use, words, phrases, expressions, and so on?
3. Did you ever read transcripts of previous MOO sessions?
4. Do you think as you type, or think and then type?
5. Did you (or do you) read or revise what you type before hitting the 'Enter' key? Is there any difference between how you type English and German in this regard?
6. Did you find – or do you find now, as you do this interview – that you re-read what you have typed *after* you press the Enter key?

Appendix C: Post-project survey

University of Dublin
Trinity College

Centre for Language and Communication Studies

TCD-Fachhochschule Rhein-Sieg Tandem MOO project 2000

Name: _____

The following questionnaire concerns the MOO tandem exchange with students of Fachhochschule St-Augustin that you took part in this term. The questionnaire is intended o help you to reflect on and evaluate this experience for your learning. Since reflection is a key part of all successful learning, it is important that you take time to consider and answer the questions.

Your responses also contribute to ongoing research into the use of the MOO environment for language learning. Your comments and evaluations will be taken into account in shaping similar projects for future students. In any publications arising from this research, all data of all kinds will remain entirely anonymous.

Questions 1 to 7 refer to your experience of the MOO tandem exchange *in general*, and not just to the writing/reformulation task.

1. To what extent was the MOO tandem exchange helpful to you in your learning of German?

(1 = not helpful at all 5= very helpful indeed)

1	2	3	4	5
☐	☐	☐	☐	☐

Additional comments:

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2. In an exchange such as this, how important is error correction (i.e., correcting each other's German/English)? Please explain your reply.

(1 = not important at all 5= very important indeed)

1	2	3	4	5
☐	☐	☐	☐	☐

Additional comments:

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3. Apart from correcting errors, and EXCLUDING the writing/reformulation task, did you talk about language with your partner? Please give examples of the kind of talk about language that took place, if any.

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4. In what way(s), if any, does German conversation in the MOO differ from face-to-face German conversation (for example, with native-speaker assistants or with your teacher?

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5. Is MOO communication in your target language (German) easy or difficult compared to oral communication? Why?

(1 = very easy 5= very difficult)

1	2	3	4	5
☐	☐	☐	☐	☐

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Questions 6 – X refer to the writing/reformulation task that took place in weeks five to seven.

6. The first writing/reformulation task session was for topic selection and thinking about the language you would need for your text. Was this session useful? If so, in what ways? Or, if not, why not?

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7. The second writing/reformulation task session was for discussion of the topic itself. Was this session useful? If so, in what ways? Or, if not, why not?

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8. The final writing/reformulation task session was for discussion of the changes made to your partner's text and your own. Was this session useful? If so, in what ways? Or, if not, why not?

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9. What, if anything, did you notice about your own strengths and weaknesses in German when writing your text?

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10. What insights, if any, did you gain from reformulating your partner's text?

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11. What, if anything, did you learn from reading your partner's reformulation of your text?

Additional comments:

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12. In what way, if at all, did the discussion of the texts and reformulations add to your understanding of German in general, or of your own strengths and weaknesses in German?

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13. What, if anything, did you learn from doing this 3-week writing/reformulation task? Please be as specific as you can in your reply.

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14. Please rate the usefulness for learning of the various components of this task, from 1 ('not useful at all') to 5 ('very useful')

- **Topic selection and language/vocabulary collection (first session)**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

- **Writing the text**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

- **Reformulating your partner's text**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

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- **Reading your partner's version of *your* text**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

- **Discussing your partner's changes to your text**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

- **Discussing your changes to your partner's text**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

- **Writing the various MOO Notebook entries**

(1 = not useful at all 5= very useful indeed)

1 2 3 4 5

☐ ☐ ☐ ☐ ☐

Additional comments:

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15. Compared to other activities and conversations in the MOO, how effective was the writing/reformulation task in helping you to learn German? Please try to explain why.
(1 = not effective at all 5= very effective indeed)

1	2	3	4	5
☐	☐	☐	☐	☐

Additional comments:

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16. How could the writing/reformulation task be improved, if at all?

Additional comments:

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17. If you have any further comments about the writing/reformulation task or about the MOO tandem exchange in general, please write them here.

Additional comments:

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Thank you very much for your time, and your participation in the project.

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