

Chapter 2

Listening and Viewing Comprehension: Theory and applications

One of the most important concepts associated with verbal interaction is that of understanding. To what extent can we say that the interlocutors in any interaction understand each other? To what extent do they ‘comprehend’ through the words that an interlocutor uses and to what extent do they ‘interpret’ ideas that are related to the words that an interlocutor uses? *Is understanding a mental phenomenon recoverable through the mind of the hearer or is it a social phenomenon recoverable through examination of subsequent behaviour by the listener?*

(Rost, 1990: 1 [my emphasis – DLH])

2.1 Introduction

Several researchers and writers in the area of listening comprehension in a second language have commented on the lack of definition, empirical studies, and clarity of purpose characteristic of this field of endeavour. Some have regarded this as a reflection of similar deficiencies in native language studies into listening comprehension (Dunkel, 1991), while others have attributed it to a past tendency to regard listening as a subsidiary skill to speaking, and thereby to take it for granted (Belasco, 1981; Nord, 1981). More recently, the focus in the examination of factors contributing to successful second language (L2) listening comprehension has moved towards formulating theories which define the features involved in the L2 listening process (Byrnes, 1984; Anderson & Lynch, 1988; Dunkel, 1991; Rubin, 1994).

However, except for examinations of second language (L2) pronunciation and auditory perception using computers, the implementation of listening comprehension in a computer-assisted environment has not yet been attempted within a coherent theoretical framework (Pennington, 1989; Craven *et al*, 1990; Kenning and Kenning, 1990; Higgins, 1995; Pennington, 1996). The purpose of this chapter is to clarify the nature and characteristics of L2 listening comprehension in order to arrive at an organising structure

that is grounded in the findings of research in the area, and is also amenable to application in a multimedia Computer-Enhanced Language Learning (CELL) environment as defined in the previous chapter. This organising structure takes the form of a Taxonomy of listening comprehension tasks, based on Bloom and colleagues (1956) Taxonomy of Educational Objectives in the Cognitive Domain. This taxonomy allows learners to view all available listening comprehension tasks within a structure that indicates their nature and level of cognitive demand. With this information learners can then make their own choices about the level of difficulty of the tasks they work on. The problem for teachers or materials designers of determining the level of difficulty of tasks, or of grading these for students, then becomes much more peripheral, as it is learners themselves who make the decisions on these matters.

2.1.1 Changing complexion of issues and factors

Increasingly, hypotheses and investigations are attempting to establish the role of the learner as being that of an active interpreter and negotiator of the meaning of messages (Jonassen, 1992; Lantolf & Appel, 1994), as illustrated in the quotation from Rost (1990) above. Research energy is turning away from ‘mental phenomenon’ models towards ‘social phenomenon’ models. As Rubin (1994: 199) summarises it, the on-going dialogue among researchers about the nature of learners’ interaction with oral input revolves around five major factors: 1) text characteristics; 2) interlocutor characteristics; 3) task characteristics; 4) listener characteristics; and 5) process characteristics (see also Hoven, 1991). In addition, technological advances have made available to teachers and learners certain forms of visual media such as television, and video in its various forms, to expand listening comprehension to encompass viewing comprehension (Kellerman, 1992; Schmidt-Reinhart, 1994). It has therefore become essential to incorporate in this work a discussion of the impact of viewing comprehension on listening, and listening tasks.

Many of the factors listed by Rubin, such as task characteristics and process characteristics, relate to general learning or language learning, rather than applying exclusively to listening. However, certain aspects of these factors, such as acoustic variables, are inherently specific to listening and viewing. This chapter will deal with those factors that are, or can be regarded as being, specific to listening and viewing, or aspects of some of these factors that relate explicitly to listening and viewing. Thus, for example, the concept of 'task' may be regarded as a general learning or language learning factor. However, in this chapter only the comprehension perspective of the concept of 'task' will be discussed.

Nevertheless, having said this, insofar as listener characteristics are intrinsic to all learners, in Chapter 3 the discussion of listener characteristics will include the perspectives of general learning, language learning, and listening and viewing comprehension. Similarly, in order to contextualise process characteristics, these will be discussed initially in the broader context of learning as well as in their more specific manifestations in language learning, and listening and viewing comprehension in Computer-Enhanced Language Learning (CELL), in Chapter 4.

2.1.2 Roles and characteristics of CELL in relation to listening

As introduced in section 1.6 of the previous chapter, in the context of CELL, particularly with the inclusion of multimedia, it is also necessary to reflect upon the nature of emerging roles of the computer: as interlocutor, as an expert teacher, or as a mediator of the learning. As Jonassen comments:

Technologies do not directly mediate learning. That is, people do not learn from computers, books, videos, or the other devices that were developed to transmit information. Rather, learning is mediated by thinking (mental processes). Thinking is activated by learning activities, and learning activities are mediated by instructional interventions, including technologies. Learning requires thinking by the learner. In order to more directly affect the process, therefore, we should concern ourselves less

with the design of technologies of transmission and more with how learners are required to think in completing different tasks.

(Jonassen, 1992: 2)

This is therefore the focus of the present chapter – to develop a framework of listening and viewing comprehension tasks, or ‘learning activities’ in Jonassen’s terms, that activate thinking, and subsequently to locate these within a learning environment mediated by technology.

In terms of ‘interlocutor characteristics’, Rubin describes only one research study: Markham’s (1988) study of sex bias and perceived speaker expertness (Rubin, 1994: 205). However, this lack of data may be explained by the narrowness of Rubin’s classification here, restricted as it is to gender, ethnicity, and level of expertise in the topic being discussed. In the present chapter, such characteristics will be distributed among other, broader classifications, namely text, task, and context characteristics. Nevertheless, in the context of CELL, there is room to raise the question of whether characteristics of the computer software, help, and feedback mechanisms may be classified as ‘interlocutor characteristics’ when there is a level of interactivity between learners and these facilities. While such questions lie outside the purview of this work, some studies in the field of human-computer interface have begun to deal with limited aspects of this question.

There have so far been no studies in the CALL area dealing specifically with the characteristics of interlocutors in human-computer interactions, though Dickson (1985) and Meskill (1992) have begun to investigate which aspects of software and what kinds of computer-learner groupings lead to more communicative interaction for learners. In addition, Chapelle (1994), working within the understanding of genre developed by Halliday and Hasan (1989) and Swales (1990), suggests that the effective use and study of CALL hinges on the analysis of CALL activities in terms of three levels of difference: text, genre, and context. In Chapelle’s exemplification:

CALL texts are produced in any language learning context where the computer takes an interactive role. Such contexts may be comprised of learners working individually with a computer, of learners working in pairs or larger groups with a computer or multiple connected computers, or of learners working with teachers or other experts. In each of these cases, *the participants – one of which is the computer* – contribute to an emerging text which is affected by the nature of the context and which both affects and provides evidence for the quality of the learning experiences.

(Chapelle, 1994: 38 [my emphasis – DLH])

For Chapelle, then, the computer clearly has a role to play as an interactor in a language learning context. However, as Jonassen (above) stresses, it is not the computer technology itself which plays this role, but rather the software facilities, or the pedagogy embodied in the software, that allows the computer to take this interactive role. More specifically, as introduced in the previous chapter, the instructional design of the learning activities, the content of the learning material, the design of the interface, and the various help and feedback facilities, are the features of the computer that allow it to play the role of mediator of learning. This mediator role includes that of mentor, as discussed in Chapter 1, in the learner's learning progression through the Zone of Proximal Development.

Part of the instructional design process must include an examination of the task types which can be implemented using computer technology. As Pennington suggests:

One of the most fruitful areas of software development at the present time would seem to be the design of programs which elicit and practice specific types of interactions or language forms – e.g., through task-based learning activities or through the juxtaposition of two or more symbol systems in a certain type of activity [...]

(Pennington, 1989: 109)

However, bearing in mind Jonassen's reminder above, in addition to this elicitation and practice, strategic development of learners' mental thought processes or thinking skills must also be included. Therefore, the task-based activities and the juxtaposition of symbol systems, within activities advocated by Pennington, need to be designed to incorporate the development of learners' thought processes. Pennington intends 'juxtaposition of symbol systems' here to refer to the kind of task that requires learners to transfer information from one mode, such as verbal text, to another such as a graphical or pictorial representation. One example of a task that requires this kind of juxtaposition is matching the description of a scene mentioned in a dialogue with a picture of the corresponding scene. The development of thought processes can be incorporated into such activities by requiring learners to draw conclusions, or make inferences or predictions from the combination of information from the verbal text and the pictorial representation.

This incorporation of thought process development, as well as of the cultivation in learners of strategies to enhance their control and management of their own learning, is being proposed here as the major distinguishing factor between computer-assisted or computer-aided language learning (CALL) software and computer-enhanced (CELL) software, as introduced in section 1.6 of Chapter 1. The design and development of a paradigm for the realisation of this distinction is exemplified in detail in the software described in Chapters 5 and 6. The current discussion will now turn to an examination of the factors pertaining to the design and selection of task-based activities and the juxtaposition of symbol systems within activities in a computer-enhanced listening and viewing comprehension environment.

2.2 Learners and Listening

Previously, discussions and examinations of listening as a discrete component of language learning have focussed mainly on classifying and grading listening tasks in terms of difficulty (Fish, 1981; Richards, 1983; Ur, 1984; Nunan, 1989). The perception

of difficulty usually resided in the difficulty of the material used as the content for the comprehension activities, often related to readability measures for reading texts. Concepts of the readability of text were based on word count and the frequency of occurrence of discourse features such as nominalisation, redundancy and ellipsis (Grellet, 1987). These readability measures were then transferred to the listening environment as the basis for determining the comprehensibility of listening texts (Underwood, 1971; 1976;1979). Other measures of difficulty in listening comprehension relied on some undefined and unspecified inherent qualities of the tasks. The instructional content material was often created, or at least simplified for teaching purposes, by the language teacher or by the writer of commercially-available listening comprehension packages, and the determination of levels of difficulty was at best often arbitrary or subjective (Lynch, 1988: 178).

As changes in the focus of language teaching and learning, as outlined in the previous chapter, moved from content-centred or teacher-centred approaches to more learner- or learning-centred approaches, the focus in listening comprehension also moved. As mentioned in the Introduction, section 2.1, the social dynamics of listening have now become a much stronger force in the investigation and use of listening comprehension for language learning (Lynch, 1988; Rost, 1991; Rubin, 1994). Progressively less emphasis is being placed on listening as a process solely cognitive or internal to the hearer, while the interactive, negotiative processes are being extensively investigated (Pica *et al.*, 1987; Doughty, 1991; Robinson, 1991; Johnson, 1991; Dunkel, 1991a).

Increasingly, researchers are also refining their understanding of the essential differences and similarities between reading and listening (Canale, 1984; Swaffar & Bacon, 1993). This has lead to a burgeoning recognition that there are aspects of listening comprehension, in addition to those mentioned above, that contribute to learners' difficulty or perception of difficulty in successfully completing listening comprehension tasks, and increasing their proficiency in listening comprehension. Where previously,

then, the content material was graded, or structured and created, in keeping with authors' perceptions of ease and difficulty, now it is being suggested that the tasks themselves be graded (Lynch, 1988; Nunan, 1989), particularly in the context of increasing use of authentic texts (Hoven, 1991).

In addition, the need remains for both teachers, materials designers and learners to be able to determine what actually makes a language learning task easy or difficult. This information is necessary in order for teachers and learners to choose tasks most appropriate at different stages of the learning process or for different purposes. The discussion in this chapter is intended to bring together in overview the various aspects of difficulty that have been dealt with in the literature, in order to be able to relate these to learner needs and differences. This overview leads into the development and explication of a taxonomy of listening comprehension tasks which encompasses these different aspects within a CELL environment, as defined above. This taxonomy allows the transparent mapping of graded listening comprehension tasks into such an environment, as illustrated later in section 2.4.3.

Certain maxims for instructional design of listening comprehension in a CELL environment emerge from this discussion:

- improvement in the kinds of tasks which we develop for learners entails an increase in the level of choice provided;
- an increase in the level of choice for learners requires some understanding on the part of instructional designers of individual learner differences in learning styles and strategies;

- greater control by means of informed choice leads to greater flexibility, including, in a CELL environment, control over the choice of task, topic or text content, and the speed of progress through the tasks or within a task.

2.3 The nature of listening as represented in the literature

Until the last two decades, relatively little energy was devoted to teaching listening as a skill in the L2 or foreign language classroom, or to researching the processes involved. Indeed, as Rost points out:

[...] both the audio-lingual and situational approaches emphasised learner identification of language ‘products’, and that the role of listening was merely to reinforce recognition of those products in the syllabus.

(Rost, 1990: 27)

Listening activities were mainly structure-based, with numerous repetitions of passages reinforcing the perception of formal similarity between spoken and written texts through repeated access. The development of listening comprehension as a discrete skill, or a concern for the processes involved in listening, were thus rare considerations of language learning.

Researchers and practitioners such as Postovsky (1974), Asher (1981), Winitz (1981), Nord (1981), Long (1987), and Morley (1990) managed to effect somewhat of a change in this situation by stressing the importance, and indeed necessity, of providing learners with sufficient input to enable them to formulate hypotheses about the language, and to have sufficient vocabulary to be able to produce satisfactory, meaningful utterances. For several years, in fact, several of these researchers developed and advocated a ‘listening first’ syllabus or Comprehension Approach (Lynch, 1988). The hypotheses relating to comprehensible input (Krashen *et al.*, 1984) and the role of listening in providing such input also played a significant role in the emergence of the Comprehension Approach and

similar movements, leading to the revival of the Direct Method by Krashen and Terrell (1983). Almost simultaneously, communicative language teaching (CLT), with its emphasis on authenticity of context and text, was emerging and gaining in popularity and pervasiveness in language curricula (Candlin, 1981b; Littlewood, 1981; Brumfit, 1984). The preeminence of listening and speaking in CLT also helped bring listening into prominence in L2 classrooms.

Since this change began, much has been published on techniques for teaching listening comprehension (Wipf, 1984; Richards, 1985; Long, 1989; Lund 1990), the nature of the listening process (Boekaerts, 1981; Taylor, 1981; Boyle, 1984; Faerch & Kasper, 1986; Buck, 1992), the interactivity of speaking and listening (Brown & Yule, 1983; Byrnes, 1984; Brown, 1986, 1989; Dunkel 1986; Anderson & Lynch, 1988; Nunan, 1990), information processing models of listening (Cook, 1985), and aspects of the listening task (Bacon, 1992b; Rubin, 1994; Herron, 1994) and participants (Bacon, 1992a; Rubin, 1994) which affect performance. In addition, with increasingly sophisticated visual media, a perception is emerging of the intimate relationship between viewing comprehension and listening comprehension. This applies particularly in second and foreign language learning, where teachers and cross-cultural researchers are focussing on the meanings conveyed by gesture, expression, and body language (Kellerman, 1992; Hurley, 1992; Fidelman, 1994). Since the introduction of video players into L2 language classrooms, and more recently with the advent of multimedia and interactive multimedia provisions for L2 learning, this focus has been increasingly put into practice (Fidelman, 1994; Brett, 1995).

2.3.1 The complementarity of listening and viewing

While the focus of this work is on listening comprehension, the complementarity of the visual channel also bears some discussion here. This is particularly the case in our current context of an expanding emphasis on non-verbal channels of meaning, in which video and other multimedia resources are becoming increasingly prevalent in both L2

classrooms (Kornum, 1990; Bisson, 1991; Linquist *et al.*, 1991) and individual L2 learning contexts (Staddon, 1990; Brett, 1995; Felix, 1995; Kennedy *et al.* 1995; Liou, 1995). Areas of study include the importance of visual context (Secules *et al.*, 1992; Hanley *et al.*, 1995; Herron, 1994), the role of non-verbal aspects of communicative competence (Neu, 1990, Kellerman *et al.*, 1990; Meyer, 1990), cross-cultural effects of non-verbal communication (Hurley, 1992), messages conveyed through the visual channel (Kellerman, 1992; Neu, 1990; Herron & Seay, 1991; Herron *et al.*, 1995), strategies used with audiovisual material (Mueller, 1980; Wolff, 1987; Vogely, 1995), and skills developed through the use of computer-assisted multimedia (Dalgish, 1987; Meskill, 1991b; Linquist *et al.*, 1991; Brett, 1995; Hoven & Farquhar, 1996).

Examination of the role of the visual channel leads to a discussion of the complementary nature of visual to auditory cues (Kellerman, 1992; Hurley, 1992; Neu, 1990; Graham, 1990) in listening comprehension involving video and multimedia resources, such as in CELL packages. In expanding this discussion of listening comprehension to include paralinguistics, we will not focus solely on these aspects, but rather stress the importance of including these critical aspects of listening and viewing comprehension in the language learning process. For our purposes, paralinguistic features encompass kinesics, proxemics and prosody. By kinesics is meant communicative movements such as facial, hand, and other body expressions or gestures that accompany, complement, or replace verbal utterances. Proxemics refers to the 'degree of physical proximity between interlocutors which is acceptable in a culture, including touching' (Hurley, 1992: 261). Prosody comprises the varying velocities, intensities, tone and pitch of the voice, as well as the use or occurrence of silences and pauses of varying lengths (Temple, 1989; 1992; Gassin, 1992).

In her argument for a greater emphasis on the kinesic aspects of listening, and therefore viewing, comprehension, Kellerman (1992: 255) notes that the 'association between speech and gesture is common to unrelated languages; what varies is its realisation'.

Kellerman identifies four levels of organisation for the correlation of body movements (kinesics) with the linguistic message:

1. those which are linked to phonological features of the linguistic message
2. those which correlate with the linguistic message at the semantic level
3. those which signal features of discourse
4. those which have a regulating or controlling function in interaction.

(Kellerman, 1992: 240)

Of these four levels, the phonological features represent the most well-established group (Gosling, 1981), including head movements coinciding with stressed words and syllables (Hadar, 1989), eyebrow raising accompanying questions (Walker & Trimboli, 1983), and synchrony of body movement with speech rhythm (Gassin, 1992). Iconic or representational gestures linked to the message semantically are found in Ekman's (1980) illustrators, kinetographs, pictographs, rhythemics, and spatial, and in Riseborough's (1981) 'gestural onomatopoeia'. In fact, while Riseborough's subjects largely maintained that they were not conscious of such gestures, their performance indicated that the gestures were critical in compensating for missed auditory information. McNeill (1985, 1986) found evidence that production and perception of gestures and language are part of the same mental process. In one study, his subjects lexicalised iconic gestures used by the original narrator, putting into words some concepts that the narrator had only conveyed iconically. In an inverse study to this one, subjects orally retold a narrative using gestures that had been totally absent in the original narrative.

In his 1986 study, McNeill also identified visual markers or 'beats' used to index discourse, which he interpreted as possibly being used to predict or summarise. Other uses of gestures in discourse were deictic in nature. Pointing, for example, was classified into three types: locational, temporal or personal (referring to the speaker, interlocutor, or others). Often these deictic gestures were used in the absence of the object or person to which the gesture referred. Larger, slower movements such as whole or partial body

movement or posture change were found by Schefflen (1964) to correspond to more global discourse features such as topic shift. In their regulatory function in interaction, gestures were found to indicate turns (Gosling, 1981; Erickson & Schultz, 1982), emphasise important information and give feedback (Rosenfeld & Hancks, 1980), or to indicate difficulty in formulating an utterance or expressing concepts (Ditman & Llewellyn, 1969).

In relation to L2 learning, von Raffler-Engel (1976), Riley (1981), and Valokorpi (1981) all suggest that in order to teach L2 students to communicate in full, it is necessary to include a balance of verbal language and kinesic behaviour. In addition, the incorporation of kinesic behaviour into listening activities has been shown to increase redundancy of elements of the message, so facilitating communication (Birdwhistell, 1971), and to reduce learner fatigue when language is presented 'in its full communicative form' (Kellerman, 1992: 250 following von Raffler-Engel, 1980). However, as Kellerman (1992) and Hanley *et al.* (1995) among others have noted, in order for the visual channel to facilitate comprehension, there needs to be a close association between the sound and the image. By this is meant that the visual and auditory channels need to be mutually supportive.

From an intercultural perspective, while Kendon (1984) recognises that there are culturally determined realisations of kinesically conveyed messages, Ekman (1971), in examining facial expressions, has distinguished another set of determinants, which he has called 'universals'. For Ekman, there are six facial expressions of emotion which he classifies as being universal. These are happiness, sadness, anger, fear, disgust, and surprise, which may well have biological foundations (Eibl-Eibesfeldt, 1979). While universals can be identified in facial expressions, whole body kinesic behaviour seems also to vary interculturally in the extent of use, the nature of its realisation, and its relation to the linguistic message. Individual or idiosyncratic variation is common, but as

McNeill (1986: 289) states: ‘What the gestures have in common is their shared semantic expressivity’.

In expanding the study of paralinguistic features from kinesics to pragmatics and prosody, Hurley posits that:

... learners whose L1 and native culture are more similar to the target language and culture are more likely to experience subtle pragmalinguistic difficulties in the target language (TL), while learners whose L1 and native cultures differ greatly from the target language and culture are more likely to experience difficulties in mastering TL sociopragmatic norms.

(Hurley, 1992: 259)

For Hurley, following Leech (1983: 11) and Thomas (1983), pragmalinguistic difficulties occur when, because of a lack of understanding of the means available in the target language to convey the illocutionary force of a message, a learner is unable to interpret or express correctly that aspect of the message. Sociopragmatic norms, on the other hand, depend upon the learner being familiar with ‘which registers and topics are appropriate in different circumstances’ (Hurley, 1992: 261). If, for example, a learner is unable to appreciate the level of politeness necessary with a particular interlocutor, sociopragmatic failure would result. However, apart from so-called ‘emblematic gestures’ such as the ‘thumbs-up’ sign, most prosodic and non-verbal communication cannot easily be assigned discrete semantic units, and this creates difficulties for L2 learners, unless they can be brought to an awareness and understanding of these aspects of communicating in the L2 (Kellerman, 1992).

As various studies have indicated (Lörscher, 1986; Beebe & Takahashi, 1989; Kasper, 1989), attention to and practice in these aspects of L2 communication can and should be implemented in language classes and materials, particularly through activities in which

the learners themselves control and direct the interaction. Hurley (1992: 274) advocates the use of target language audiovisual material of a range of different interaction types to 'enhance awareness of relevant norms and resources, whether verbal, prosodic, or non-verbal for carrying out these interactions'.

As Kellerman similarly concludes:

[...] it seems reasonable to speculate that a large proportion of the speech-tied body movements displayed by a member of one cultural or linguistic community will be interpretable and usable by a member of another. Kinesic behaviour [...] occurs in context, and in conjunction with a verbal message, so that no one source of information stands alone: verbal and non-verbal behaviour reinforce each other. [...] If cultural differences *do* cause problems for learners [...] then the argument for learners being exposed, by means of video or film, to the kinesic behaviour of the target language community is strengthened [...] for familiarity with and understanding of their kinesic behaviour are necessary for the development of communicative competence.

(Kellerman, 1992: 252 - 253)

It can be seen, therefore, that studies on the relation between kinesic information and the communication of verbal messages have shown the importance of kinesics in conveying and interpreting meaning at a number of levels. These findings have some considerable impact on the uses of multimedia in a CELL environment. Thus, for example, the argument is made here not only that the visual channel should be incorporated into learning materials in the CELL environment, but also that explicit efforts need to be made to provide learners with information on the kinesic aspects of messages, and how to interpret and produce them. Such efforts need to include information on how kinesic messages are conveyed in the particular language being studied, or materials being used, as well as raising learners' awareness of the importance of kinesics, particularly language- or culture-specific kinesic realisations of messages at all levels: phonological, semantic, discourse, and interactional.

Some examples of how this can be achieved are given in the description of the visual mode in the software package illustrated in Chapters 5 and 6. While we draw on paralinguistic or co-verbal features of language for the formulation of both the taxonomy of listening comprehension in this chapter, and the language learning strategies in Chapter 4, the main focus remains on the supporting and complementary role which these features play for the auditory/verbal channel.

2.3.2 Essential features of the listening process

A distillation of findings from the various, and often conflicting, research studies and theoretical discussions in the area of listening comprehension reveals that there seem to be two major principles underlying our current understanding of the process. These are:

1. listening comprehension is an **interactive process**, and not as passive a skill as previously perceived;
- and 2. **cognitive activity**, while by no means an exclusive feature, remains an essential component of listening comprehension.

Considerable L2 evidence has accumulated over the last two decades that effective listening requires active or dynamic mental processing by listeners on several levels, particularly in interactive listening situations (Riley, 1981; Lynch, 1988; Anderson & Lynch, 1988). Semantic and syntactic systems operate simultaneously in such a view (Marslen-Wilson & Tyler, 1980; Bond & Garnes, 1980; Voss, 1984; Conrad, 1985), and top-down and bottom-up processing also operate simultaneously (Anderson & Lynch, 1988; Lund, 1991; Conrad, 1985; Van Patten, 1989; Wolff, 1987; Bacon, 1992; O'Malley *et al.*, 1989). There does remain, however, some disagreement about which kind of processing predominates at different levels of learner L2 proficiency (Rubin, 1994: 210 - 211). With this information, together with information on the range of other influencing factors operating on the comprehension process (Richards, 1983; Ur, 1984; Lynch, 1988; Anderson & Lynch, 1988; Rost, 1991), we must conclude that the listening

text, the complete context of this text (both external & internal to the listener), and the task demands or responses required of the listener, are interrelated.

The second principle above, the predominantly cognitive nature of listening, is interrelated with the principle of interactivity, because much of the processing dynamics has been shown to occur within the cognitive domain, with some involvement of the metacognitive and socio-affective (O'Malley, 1990; Rubin, 1994). As mentioned in section 2.1.1, research is increasing into these social and other aspects. Furthermore, findings emerging from this research are also pointing to the continued role which cognitive processing plays, even in learner- and learning-centred models (see also Chapter 1, sections 1.1.2.4-5 and Chapter 4 sections 4.2-4). Thus, for example, researchers in the area of learning strategies in language acquisition such as Wenden and Rubin (1987), Wenden (1991), O'Malley & Chamot (1990), and Oxford (1990), have all identified cognitive strategies as being essential to successful language learning. Therefore, while the metacognitive and socio-affective aspects of listening as an interactive social phenomenon are critically important, the cognitive aspects cannot be ignored.

One approach to the problem of determining a scale of difficulty with which to grade listening comprehension tasks, mentioned in section 2.2 above, is to grade these tasks according to the cognitive demand required of learners to respond to them. A taxonomy of cognitive skills, such as that of Bloom and colleagues (1956), can thus be applied to such tasks to produce a coherent and previously non-existent taxonomy of listening comprehension tasks. This is the approach taken here, and detailed later in section 4.3.

When the whole range of listening comprehension tasks found in the literature is classified according to this taxonomy, it then becomes possible for teachers, and indeed learners themselves, to select listening comprehension tasks that embody levels of cognitive demand in keeping with learners' needs and abilities. In combination with an

understanding of the parameters of other aspects that impinge on listening comprehension detailed in sections 2.4.1-2 below, and an understanding of the application of this knowledge discussed in Chapters 3, 4 and 5, it then becomes feasible for teachers and learners to make informed decisions about which learners use which tasks at what stages in their learning.

In addition, by classifying listening comprehension tasks according to an established taxonomy of cognitive skills, we can regard such L2 learning tasks as contributing to the development in learners of general cognitive skills. For adult learners from impoverished educational backgrounds in particular, cognitive skills so developed might not be otherwise developed or fully exploited by learners in their first language (L1), since such learners may not have an awareness of their use or existence. Therefore, we argue here, listening comprehension tasks classified in this way can be used to develop general listening and general learning strategies.

2.3.3 Stages or continua?

Having accepted these two principles, earlier theories of listening comprehension such as Taylor's (1981) 'Stage' theory (Figure 2.1 below) begin to lose their relevance, because of their focus on elements of bottom-up processing such as discrete recognition. On the other hand, Anderson and Lynch (1988: 13-14), following Widdowson (1983), describe the listening comprehension process as a continuum of interacting elements from two aspects: speech perception (Widdowson's 'schematic knowledge') and interpretation (Widdowson's 'systemic knowledge'), with the intermediary influence of context. This conception of the listening comprehension process, though grounded in L1 studies, has formed the basis of subsequent investigations into the exact nature of the inter-operation between the two aspects of processing.

Figure 2.1 Developmental Listening Stages
(Taylor, 1981: 41-2)

Stage 1: Stream of sound (zero comprehension of content)
Stage 2: Isolated word recognition within the stream (minimal comprehension of general content)
Stage 3: Phrase/formula recognition (marginal comprehension of what is heard)
Stage 4: Clause/sentence recognition (minimal functional comprehension of content)
Stage 5: Extended speech recognition (general comprehension of unedited speech)

A comparison between Taylor's developmental stages and Cook's (1989) model (Figure 2.2) shows Taylor's clear emphasis on 'bottom-up' processes. While Taylor recognises that functional comprehension and general comprehension are indicative of successful listening, he makes no attempt to analyse what features, apart from systemic knowledge, contribute to this. The importance of the interaction between top-down and bottom-up processing is illustrated in Cook's model below.

Figure 2.2 Elements of Top-Down/Bottom-Up Processing
(Cook, G. 1989:8)

TOP-DOWN	
	social relationships
	shared knowledge
	discourse type
	discourse structure
	discourse function
	conversational mechanisms
	cohesion
	(grammar & lexis)
	(sounds or letters)
BOTTOM-UP	

In his analysis of the role of bottom-up and top-down processing in listening, Richards (1990: 50-52) describes the former as a process of decoding, including such tasks as scanning to identify familiar lexical items, and segmentation of the stream of speech in its constituents using phonological and grammatical cues. Conversely, top-down-processing 'refers to the use of background knowledge in understanding the meaning of a message', including such activities as categorising for language function, illocutionary force, or role, inferring various roles and relationships, and predicting. Following Brown and Yule (1983), he also further classifies listening activity according to purpose: transactional (communicating information – message oriented) or interactional (social – listener oriented), with the former predominating in written language, and the latter in spoken language.

As mentioned earlier, many attempts have been made to grade listening comprehension tasks in terms of difficulty (Anderson & Lynch 1988; Richards 1985; Nunan 1990). However, as Byrnes has said, it is

difficult to establish a genuine progression of listening comprehension subskills the way we have done for speaking [...]. Instead we may have to limit ourselves to identifying certain features that make up the totality of listening comprehension behaviour and then indicate which feature bundles are more appropriate for which listening tasks.

(Byrnes, 1984: 327-8)

The main aim of the next part of this chapter is therefore to attempt to identify the features that 'make up the totality of listening comprehension behaviour', and map these on to a range of the most common listening comprehension tasks. In this way teachers and learners involved in listening comprehension tasks should be able more easily to identify which factors of a task can be varied in order to make the task easier or more challenging, according to the learners' needs.

2.4 The three aspects of listening comprehension

Several researchers have attempted to analyse the features contributing to the difficulty or complexity of texts in general and listening comprehension tasks in particular. Brown (1986) identified 'the specification of the task', 'the task' and 'the text' as being factors involved in determining level of listening difficulty with teenage L1 listeners. As a result of findings from this and later research studies, she has repeatedly (1989, 1990) stressed the importance of contextual information, including cultural values, in interpreting discourse.

Boyle (1984) lists three classes of factors mentioned in the literature as influencing listening. These are: listener factors (covering biographical, sociological, intellectual, physical and psychological), speaker factors (including language ability and production, speed of delivery, prestige and personality of the speaker), and factors in the material and medium (incorporating a range of factors as diverse as language used, difficulty of content and concepts, acoustic environment, and the amount of paralinguistic support provided). This analysis is reflected in the 'message factors' and 'medium factors' of Richards (1985) and again by Ur (1984:2-10) in her discussion of real-life listening under headings such as Purpose and expectation, Response, Visibility of the speaker, Environmental clues, Shortness and a section on the characteristics of informal speech.

After examining the analyses of Anderson and Lynch (1988), Brown and Yule (1983), and Cook (1989) as well as others mentioned above, we propose the identification of three inter-related aspects contributing to the difficulty of listening. These aspects are:

1. **Text Features**

(features of the text language, discourse organisation, content)

2. Context Features

(paralinguistic features of the text, level and nature of support, processing load)

3. Task Features

(including classification of task types and response demand)

2.4.1 Text Features

Following and extending Anderson & Lynch (1988) and Brown & Yule (1983), we can identify five categories of text-related features as influencing the level of complexity of a listening text, or the difficulty a listener may have in comprehending a text. These features are: information organisation, familiarity of topic, explicitness, type of input (genre) and level of intimacy.

2.4.1.1 Information Organisation

The first of the features identified in the literature as influencing perception of complexity or difficulty in a text is related to its conceptual structure – how close is the organisational structure of the text to a listener's preconceptions of logicity. This can be expressed as a continuum with difficulty increasing from left to right:

Logical -----> Illogical

How the information in a text is organised undoubtedly affects the ease with which a listener - or reader - can comprehend and remember the message of a text (Brown, 1983, 1989, 1990; Anderson and Lynch, 1988). While accepting that a text which is organised in a highly logical manner will be easier to understand than one which is less logical, the cross-cultural implications of this must also be recognised. The logical structuring of ideas, and developmental organisation in texts, have been shown to differ markedly across cultures (Kaplan, 1987; Eggington, 1987). Thus the principle that 'the more logical a text is, the easier it will be to understand' must be qualified by the rider that

logicality is not an absolute value. Therefore a person from one culture (and therefore having one set of expectations about how a text will logically develop) may have more – though certainly different – difficulties with a given text than will a person from another culture (with a different set of cultural expectations).

Perceptions of logicality could therefore be said to be learner-dependent, being based on individual learners' expectations of how the text will develop. Similarly, the principle that the chronological ordering of events in a text aids understanding may be subject to question in the light of cross-cultural differences. Another variable which needs to be considered here is the level of spontaneity or 'plannedness' of a spoken text. Much of the academic listening to which learners are exposed is more like written text than spoken, with the structure of a formal written paper underlying it (Swaffar & Bacon, 1993). To what extent L2 learners will be able to comprehend such a text might depend on a number of factors such as their familiarity with the structure of written papers in the L2, their level of education in the L1 and L2, and whether they are from a culture which values the written language, or from a predominantly oral language tradition (Kaplan, 1987). When, on the other hand, learners are participating interactively in the construction of a listening text, they have more control over the direction and form of the text. Factors such as the degree familiarity of both topic and frame, script, or schema are discussed below.

2.4.1.2 Familiarity of Topic

As with the aspect of organisation, familiarity of a learner with the topic being presented, and the closeness of the presentation to the learner's schema for that topic, can also be represented as a continuum. Increasing familiarity with the topic or content of the text implies decreasing probability that the listener will have difficulties understanding the message or content of the text.

Familiar <-----> Unfamiliar

This principle is in accord with studies on lexical density, and schema or script theory (Schank & Abelson, 1977), which also maintain that when a listener is processing new material, that which is perceived as being familiar is incorporated into existing mental schemata, modified, and then stored in this modified form in long-term memory (Boekaerts, 1981). Thus, an L2 learner who is a specialist in an obscure area of medicine or engineering, for example, may be able to understand a text in this field and yet have great difficulty comprehending a simple conversation in the L2 at a dinner party.

Learners at a low level of general proficiency may base their recognition or understanding of elements of a text simply on familiarity of sound with elements with which they are already familiar, for example, in their L1 or some previous exposure to the L2. In such cases learners are applying compensatory strategies of transfer (Oxford, 1990) on the basis of L1/L2 phonological congruence (Dinnsen & Eckman, 1975; Eckman, 1977). Another way of interpreting this process is that the learners are attempting to map unfamiliar sounds on to existing schemata with little or no assistance from syntactic processing as such; learners do not yet have sufficient understanding of L2 syntax to be able to use this as a framework for organising comprehension. For this reason, misunderstandings often occur when sounds or chunks of sound in a L2 text are wrongly identified because they happen to resemble superficially sounds in the L1 or previously heard samples of text in the L2. Evidence for this phenomenon has been found in the use of the ‘whispers’ game in the L2 classroom (Byrnes, 1984).

2.4.1.3 Explicitness

This category refers to features of discourse such as redundancy, inference, reference and reduced forms. All of these features have been found to influence the comprehensibility of a text, and the general perception of the nature of this influence is again expressed as a continuum. As with other features of discourse identified above, in a L2 learning context, the direction and poles of this continuum may not be as self-

evident as they seem on first inspection.

Simple <-----> Elaborated

Redundancy, for example, is a language feature that is much more common in spoken language than in written (Halliday, 1985a). Unlike writers, speakers often rephrase or reiterate points, giving listeners more chance to hear and comprehend the message. L2 learners, however, have to learn the conventions native speakers use to do this (Chaudron, 1983), and need to develop listening strategies to select main points from among the repetitions and rephrasings. Similarly, they need to become aware of the reduced forms common to spoken language, such as contractions and unstressed weak forms and referencing conventions where different phrases or words may be used within the one text to refer to the same person or object (Chaudron, 1983). Whether and how to simplify a text in order to make it easier to comprehend is still under investigation, and producing contentious and sometimes conflicting results.

To make the point that simplification should be separated from elaboration, Parker and Chaudron (1987), following Meisel (1977), investigated the effects of input modification at two levels: structurally simplified and cognitively simplified. Although their findings were based on reading, not listening, and showed no advantage for learners in the use of elaboration, incidental findings indicate that their learners may have perceived the elaborations as being additional, rather than alternative, information. This evidence, together with findings in interaction studies (Pica *et al.*, 1987; Lynch, 1988) that adjustments of interaction assist listening comprehension, indicate that learner awareness and focus may be more compelling factors than those relating to the input text.

With increasing emphasis on the role of interaction and negotiation of meaning in listening comprehension (Pica, *et al.*, 1987; Anderson & Lynch, 1988), a new dimension is added to the issue of modification of input text: that of 'listener-friendly markedness' (Lynch, 1988: 140). Thus, in an interactive listening context, the learner's attention is

more focussed on the modification made by the interlocutor, as these modifications are made at the learner's request or in response to difficulties indicated in some way by the learner. This produces a modification of the interaction rather than the input text. This issue will be discussed in more detail in the Chapters 3 and 4 on individual differences and learning strategies respectively.

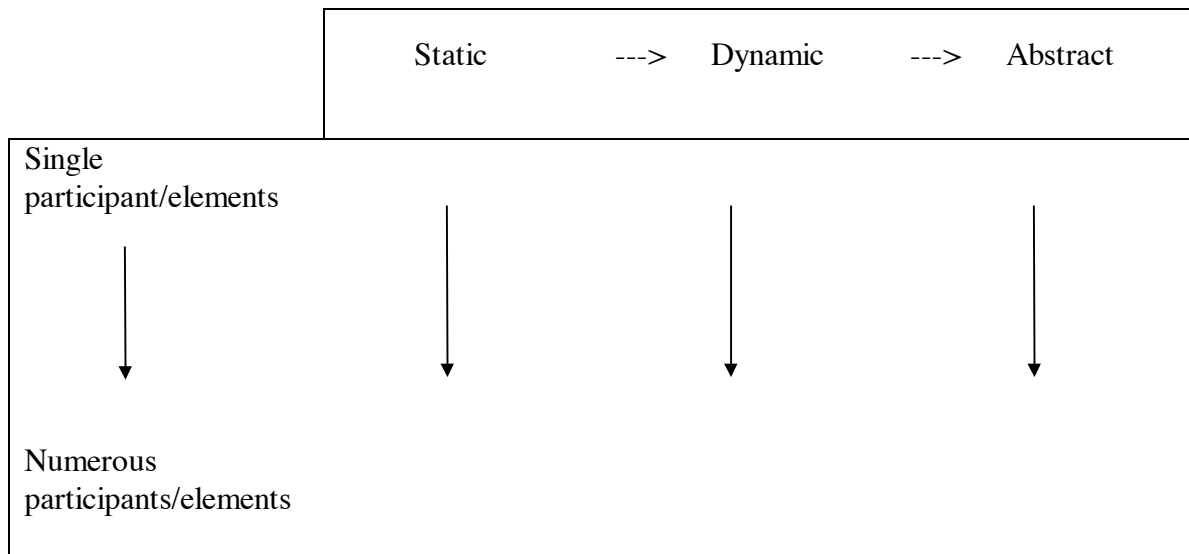
In her review of the findings of studies in text modification for listening comprehension, Rubin (1994) identified four interacting variables: learner proficiency level (Chiang & Dunkel, 1992; Cervantes & Gainer, 1992), type of modification (Chaudron, 1983; Kelch, 1985; Cervantes & Gainer, 1992), type of passage (Kelch, 1985), and amount of background knowledge (Chiang & Dunkel, 1992). This last variable has also been confirmed in numerous other studies (Hare & Devine, 1983; Bacon, 1992c; Schmidt-Reinhart, 1994). However, the data on learner proficiency levels is so disparate that no definite conclusions can be reached on this issue. Together with kind of redundancy ('simple', increased background detail, repeated content words), proficiency level emerges again as one of two factors influencing the utility of redundancy for enhancing listening comprehension. Learners with lower levels of proficiency seem to have more difficulty than advanced learners with texts that contain a variety of references, considerable redundancy, and implicit inferences (Anderson and Lynch, 1988). On the other hand, there is also the need to accustom learners to listening to authentic or unsimplified texts, as this is the target text type. As Swaffar and Bacon comment:

[...] at this point in time, an increasing number of research studies suggest that pragmatic whole-language approaches enhance student learning and are essential for successful applications of FL knowledge in the real world (Shih 1992).

(Swaffar & Bacon, 1993: 141-142)

2.4.1.4 Type of input

This category includes genre features and, following Anderson *et al.* (1984: 49-72) and Lynch, (1988: 202), define the difficulty of a text in terms of the level of abstraction embodied within it. Thus a continuum is proposed, ranging from ‘static’ through ‘dynamic’ to ‘abstract’ texts:



The addition of the vertical axis to the horizontal progression above illustrates the conception that difficulty also increases with the increase in the number of elements that are difficult to distinguish. Static tasks include activities such as describing a picture, diagram, or object or giving instructions for assembling something or arranging objects. ‘Static’, therefore, describes the nature of the relationships between the objects used in the task.

‘Dynamic’ texts are those which embody some change in the relationships being described in the texts. Telling a story (narrative) or describing the working process of a piece of equipment would be classified as dynamic texts. In this kind of text, objects or people typically disappear from and reappear in the narrative, and the referencing language which reflects this contributes to the level of difficulty being higher than that of static texts. In ‘abstract’ texts, the level of difficulty derives from the absence of extra-

textual context in the support materials. In texts giving an opinion or justifying a point of view, for example, the listener has nothing concrete to focus on, only ideas, concepts or values which are often very subjective to the speaker. Thus, in a text delivered by a speaker experienced in relating abstract concepts to people, activities or objects which the listener (audience) can relate to will be more accessible than a text with few listener-based references.

2.4.1.5 Level of intimacy

As illustrated by the continuum from intimate to frozen language below, level of intimacy can be considered as a further category of features which influence the level of difficulty of a text. Another way of expressing this same continuum of features might be from the personal or friendly to the impersonal or unacquainted.

Intimate -> Casual -> Consultative -> Formal -> Frozen

(Joos, 1967)

While this continuum was originally conceived from L1 studies, several foreign language studies have provided evidence for its applicability in some foreign language contexts. Shohamy and Inbar's (1991) learners, for example, found the greatest difficulty comprehending a news broadcast (formal -> frozen), with intermediate difficulty experienced during pre-written lecturettes (formal), and the least difficulty with an interactive, consultative dialogue (consultative).

With foreign and second language listeners, however, the direction of increasing difficulty illustrated in this continuum (e.g. from left to right) cannot be relied upon. Frequently, foreign language learners who have been exposed to very formal, traditional language learning – as is typical in grammar-translation classrooms – will have less difficulty with texts at the right-hand end of the continuum than with casual or intimate conversation. At the extreme right-hand end – ‘frozen’ language – formulaic expressions are common, and this would tend to make the learning of such language easier by rote

methods. Even given Shohamy & Inbar's findings above, other researchers (Lynch, 1988; Jiaju, 1984; Morrison, 1989) have cited the repetitive and cross-culturally predictable nature of news broadcasts as features which allow these texts to be more easily comprehensible to foreign language learners. In addition, Berne (1992) found no significant difference in testing of comprehension of main ideas between a lecture and an interview, though these results could have been produced because of the similarities in level of language between the lecture and interview texts.

In the continuum above, the vertical dimension also includes elements of relationships, such as the level of affect and emotion, and the way in which this is expressed. Several researchers in the area of sociolinguistic and discourse competence have identified difficulties experienced by L2 learners in appropriately perceiving and expressing affect and emotion in narratives (Rintell, 1990: intimate -> casual), interviews (Swain & Lapkin, 1990: formal), work-place requests, refusals, offers and invitations (Beebe *et al.*, 1990: formal -> frozen), and classroom participation patterns (McHoul, 1979; Alright, 1980; Sato, 1990: casual -> formal).

Alternatively, learners who have 'picked up' the language, or learnt it through casual interaction or conversation classes, often have more difficulty with the formal level of the language, whether because of linguistic or register inappropriateness, or because their ethnic group identification interferes with their choices (Scollon & Scollon, 1981; Gumperz *et al.*, 1990). Thus, for L2 learners, though the features identified as aspects of difficulty in this continuum are still valid, neither the direction nor the progression can be relied upon in predicting degree of difficulty. L2 learners could feasibly have equivalent ease or difficulty with levels of intimacy at either end of the continuum, depending on their previous or current language learning environment, ethnic identification, and individual learning styles, as well as the other features identified above.

To summarise our discussion of text features, we can conclude that there is considerable overlap between the skills required in L1 and L2 listening (Faerch, 1981). It can also be seen that, while in one-way listening interpretation of the message is largely a matter of internal, cognitive processing, in reciprocal listening, listeners have access to a number of conversation management and negotiation strategies to allow them to make meaning of the message. However, this discussion has also indicated that, in addition to having control over the text, for learners to gain effective L2 listening comprehension they need to have an understanding and appreciation of the context, and the ability to navigate through and fulfil the task requirements.

2.4.2 Context features

Context features are defined here as those features not directly related to the language of the text or the demands of the task. Included in this section in a modified form are features mentioned by Anderson and Lynch (1988), Ur (1984) and Richards (1985). Though Lynch (1988: 36) separates ‘context’ (knowledge of physical setting, participants, co-text etc.) from ‘co-text’ (knowledge of what has been/will be said), in this section certain elements of ‘co-text’ will be subsumed under ‘context’. Other elements of co-text have already been dealt with in sections 2.4.1.1-5. For our purposes, then, there are three general categories of contextual features which affect listening comprehension: processing load, visual and paralinguistic support, and availability of speaker (‘reciprocity’: Lynch, 1988).

2.4.2.1 Processing load

Performance on a listening comprehension task can be improved by limiting the amount of information that has to be processed at any one time. Therefore, by giving the listener a framework for listening (‘pre-listening activity to provide purpose’ – Anderson & Lynch 1988: 93), the amount of processing necessary for a task is reduced, even when using authentic material (Besse, 1981). This means that the demands on the selective or filtering process of listening are reduced because the number of elements needing

attention has already been limited (Boekaerts 1981:29). It also allows listeners to activate the relevant scripts (Schank, 1972; Schank & Abelson, 1977), or schemata (Anderson, 1977; van Dijk, 1981) better to interpret what they hear (Murphy, 1985). Apart from such ‘advance organisers’ (Ausubel, 1960), other aspects directly related to the processing load for listeners are the length of the passage and the rate of delivery of the passage.

2.4.2.1.1 Length of passage

Any discussion of length of a passage affecting comprehension must include completeness of the passage, as these two aspects are interrelated. Teachers have long been aware of the necessity of keeping listening passages short in order not to overload or fatigue the listeners (Ur, 1984; Allen, 1985; Arcario, 1992). Conversely, listeners can gain more information from listening to a longer passage in that the greater length generally provides more clues or information (Swaffar & Bacon, 1993). At the same time, listening to several short but individually complete passages is an easier task than listening to several consecutive extracts from a connected conversation (Rixon, 1981). This is because the complete text comprises the whole conversation, and to break it up into shorter segments (as in extracts) reduces the availability to the learner of top-down processing. As Rost puts it:

In extended listening the listener must balance new and old information in order to update a cognitive representation of the text as the speaker continues to talk. In non-collaborative discourse the listener may not be able to arrive at acceptable understandings on a turn-by-turn basis, but must carry forward representations of the text even if understanding is flawed or incomplete.

(Rost, 1990: 129)

In a learner-controlled CELL listening and viewing environment, such issues become less critical, as the learner is able to pause and replay the passage, or segments of the passage, as frequently as needed and with as long a pause as necessary for processing. In

this way, some of the advantages of reading over listening (Swaffar & Bacon, 1993), the availability of the text for review, can be incorporated into CELL listening tasks.

2.4.2.1.2 Rate of delivery

The speed at which the speaker speaks, the number of pauses and length of pauses affect the time available to the L2 listener for processing the information content (Richards, 1985). Generally, a text spoken at a slower speed and with more and longer pauses is perceived as easier for L2 listeners as they have more time in which to process the message (Rivers, 1968; Cross, 1980). However, electronic techniques for slowing the rate of delivery using speech expansion have shown that, rather than assisting the listener, can cause drowsiness (Johnson & Friedman, 1970). In this and later studies by the same researchers (Friedman & Johnson, 1971), speech compression and the 'structural' insertion of pauses at syntactic boundaries was shown to improve listeners' recall of the material. Other researchers in the area of L1 speech perception, attention and memory (Miller, 1962; Palmer, 1975; Norman, 1976) have shown that when auditory material is subject to simultaneous top-down and bottom-up processing, as takes place in meaningful 'chunking', recall capacity for the material is considerably expanded.

As with the case of processing load above, in a CELL environment pauses between utterances or segments thereof can be adjusted by learners themselves. As illustrated in Chapter 6, in the description of learner help and practice in the software developed in this work, certain facilities can be written into software packages to allow learners to compress or expand pauses, or to play texts progressively built up forwards or backwards, or at slow or normal speed. In this way, the range and variety of individual learner uses of the listening material can be fulfilled.

2.4.2.2 Visual and paralinguistic support

Several features related to the level of visual and paralinguistic support, that is, ‘environment clues’ (Ur, 1984:6), affect the level of difficulty of a listening text. Some of these features, as identified earlier in section 2.3.1, are illustrated in Figures 2.3 and 2.4 below:

Figure 2.3 **Environment-related features**

- (a) other sensory stimuli, e.g. visual, olfactory, tactile, gustatory
- (b) props or other context-dependent support, such as when a loud speaker at a railway station gives an announcement, a listener can assume that it is an announcement about train arrivals/departures, lost property/people etc.
- (c) written or other support, such as transcript, notes, activity, visuals
- (d) external/peripheral ‘noise’ e.g. cars passing, static on a telephone line, other people/animal/non-animate noises

Environment-related features (a) to (c) generally assist listeners if they are familiar with them, bearing in mind that this only occurs if these features are relevant to the verbal message (Hurley, 1992). Numerous theories regarding the means by which speech is perceived involve degrees of listener approximation of matches between speech signal, context, and the ‘mental lexicon’ (Klatt, 1981; Morton, 1969; Morton *et al.*, 1985; Aitchison, 1987). With feature (d) above, on the other hand, increased levels of noise or interference of this nature will raise the level of difficulty of the text. However, as Rost reminds us:

Understanding spoken language is essentially an inferential process based on a perception of cues rather than a straightforward matching of sound to meaning. The listener must find relevant links between what is heard (and seen) and those aspects of context that might motivate the speaker to make a particular utterance at a particular time. [...] it is by virtue of the expectations that listeners have that they need to perform

only a cursory examination of the acoustic signal. In terms of information processing, listeners perceive language according to the probabilities they have used to generate expectations about it.

(1992: 33 - 34)

Figure 2.4 Speaker-related features

- (a) expression (facial)
- (b) gesture (hand, arm, body)
- (c) proximity (between speaker and listener)
- (d) voice tone/intonation, rhythm, stress (prosodic features)
- (e) dialect and accent (variation)
- (f) speaker error (variation)

In common with environment-related features, speaker-related features (a) to (d) above, which can be either idiosyncratic to the speaker, culture-specific or universal, will normally assist learners in comprehending the message of the text only if learners are familiar with the meaning or intention conveyed by those features (Hurley, 1992). Therefore certain awareness-raising activities may be necessary to assist learners in becoming familiar with those meanings or intentions which are idiosyncratic or culture-specific (Tomalin & Stempleski, 1993). Similarly, with feature (e) in Figure 2.4, listeners could be at a disadvantage if they were not familiar with the accent or voice setting (Saville-Troike, 1982; Wells, 1982) of the speaker, and some familiarisation would be required. As for (f) in Figure 2.4, many speaker errors pass unnoticed, are dynamically self-corrected by the speaker, or are compensated for by the listener (Rost, 1992).

In the CELL environment, particularly when digitised speech is used, these expectations and links are highlighted. When speech is digitised, for example, rather than the complete signal being recorded, it is commonly sampled at a rate of 22KHz and 8 bits. Telephone

communications are normally sampled at similar rates, meaning that some information in the original signal is inevitably lost. For comparison, professional digital audio compact discs are recorded at a rate of 44Khz and 16 bits (which is considered extremely high fidelity). For human listeners it has been shown that a rate of 22KHz produces a quality of recording that is sufficient for the purposes of L2 listening comprehension, even with beginners (Lian *et al.*, 1993).

2.4.2.3 Availability of speaker

As stressed earlier in section 2.3.2, the level of interaction leading to negotiation of meaning that is possible between speaker and listener has a considerable impact on the comprehension achievable by the listener. There seem to be two aspects to the availability of the speaker which affect listeners' comprehension of the text: the speaker's visibility and the speaker's accessibility or interactivity with the listener.

2.4.2.3.1 Visibility of speaker

The impact of this aspect of the context derives from the distance of the speaker from the listener or the level of 'removedness'. In a face-to-face encounter, once listeners are aware of the import of the visual and paralinguistic support discussed above, they have access to the full range of those support features. In addition, these features are also available to learners, though in a less immediate way, when they participate in tele- or video-conferences, or multimedia sessions, or view television or video recordings.

As illustrated in Figure 2.5 below, when a learner is listening to a recording of someone else's telephone conversation or an impersonal loudspeaker broadcast, to take some extreme cases, none of the visual or kinesic features is available, thereby increasing the level of difficulty. To use another example, an audio recording of any text originally dependent on visual clues, such as a TV text, would be similarly difficult for a listener, since the visual clues essential to the message have been removed. By removing these

visual aspects of the message, listeners are being deprived of clues essential to an appropriate and natural interpretation of the message (Kellerman, 1992).

Figure 2.5: **Features of Visibility Continuum**

face to face ->	teleconference ->	TV/video/ ->	telephone ->	audio recording ->	one-to-many loudspeaker broadcast
		multimedia			
immediate	delayed	removed	immediate	removed	removed
visual	visual	visual	aural	aural	aural
interactive	interactive	receptive/ interactive	interactive	receptive	receptive
conversation	meeting	entertain	business	entertain	entertain
classroom	lesson	lesson	casual/lesson	lesson	inform

Figure 2.5 illustrates the progressive decrease in information available to listeners from left to right. The top line provides examples of common means by which we communicate. Listed under each example, in descending order, are the ‘immediacy’ or ‘removedness’ of the communication, the channel (aural or visual), the level of interactivity, typical functions of the communication encounter, and finally, the location or role of these examples in the educational context.

2.4.2.3.2 Interactivity

The interactivity or ‘group format’ (Anderson & Lynch, 1988:59) aspect of listening comprehension refers to the importance of the presence of interlocutors to give the listener feedback and help him/her negotiate meaning interactively. In a group or pair situation, the speaker is available to be asked questions, confirm meaning, clarify points and elaborate on points of ambiguity. In this way listeners and speakers can interactively

negotiate meaning. With L2 learners, in other words, the presence of one or more interlocutors will result in more negotiation of meaning and, therefore, potentially more successful communication (Pica & Doughty, 1985).

In a CELL environment, particularly when learners are working alone, there is much less opportunity for this aspect to be exploited. However, even in the absence of an interlocutor, the computer software and listening and viewing materials can provide some measure of interactivity. As the means of achieving this are discussed in detail in Chapter 5, it is sufficient at this point to mention that the use of unmodified, authentic or 'genuine' (Widdowson, 1978) texts, is crucial in providing learners with exposure to appropriate language models. In addition, the facility for learners to ask questions and find answers on lexical, syntactic, and illocutionary functions can be incorporated into CELL software, enabling a level of learner-driven negotiation of meaning to unfold (Doughty, 1991; Brett, 1995).

In his discussion of input (materials and language data) as a task component, Rost claims that none of the text – and context – related features mentioned in sections 2.4.1-2 alone

can predict the difficulty a learner will experience, since text difficulty relates to affective factors of learner interest and motivation, and does not take into account support provided by the task. [...] A least-effort principle alone is inadequate to explain text-processing since listeners may expend more effort on a difficult text provided that the text offers useful and informative insights. Also, texts which are vivid or interesting may be easy to understand even though they contain unfamiliar content or difficult text features [...]

(Rost, 1990: 158 - 159)

Thus, several educators now maintain that tasks which allow learners to practise necessary *component* listening comprehension skills, such as listening for specific words, as well as other more general learning strategies, provide them with access to genuine

language texts in a more meaningful way (Candlin, 1981; Spada, 1987; Lynch, 1988). This then entails an examination of the features of tasks that promote this enabling process.

2.4.3 Task features

Intrinsic to the notion that listening is an interactive process is the principle that the listener is an active participant, i.e. that he/she has a purpose (or purposes) before, during, and after listening to the text. It is useful here to interpret in cognitive terms the way in which the listener applies this purpose to the text or responds to the text, following Bloom and colleagues' (1956) *Taxonomy of Educational Objectives for the Cognitive Domain*. In order to do this, however, in addition to the notion of listener-purpose, the notion of task type must be considered. In this section we will outline how the most common listening comprehension task types can be classified according to Bloom's taxonomy. Insights from this classification then provide us with a further dimension for varying the level of difficulty as well as providing a concrete framework within which to grade listening comprehension tasks.

A crucial feature in the development of this taxonomy is the separation of language proficiency from cognitive or metacognitive capabilities. As Swaffar and Bacon (1993: 143) observe, research findings on the relationship between learner proficiency on a range of texts and level of language study, and reported use of specific learning strategies and language performance, are extremely inconclusive. There is therefore a need to distinguish between the cognitive processing demands of tasks and the response production demands, as well as the features of text difficulty discussed in previous sections, in order for learners to be able to track their variability of performance on these tasks. This will then make it possible for individual learners to define more explicitly their levels of proficiency across a range of listening and viewing component skills, both top-down and bottom-up, and strategies, to produce a more informative profile. By selecting appropriate tasks for practice, learners can then use this profile to improve those skills and strategies that they have identified as being useful but less well developed.

2.4.3.1 Background to the taxonomy

Several researchers and educators in the area of listening comprehension have attempted to develop taxonomies of L2 listening comprehension skills (Richards, 1983; Lund, 1990; Rost, 1990). While these have been illuminating, none has captured the full range of complexity involved. The taxonomies of Richards and Lund, for example, have focussed on component skills development from the point of view of the teacher. Conversely, in his presentation of the problem, Rost (see Figure 2.6 below) has gone a long way towards formulating and identifying the different influencing perspectives, without bringing them all together in a coherent framework.

Figure 2.6 **Enabling skills and enacting skills in listening**

(Rost, 1990: 152-153)

Emphasizing perception:

(1) Recognizing prominence within utterances

(1a) Perceiving and discriminating sounds in isolated word forms (phonemes, especially phonemic contrasts; recognizing phoneme sequences, allophonic variants).

(1b) Discriminating strong and weak forms, reduction of unstressed vowels, modification of sounds at word boundaries (assimilation, elision, liaison); phonemic change at word boundaries; allophonic variation at word boundaries.

(1c) Identifying use of stress and pitch in connected speech: for indicating boundaries of information units, rhythmic patterning; showing emphasis, providing contrast.

(1d) Adapting to speaker variation.

Emphasizing interpretation:

(2) Formulating propositional sense for a speaker's utterance

includes the sub-skills of:

(2a) Deducing the meaning of unfamiliar lexical items.

(2b) Inferring information not explicitly stated, through filling in ellipted information, making bridging inferences.

(2c) Inferring links between two or more propositions.

(3) *Formulating a conceptual framework that links utterances together*

includes the sub-skills of:

- (3a) Recognizing indicators of discourse for introducing an idea, changing topic, emphasis, clarification and expansion of points, expressing a contrary view.
- (3b) Constructing a main idea or theme in a stretch of discourse; distinguishing main points from supporting details.
- (3c) Predicting subsequent parts of the discourse at conceptual levels.
- (3d) Identifying elements in the discourse that can help the listener form a schematic organization.
- (3e) Maintaining continuity of context to assist in predictions and verification of propositions in the discourse.
- (3f) Selecting cues from the speaker's text to complete a schematic prediction.

(4) *Interpreting plausible intention(s) of the speaker in making the utterance*

includes the sub-skills of:

- (4a) Identifying an interpersonal frame that suggests speaker intention toward hearer
- (4b) Recognizing changes in 'prosodic gestures' - pitch height, pitch range, pitch patterns, pause, tempo - and identifying inconsistencies in speaker use of these gestures.
- (4c) Identifying speaker contradiction inadequate information, ambiguity in speaker utterance.
- (4d) Differentiating between fact and opinion; identifying uses of metaphor, irony, and other 'violations' of conversational maxims.

Enacting skills

(5) *Utilizing representation of discourse to make appropriate response*

includes sub-skills of:

- (5a) Selecting salient points from information given for use in a task.
- (5b) Reducing and transcoding information from spoken source to other forms (often written form such as note-taking).
- [cont'd]
- (5c) Identifying needed clarifications of topics and ideas.
- (5d) Integrating information from text and other sources.
- (5e) Providing appropriate feedback to speaker.

Rost himself (1990: 150-151), in warning of the dangers inherent in hierarchic taxonomies, mentions three drawbacks: focus on ‘specific skill outcomes’ to the detriment of ‘concern for transfer of the skill to target listening situations’; confusion between general analytic competence and those psycho-motor skills that are useful for ‘language-use situations’; and the implication that a linear order of discrete skill learning can be prescribed. In outlining his approach, however, Rost does not seem to provide a synthesis of all the aspects he cites as contributing to the development of competence in listening comprehension.

Specifically, insufficient account is taken of the role of paralinguistics in listening and viewing processes, as these appear only in sections b and c of (4), the interpreting of speaker intention, and not earlier in the inferencing of propositions (2), or the conceptual framework (3). These applications of paralinguistic features have clearly been identified earlier in this Chapter (section 2.3.1) as having a significant role (Kellerman, 1992; Hurley, 1992). In his taxonomy, Rost also does not differentiate between listening skills and strategies to practise or develop these skills, though he does attempt this elsewhere (1990: 157). However, a useful aspect of Rost’s taxonomy above is his ‘Enacting skills’, as these provide us with a starting point for delineating response demands from other cognitive, affective or metacognitive demands on listeners, and from Response Option Types.

In his discussion of interpretative language ability in relation to input texts and test item stems (word series to connected monologue) and procedural ability as reflected in the interpretation and execution of test response items, Rost categorises Response Option Types in terms of the Skill Operation required of the learner. As illustrated in Figure 2.7 below, the Skill Operations are mostly represented as ‘Enacting Skills’ in his taxonomy of listening comprehension skills (Figure 2.6).

Figure 2.7 Response Option Types and corresponding Skill Operations
(adapted from Rost, 1990: 183-185).

Response Option Types	Skill Operation
- placement of marker on writing transcript	- perception & transcoding skills
- gap-filling/completion	- formulation of propositional sense for an utterance (+ lexical retrieval & written expression)
- multiple choice, selecting, choosing (from visual distracters)	- identifying word forms
information transfer -> verbal response/ representation	- transcoding information
- answering questions/evaluating statements (e.g. T/F (all based on written representation, no visuals)	- utilising representations of discourse -> appropriate responses
- directive response -> perform actions	- formulating propositional sense for an utterance + formulating conceptual framework linking utterances
- controlled (guided) note-taking	- utilising representations of discourse to make appropriate responses, i.e. reducing & transcoding information
- form-filling	- formulating propositional sense for an utterance + formulating conceptual framework linking utterances + transcoding
- labelling/completing diagrams, tables, charts, graphs, maps, illustrations	- utilising representations of discourse to make appropriate responses -> reducing & transcoding information
- matching items, objects & attributes (\approx classification/categorisation)	- interpreting plausible contexts, intentions of speakers in making utterances & formulating conceptual framework linking utterances together
- sorting (sequencing) events, names, objects in order (visual: pictures matched with verbal narrative)	- utilising representations of discourse to make appropriate responses
- summary writing	- utilising representations of discourse to make appropriate responses

Rost's Response Option Types become useful for the purposes of constructing our taxonomy of listening comprehension skills in that it provides an initial insight into the separation of the nature of activity involved in fulfilling or providing an answer to a task from the processing and production demands of doing this.

There are two important points to note in the use of tasks types as exemplified in the figure below. Firstly, while some types are based predominantly on language or lexis, many more are based on some form of transcoding, either from the verbal channel to the visual, or involving some form of numerical or tabular transcoding. This feature of listening comprehension task response types becomes critical in a CELL environment, where the capacity for creative listener response is limited. As can be seen in Figure 2.7, a considerable range of task responses remains, even without creative learner input.

The second feature to note, as Rost reminds us, is the importance of making the Response Option Type an authentic response for the listening input text. By this is meant that the response required for a text should be typical of or appropriate for the genre of the text. Listening for discourse markers of cause and effect, for example, may be appropriate for a documentary, as note-taking practice, but not for a weather forecast.

The work of Richards has had considerable influence on language teachers in the area of listening comprehension since the early 80s. However, Richards' (1983,1985) *Taxonomy of Listening Skills* includes examples of both conversational and academic microskills and, while useful to many teachers and researchers, cannot be regarded as complete. In proposing these microskills, Richards himself states that they are only examples and specifies that by 'academic listening' he means 'listening to lectures'. Obviously, academic listening incorporates many more types of listening than merely listening to lectures – for example, watching videos, listening to the answers to questions, and participating in seminars and study groups (Lynch, 1983).

Lund (1990) recognises the necessity of including the listener's response, which he seems to include in his Function axis on the Function-Response Matrix for Listening (see Figure 2.8). However, his definition of 'function' remains unclear. He states, for example, that 'Listener function may be defined as "the aspects of the message the listener attempts to process."'". However, category titles along this axis seem to be activity types (e.g. Main Idea Comprehension), rather than the stated 'functions'. We need to analyse Main Idea Comprehension further to distinguish the functions entailed by the successful completion of this activity. Along the vertical Response axis Lund has drawn on and elaborated Richards' (1983) task types (e.g. Answering and Condensing). Evidence that he regards listening as an essentially interactive process is the fact that the two axes in his matrix are listener's function and listener's response to the task types. In spite of Lund's claim that the taxonomy is hierarchic, he himself admits that the function Replication is an exception as it 'may or may not involve comprehension' (Lund, 1990: 11). In this, Lund's qualifications seem to illustrate the confusion, discussed earlier, that permeates the literature regarding attempts to classify or grade listening comprehension tasks in terms of difficulty.

This author therefore maintains that text difficulty can only reasonably be determined with reference to any particular learner, and then it can only be determined in respect of other characteristics/features, such as response demand and context. Bloom's taxonomy seems to lend itself to the classification of response demands of task types as described below in Figure 2.9, though we have found it necessary to include considerably more specificity in the description of task types than Richards, Lund or Rost have provided. This taxonomy incorporates all listening comprehension task types we have found in commercially available packages and language curriculum sourcebooks for the development of listening comprehension for second language learners.

Figure 2.8 **Lund's Function-Response Matrix for Listening Function** (1990:

111)

(Advertisement Example)

Function Response	Identification	Orientation	Main Idea Comprehension	Detail Comprehension	Full Comprehension	Replication
Doing			Pantomime the product		Select best ad	
Choosing			Match ads & pictures			
Transferring	List adjectives		Write magazine ad	List selling points		
Answering			What goods are advertized			
Condensing			Write close-caption text			
Extending			Second ad in campaign			
Duplicating			----			Transcribe the text
Modelling			Create own ad			
Conversing			'Talk back' to the ad			

These task types have then been analysed for the cognitive demands they make of learners in order to arrive at appropriate responses to the tasks. On the basis of this analysis, the tasks types have then been allocated a position in the taxonomy, from the Knowledge level for the most basic demands consisting of remembering, or recalling facts, specifics, methods and processes, up to the top level of Appreciation, which, while not in Bloom's original cognitive taxonomy, in this author's opinion requires

considerable cognitive processing, and subsumes the processing required at the lower levels.

In the left-hand column are set out the characteristics typical of tasks at this level of cognitive demand, as originally outlined by Bloom *et al.* (1981). In the right-hand column is a list of listening and viewing comprehension tasks found in the literature (Grellet, 1981; Richards, 1983; Ur, 1984; Nunan, 1989; Sheerin, 1989; Lund, 1990; Stempleski & Tomalin, 1990; Cooper, Lavery, & Rinvulcri, 1991; Stempleski & Arcario, 1992), allocated to a level on the Taxonomy of cognitive demand. Each task type has been assigned to a level according to the cognitive demand made on learners in order to make an appropriate response to that task. This taxonomy is then used as the basis for learner searches at the Taxonomy Layer of the software package, *MMInteraktif*, that is produced as the exemplification of principles espoused in this work.

Learners are given information on the taxonomy, lists of task types available at each level of the taxonomy, and access to all of the tasks available in the package for any task type they designate. They can then work on all tasks at a particular level, across a range of texts, until they have mastered the skills typical of that task type. This mode of access to the available tasks allows learners to choose which tasks they work on, based on their own subjective, individual perceptions of difficulty.

Figure 2.9
Taxonomy of Listening Comprehension Task Types in terms of Task Demands (ascending level of cognitive demand). (Source – original)

Cognitive Processing Level	Task Type (defined in terms of response demands)
<p><u>Knowledge</u></p> <p>‘The psychological processes of remembering’ (Bloom <i>et al.</i>, 1981)</p> <p>Recall of: specifics & universals, methods & processes</p> <p>Knowledge of specifics (terminology & specific facts)</p> <p>- emphasis on ‘symbols with concrete referents’</p>	<ul style="list-style-type: none"> • doing (indicate, react) • responding to commands, instructions and directions (e.g. by making or doing something) • modelling (imitation) • answering (i.e. either yes/no answers to simple questions on specific information in a text or providing specific information in response to basic information [<i>wh</i>-] questions) • identifying gender of speakers in an audio-only conversation • identifying changes of topic and boundaries between topics • identifying specific information
<p><u>Comprehension</u></p> <p>Translate, illustrate, extrapolate, estimate, predict, identify / distinguish, interpret ‘without necessarily relating it to other material or seeing its fullest implications.’ (Bloom <i>et al.</i>, 1981)</p>	<ul style="list-style-type: none"> • transferring (from one medium to another) • duplicating (i.e. transcribing, translating, dictation (Lund, 1990)) • rephrasing utterance (e.g. in a different register) • sequencing pictures/diagrams according to verbal narration • matching sets of input/text in different media /channels (e.g. picture appropriate to verbal description) • matching, distinguishing between sets of different information (e.g. diagrams to some form of verbal description/narration or specifics with generalisation, etc.) • inferring the characteristics of participants in a text • inferring the relationship between speakers in a conversation • reordering utterances in a text to match with a verbal text

<u>Application</u> 'Use of abstractions in particular & concrete situations' (Bloom <i>et al.</i> , 1981) i.e. remember & apply	<ul style="list-style-type: none"> • scanning (listening for specific information, with some inferencing required) • reconstructing dialogue from transcript containing missing lines • guided note taking • predicting (end of story, trends from given data & conditions etc.) • jigsaw (patchwork) listening • inferring meanings (that are not explicitly stated in the text) • listening for main points
<u>Analysis</u> Breakdown of communication into its constituent parts, elements, relationships & organisational principles	<ul style="list-style-type: none"> • note taking } • outlining } ('condensing' Richards, 1983) • inferring gist • identifying various language functions exhibited by a text or parts therefore (e.g. cause & effect)
<u>Synthesis</u> Putting together analysed elements & parts to form a novel whole	<ul style="list-style-type: none"> • summarising • modelling (modifying model to novel situation) • extending, elaborating • inferring attitudes in extended discourse
<u>Evaluation</u> Judgement + criteria Opinion + justification - in terms of internal / external evidence	<ul style="list-style-type: none"> • distinguishing between fact and opinion • evaluating conflicting evidence • evaluating illocutionary effectiveness of a text &/or utterance • evaluating appropriateness of register or genre of a text • making judgments from internal evidence in a text (& justifying them) • inferring/developing criteria from information/examples in a text

<p>**<u>Appreciation</u></p> <p>Intellectual & aesthetic appreciation of parts, elements, organisation &/or creative expression of a text</p>	<ul style="list-style-type: none"> • identifying/empathising with participants in a text & expressing, appreciating, or hypothesising about their point of view/role etc. • expressing appreciation of stylistic aspects of a text, including co-verbal features • extending a text using one's own variations of the text's stylistics/creativity (e.g. in another medium)
--	--

** For the purposes of completeness, this level, Appreciation, has been added to the taxonomy, as it does demand considerable cognitive processing. However, this creative, aesthetic element of cognitive processing is highly subjective, and intuitive. As examination of this involves the affective domain, as well as other less tangible elements of the human psyche, detailed discussion of this lies outside of the scope of this work.

Obviously some of these task types could feasibly have different levels of response in this taxonomy (e.g. modelling and answering) but, in order to differentiate, more specificity is necessary when defining task types. For example, 'modelling in a new situation' might involve ordering a meal after having heard a conversation in which a different kind of meal has been ordered, as against the 'imitation' level of modelling which requires no more complicated response than mimicking the model as closely as possible. In his discussion of question typologies based on Candlin *et al.* (1974) and Gerot (1987), Rost (1990: 166) comments that the 'proportion of the inferencing based on the text alone diminishes as one goes up the scale' (see Figure 2.10 below).

This holds true both for the typologies Rost discusses (Figure 2.10), and the one we propose above in Figure 2.9. Thus, for example, at the Evaluation level of the taxonomy detailed here, a complex deduction and problem-solving task could be devised, using only very simple lexis, syntax, and discourse structure, such as a series of instructions, requiring most of the cognitive processing load to be focussed, not on decoding the language, but on the evaluation of conflicting evidence.

Figure 2.10 **Grading of questions in terms of response required** (based on Gerot, 1987 – Rost, 1990: 166)

Least difficult question type		-----	Most difficult question type	
< replicative -- echoic -- synthesis -- oblique -- surmise >				
Least integrative work		-----	Most integrative work	
Replicative	– answer replicates or repeats the text word for word			
Echoic	– the answer echoes the text although it may differ lexically or grammatically			
Synthesis identifiable	– the reader/hearer must connect and conflate a number of bits of information			
Oblique	– the reader/hearer must infer a fact which follows from something mentioned explicitly in the text			
Surmise	– the reader/hearer must infer a fact or idea, but not from an explicit statement in the text			

This conflict between language and concepts might exist either between information presented in the text and the listener's knowledge of the real world (external evidence), or between different items of information conveyed within the text (internal evidence). It can be seen, therefore, that the progressive de-emphasis on textual inference at descending levels of the taxonomy allows for the separation of cognitive processing demand from learner L2 proficiency mentioned at the beginning of this section. Appendix D provides more detailed examples of tasks possible at the various levels of the taxonomy.

2.5. Listening comprehension and CELL

The implementation of these tasks in a CELL context implies certain advantages and certain constraints. The constraints lie in the difficulties of allowing students to input random text of the kind necessary in, for example, a summarising task. Technology has not yet developed, and indeed will not develop for the foreseeable future, the capacity to process random text input through the keyboard in ways that could simulate the way a teacher would annotate and give feedback on a student's work. Although research into artificial intelligence, and intelligent and expert tutoring systems, has made considerable advances, such capacity as described here still remains technically impossible.

Be that as it may, this does not mean that, in principle, such tasks cannot be implemented, in a modified form, in a CELL environment. By using such response options as multiple choice or shuffling of chunks of pre-summarised text, for example, it is possible to provide learners with computer-based tasks at an equivalent cognitive level, and with similar text processing requirements without requiring creative keyboard input. (See Chapter 6 for some examples of the range of response option implementations possible in a CELL environment.) However, in a CELL environment it is not necessary for all the interaction that takes place to be computer-based. There is the possibility for the text to be presented in software, allowing learners the facility of repeated playback on demand, while the actual summary writing can still be marked by the teacher in the traditional way. In such cases, the software is fulfilling the role of tool or resource, with the major part of the mediating activity still taking place between teacher and learner.

Another constraint for CELL, arising from the same difficulties as the one above, is the lack of realistic human-human interaction. However, it is even easier to compensate for this constraint, because of the numerous other sources of interaction possible in a CELL environment. While it is never the intention of this author to claim that computers should take the place of human interaction, as mentioned in the previous chapter, there are several aspects of the language learning process in which computers may be used to greater advantage. The provision of on-line grammar notes, contextualised feedback, repeated individualised playback, and dictionaries represent some of these. In addition, all of these features can be provided whenever and as often as the learner needs them.

For listening comprehension in particular, because of perception and recall constraints discussed earlier (section 2.4.2), the timing of content and feedback delivery can be a distinct advantage. As Rost states:

Time of the outcome is a vital concern in listening practice, since delays in completion of a task require the learner to use recall skills that are not directly related to interpreting discourse in real time [...] In general, instructors concerned with development of listening strategies should specify outcomes that immediately follow chunks of spoken input, and should provide some method of allowing learners to check their outcomes quickly.

(Rost, 1990: 168)

Delivery of listening comprehension tasks within a CELL environment provides just such a method.

Another advantage of CELL listening comprehension relates to Rost's summary of what the literature in the field has to say about the necessity for learners to be exposed to the same text from different perspectives and with emphasis on different aspects for full understanding of a listening text to be achieved:

An individual's understanding will be related to what aspects of the text are congruent with prior knowledge and expectations. Listeners who find a text highly discontinuous with their prior knowledge and expectations may learn more than listeners who already know a great deal about what the speaker is saying. This observation underlines the importance of having tasks that can make appropriate outcome demands for learners at different levels of skill (or allow for different solutions depending on different skills and strategies of learners) and the necessity of having multiple exposures to the same or similar texts in order to allow learners to approach text meaning in stages.

(Rost, 1990: 169)

Once again, using appropriate CELL software, it is a simple matter to provide 'multiple exposures to the same or similar texts', as discussed in the previous section in relation to the role of the taxonomy of task types. Moreover, choices about how often to review a text, how many tasks on the same text, the level of cognitive difficulty, and the type of text, can all be determined by learners themselves, with appropriate structuring and

guidance provided in the software. A description of the parameters constraining text and task difficulty such as that provided earlier in this chapter can be included in software to assist learners in making informed choices about texts. An overview of learning strategies identified as being useful for successful language learning, as outlined in Chapter 4, can further enable learners to find their own paths to improved L2 listening comprehension.

2.6. Conclusion

From the preceding discussion, it can be seen that it is difficult and probably undesirable to attempt to determine the difficulty of a listening task in any absolute terms. However, by considering the three aspects which affect the level of difficulty, namely, text, task, and context features, it is possible to identify the characteristics of listening tasks which can be varied. Because of the range of variation possible in each of the aspects, it is not practical, and certainly not in a manner that would be useful for learners, to rank these features in relation to each other. However, within *MMInteraktif*, it is this variation that enables learners and teachers to adjust the level of difficulty of tasks to suit individual learners' language needs and proficiency levels. The identification of these variable characteristics makes it easier for learners to choose tasks which will challenge them, while at the same time guaranteeing them some degree of success. Teachers still provide the texts among which learners negotiate choices, but learners can approach these texts in a more informed way.

The role of the teacher in providing learners with appropriate learning materials then becomes threefold: to identify possible sources of difficulty in texts on the basis of the parameters discussed in 2.4.1 above; to select from these texts a variety that reflects a range within these parameters; and to design tasks appropriate to both these texts and the learners. As outlined above in section 2.4.3, in the design and presentation of these tasks, learners with lower language proficiency, or those with less sophisticated

cognitive, social, or paralinguistic learning strategies, need to be accommodated. At the same time, provision also needs to be made in the texts and tasks for levels of difficulty that will provide challenges for highly proficient language learners, and those with more sophisticated learning strategies.

Task design and text selection in this model also incorporate the identification and consideration of aspects of context discussed in section 2.4.2. Having identified these aspects, teachers can control for their influence on learner experiences of difficulty by providing texts and tasks that range across these, and by ensuring that learners with lower language proficiency can ease themselves into the more contextually difficult tasks. This can be achieved by reducing the level of difficulty of other parameters such as those of text or task difficulty, or by minimising other aspects of contextual difficulty. Thus, for example, learners of lower proficiency being exposed for the first time to a broadcast announcement (high on a scale of contextually-determined difficulty), would be provided with visual support to reduce contextual difficulty, and the task type would be kept to the knowledge level of the cognitive response taxonomy.

In a CELL environment, this identification of parameters of difficulty enables task designers to design and modify tasks on the basis of clear language pedagogy which is both learner-centred and cognitively sound. In this way, the use of computers in language learning can escape the stigma which has been attached to the use of previous forms of technology in language learning, such as language laboratories. By providing learners with these choices, the information on text, task, and context that can influence their decisions, teachers are creating a CELL environment that facilitates and encourages exploration of, and experimentation with, the choices available. Within this environment, learners are then able to adjust their own learning paths through the texts and tasks, and can do this in their own time and at their individual points of readiness. By taking account of learners' needs and making provision for learner choice in this way, we can

exploit more fully one of the major advantages of using computers in language learning, namely: their capacity to allow learners to work at their own pace and in their own time.