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A systematic review of the role of prior knowledge in unidirectional listening comprehension

Review conducted by the Modern Languages Review Group

AUTHORS

The review was undertaken by members of the Modern Languages Review Group. It was conducted following the procedures for systematic reviews developed by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) and with help from members of the EPPI-Centre education team.

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CONFLICTS OF INTEREST

There are no conflicts of interest reported.

ACKNOWLEDGEMENTS

LIST OF ABBREVIATIONS

A-level	Advanced level subject-based examination taken at age 17–18 in England
A/S level	Advanced subsidiary subject-based examination taken at age 16–17 in England
ACTFL/ETS	American Council on the Teaching of Foreign Languages / Educational Testing Service (an Oral Proficiency Interview

	Test tool used in Vandergrift (1998b); full title is not provided by author but it is referenced to Lowe (1982))
AO	Advanced Organiser (statements) condition
AO?	Advanced Organiser (questions) condition
CILT	Centre for Information on Language Teaching and Research [National Centre for Languages (UK)]
CPD	Continuing professional development
DfES	Department for Education and Skills (England)
EFL	English as a foreign language
EPPI-Centre	Evidence for Policy and Practice Information and Co-ordinating Centre, Social Science Research Unit, Institute of Education, University of London
ESL	English as a second language
ESRC	Economic and Social Research Council
GCSE	General Certificate of Secondary Education. Subject-based examination taken at age 15–16 in England
ITE	Initial teacher education
L1	First language
L2	Second language
MFL	Modern foreign languages
NS	Native speakers
NNS	Non-native speakers
PK	Prior knowledge
SAS	(Learning) Style Analysis Survey (tool used in Dobson study)
SFL	Spanish as a foreign language
SILL	Strategy Inventory for Language Learning (a comprehensive learner questionnaire on strategy use)
T-LAP	Test of Listening for Academic Purposes
WoE	Weight of evidence

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SUMMARY

Background

The importance of listening to foreign language teaching and learning has been reflected in a 30-year shift towards interaction-based acquisition – in other words learning by listening and speaking. A great deal of research has therefore been carried out on interactional studies to see if interaction leads to learning. By contrast, unidirectional listening comprehension (where the hearer is unable to interact with the speaker, as in the case of a taperecorded text) appears to be under-researched. There appears to have been considerable interest in the efficacy of pre-listening activities in order to stimulate the student's schemata (the complex mental representations and knowledge of the world that any individual has construed at any moment in time) so that they can bring this to the act of listening to a foreign language text.

Previous research indicates that the best comprehension of spoken text occurs through the interaction/combination of top-down processes (e.g. using prior knowledge of the subject matter) and bottom-up processes (e.g. listening carefully to each word in the text), both of which involve a number of cognitive and metacognitive strategies. From the perspective of the provision of learning experiences for students, it is unclear from the theoretical literature what the balance between the stimulation of top-down and bottom-up processes should be.

There is no comprehensive systematic review of studies dealing with either the learner's schemata or with difficulties in perceiving and segmenting the in-coming speech stream. Yet listening currently forms 25% of the National Curriculum for Modern Foreign Languages (MFL) (England) assessment system and, generally, about 20% of A/S and A-level courses in MFL.

Aims

- To map the field of research on second language unidirectional listening comprehension with particular reference to identifying the optimal conditions for understanding the spoken language and for developing the skills for listening

- To undertake an in-depth review of one aspect of the field and to assess the need for further research

Review questions

Research question for the systematic map

What are the themes that have been explored through empirical research, in listening, in relation to second/foreign language formal instructional settings, since 1970?

Research questions for in-depth review

What is the impact of prior knowledge of the topic (or schemata, more broadly) on listening comprehension?

Or, more specifically:

What is the effect of stimulating prior knowledge using learning and/or assessment materials on listening comprehension?

What do learners perceive their listening comprehension strategies to be with specific reference to prior knowledge?

Methods

Owing to the short timeframe available for the project, the majority of studies were identified through searching bibliographic databases. There was no systematic use of personal contacts, websites, journal handsearching, or citation-checking. Studies were included in the systematic map if: they reported on research in foreign or second language learning; they described or included an empirical study carried out by the author(s) on learners and the way learners listen to foreign language texts; the spoken text was unidirectional; they aimed to explore the comprehension of text through listening *not* acquisition of features of the language; the spoken text was formal instruction-related; they were reported in or after 1950; they were published, including work published by research centres, language centres and departments, or unpublished but of doctoral standard. Included studies were keyworded, using both generic and review-specific keywords to create a 'map' of the research literature. For the in-depth review, a further set of criteria was applied to the studies in the map.

Studies were included in the in-depth review if they investigated in some way the impact of prior knowledge of the topic (or schemata, more broadly) on listening comprehension and/or provide a description or explanation of learners' prior knowledge and its impact on listening comprehension. The studies in the in-depth review were subjected to generic data-extraction, including assessments of the weight of evidence (WoE) each study lent to the review. Quality-assurance procedures were carried out at the screening, keywording and data-extraction stages.

For the synthesis, studies in the in-depth review were grouped into two subcategories: that is, (i) studies that had attempted to measure the association between prior knowledge and listening comprehension, and (ii) studies that had investigated students' perceptions of their listening comprehension strategies. Patterns of effect sizes were compared for the synthesis of 'measurement studies'. Perceptions studies were analysed to identify common themes.

Results

2,120 potential papers were identified, of which 84 met the criteria for inclusion in the map and 24 for inclusion in the in-depth review. The main method of identifying studies was through bibliographic databases. Only limited

handsearching was completed. The majority of studies in the review were published in English. With this caveat in mind, the mapping of studies suggests that the majority of research on unidirectional listening comprehension has been conducted in North America, in the post-compulsory education setting and, in the majority of cases, with students whose first language was English. The findings of the synthesis carried out for the in-depth review can be summarised as follows:

- There appear to be very few studies of unidirectional listening comprehension in the compulsory education sector (none in the UK).

- There appear to be very few studies of unidirectional listening comprehension in the UK.

- Unidirectional listening comprehension has largely been investigated in a fairly narrow range of L1 and L2 languages.

- With one exception, all the investigations of the associations between prior knowledge of the subject and listening comprehension measured short-term listening comprehension performance only.

- With the above caveats in mind, there appears to be a positive association between prior knowledge and listening comprehension: two outcomes from two high WoE (weight of evidence) studies, 26 outcomes from 10 medium WoE studies, and two outcomes from two low WoE studies.

- Studies where prior knowledge was deliberately incorporated into the strategy for teaching and/or assessment (i.e. advanced organiser type studies) found that students' short-term listening comprehension performance was greater when such strategies were used: 17 outcomes from three medium WoE studies and one outcome from one low WoE study.

- However, the finding that prior knowledge facilitates comprehension in general should not be interpreted as meaning that any prior knowledge used in any way will facilitate comprehension. A number of studies suggest that prior knowledge can lead to inaccurate comprehension if it is not supported by later in-text information or if the listener does not listen for possible contradicting information.

- The terminology used to describe and classify listening comprehension strategies is inconsistent across the field.

- With the above caveat in mind, it would appear that students perceive that they use top-down processing strategies, including prior knowledge, as aids to listening comprehension.

- It is suggested in some studies that the way in which prior knowledge is used as a comprehension strategy may vary depending on the learners' L2 language proficiency: one high, one medium, and two low WoE studies.

Implications

Policy

- Current British policy in the form of the National Curriculum and Framework for Key Stage 3 Modern Languages do not give listening a central role in the development of learners' proficiency. Listening is usually referred to in the context of interaction rather than unidirectionally and furthermore the importance of both top-down and bottom–up processing strategies is not mentioned. The results of this review suggest that policy-makers need to place a greater emphasis on the skill of listening as a focus of study.

Practice

- The results suggest that teachers need to advise learners about how to apply strategic knowledge – in our case, prior knowledge – flexibly and in combination with other listening strategies.

- The results suggest that teachers are more likely to be successful if they use a variety approaches to developing listening comprehension.

- Throughout the different phases of language learning teachers should bear in mind that a mixture of approaches will be the most beneficial for long-term listening skill development.

- The complexity of the inter-relationship between top-down and bottom-up processing strategies suggests a wide variety of listening texts and tasks for learners. Implications for choosing which texts to use when are probably the following:
    - topic-specific texts with high prior knowledge (PK) – develop the ability to infer without knowing all words
    - topic-specific texts with low PK – develop the ability to decode and gradually develop schema
    - non-topic specific or multi-topic texts – ability to switch from PK reliance to non-PK reliance

Research

- Future research needs to explore whether time needs to be put aside in the teaching curriculum for teaching listening as a specific skill.

- Researchers in the field need to develop and use a common set of terminology to describe cognitive, metacognitive and affective learning strategies.

- There is very little research on the topic from the UK and from the compulsory education phase. Similarly, there are very few studies of L1 English speakers learning a foreign language. It is clear that researchers in the UK need to address these issues.

Strengths and limitations

It is therefore possible that more studies which looked at other strategies and processes should have been included in the in-depth review because they may indirectly have provided some illumination on the effect of prior knowledge. The Review Group rated only a few of the studies as 'high' in terms of their capacity to answer the review question. However, this is reflected in the tentativeness of the conclusions and implications drawn by the Review Group. None of the studies in the in-depth review was conducted in the UK and only a small number were conducted with students of compulsory school age, which raises questions about the generalisability of findings to this sector in the UK.

1. BACKGROUND

1.1 Aims and rationale for current review

A number of studies of first (L1) and second (L2) language users indicate that adults spend 40% of their time awake listening (Wolvin and Coakley, 1996). Listening is at the root of much formal education but is also instrumental in the workplace. Technological development has shifted adolescents from the printed word to aural information, usually in combination with visual images. This is reflected in a shift in modern foreign language teaching away from translation and formal grammar learning towards interaction-based acquisition where listening plays a key role. While there has been considerable development in our understanding of listening in interaction-based learning, there has been comparatively little research on unidirectional listening (such as listening to an audiotape) which is common practice in MFL learning.

Aims of the review

- To map the field of research on second language unidirectional listening comprehension with particular reference to identifying the optimal conditions for understanding the spoken language and for developing the skills for listening

- To undertake an in-depth review of one aspect of the field and to assess the need for further research

1.2 Definitional and conceptual issues

The importance of listening to foreign language teaching and learning has been reflected in a 30-year shift towards interaction-based acquisition (Krashen, 1981, 1985; Pica *et al*., 1987; Swain, 1985) rather than learning through the translation of written text and through formal grammar learning. Interaction-based acquisition means that new vocabulary and the rule system of the target language are acquired through some or all of the following: listening to the target language, understanding from a combination of prior linguistic knowledge and context-giving clues; negotiating meaning (by asking clarification questions and by giving confirmation checks); directing attentional resources to new linguistic forms (either as a result of error correction and/or as a result of modifying the learner's output); noticing the gap between what one hears (known as positive evidence) and what one knows. A great deal of research has been carried out on interactional studies and particularly on the effects on learners of oral error correction (known as *recasts*; see Lyster, 1998). By contrast, unidirectional listening comprehension (where the hearer is unable to interact with the speaker, as in the case of a tape-recorded text) is under-researched (Rubin, 1994; Seo 2000; Vandergrift, 1997) or, at least, appears to lack a cohesive research agenda. This is partly because listening comprehension is a difficult topic to research, partly on account of the above interest in acquisition, and partly because a great deal of attention has recently been focused on literacy skills.

Nevertheless, there has been a number of studies that have looked at the effectiveness of teaching approaches in developing listening as a skill. For

example, there has been considerable interest in the efficacy of pre-listening activities in order to stimulate the student's schemata (the complex mental representations and knowledge of the world that any individual has construed at any moment in time). Additionally, the factors affecting perception (the decoding of spoken language) of target language incoming text were a notable source of research interest but appear to have been neglected in the past 15 years or so.

A considerable body of research (Bacon, 1992; Carrell, 1983) indicates that the best comprehension of spoken text occurs through the interaction/combination of top-down and bottom-up processing, each involving a number of cognitive and metacognitive strategies. Top-down processing is when *schemata* (or prior knowledge of the topic), as well as other strategies (logic, other knowledge of the world, such as speaking conventions), are applied to the incoming speech stream in order to offset the tendency to listen to every word, a virtual impossibility with fast flowing text. Bottom-up processing involves cognitive strategies for *perceiving* (for example, developing phonemic awareness) and *parsing* (segmenting the speech stream) of the linguistic input. This bottom-up processing is essential not only to identify key vocabulary and syntactical elements in the speech stream but also in order to confirm the initial conclusions made by the application of prior knowledge (Graham, 1997). It is unclear from the theoretical literature what the balance between top-down and bottom-up processes should be. Moreover, there is no comprehensive systematic review of studies either dealing with the learner's schemata or with difficulties in perception, although a comprehensive review of listening comprehension research in general was provided by Rubin (1994).

1.3 Policy and practice background

Listening currently forms 25% of the National Curriculum for Modern Foreign Languages (MFL) (England) assessment system and, generally, about 20% of A/S and A-level courses in MFL (DfEE, 1999; Edexel, 2002). As former language teachers and current teacher educators, members of the Review Group believe that a lack of clarity exists as regards the purpose of listening comprehension in foreign language classrooms. Is it simply to train in the skill of listening or to support general acquisition and proficiency? In England, at least at Key Stage 3, the purpose of listening appears essentially to be the latter. Additionally there is a tendency to view listening as an assessment activity (Chambers, 1996). Hence the preponderance of taped material that is at, or just above, the level of the students' *productive* proficiency, thus not taking into account the fact that receptive skills almost always outstrip productive skills. At post-16, while some focus of attention from teachers is on the students' reading and writing skills, a comparatively narrow spotlight falls on the process of listening. Yet, students in England making the transition from GCSE to A-level cite listening comprehension as the most difficult skill in which to make progress (Graham, 2002). At university level, reading and writing programmes are common as part of learning a foreign language for specific or academic purposes, but rarely is the skill of listening tackled in its own right, especially in MFL Honours programmes, often being reserved for consideration only in communicative language teaching programmes aimed at essentially transactional skills.

The Review Group therefore considered it to be important to undertake a systematic mapping of studies investigating unidirectional listening comprehension (henceforth *listening*) and to focus particularly on the relative

importance of prior knowledge of the topic and of providing/stimulating advance organisers as a means of enhancing and regulating that prior knowledge. When students are provided with advance organisers they are given, in advance of listening, an introduction to the text, which might include an insight into its topic, its likely vocabulary and, possibly, the text's organisational structure. The pedagogical implications of a greater understanding of the relevant effect of the application of prior knowledge are that the choice of listening text in relation to each stage of the language learning process is brought into question.

While it was impossible, for resource reasons, to undertake an in-depth review of both prior knowledge studies and perception/parsing studies, the Review Group nevertheless recognises that the one type is inseparable from the other, in the same way as the processes themselves are inseparable. It is therefore hoped that an in-depth analysis of perception/parsing studies might be undertaken in the future.

1.4 Authors, funders and other users of the review

The Department for Education and Skills (DfES) commissioned this review. The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) at the Institute of Education, University of London, worked closely with the DFES and the Review Group, training core team members and assuring quality. The Review Group comprised established academics with expertise in Modern Foreign Languages Education, initial teacher education (ITE) and continuing professional development (CPD), and training and practice in systematic review procedures. Group members had previously co-researched and co-authored on several research projects. The group's involvement with initial and continuing teacher education means that it is well placed to address the implications of the review.

1.5 Review questions

1.5.1 Research question for systematic map

What are the themes that have been explored through empirical research, in listening, in relation to second/foreign language formal instructional settings, since 1970?

1.5.2 Research questions for in-depth review

What is the impact of prior knowledge of the topic (or schemata, more broadly) on listening comprehension?

Or, more specifically:

What is the effect of stimulating prior knowledge using learning and/or assessment materials on listening comprehension?

What do learners perceive their listening comprehension strategies to be with specific reference to prior knowledge?

2. METHODS USED IN THE REVIEW

2.1 User-involvement

The Review Group members are actively involved in working with local education authorities, schools and teachers, and trainee teachers in a number of ways. The review question arose out of sharing the experiences of teachers and from previous and current research carried out by the Review Group members themselves that identified listening comprehension as an issue of concern to teachers and students alike.

Users were involved during and immediately after the review in a number of ways including discussion of the process and findings of the review with mentors involved in teacher education (MFL). These are experienced teachers and able to comment on the face validity of the work being carried out. Mentors were involved in the focusing of the review at the in-depth stage. Student teachers were also involved in this consultation. Additionally, both Oxford and Reading Universities teach Masters courses in Applied Linguistics and the students on these are, by and large, teachers of languages. These teachers were also involved in commenting and feeding back on Review Group processes and work completed.

Review Group members Macaro, Graham and Vanderplank are part of another research team conducting an Economic and Social Research Council (ESRC) funded study investigating (among other things) the listening strategies of year 12 students. The study is interactive and the emerging findings from this review will be discussed with the students as part of the research process. Work on this study will also be fed back into the process of interpreting and contextualising the findings from the review. Key findings from the review will be used on the ESRC research group's learner strategy website, one of the outcomes expected from the ESRC-funded project.

There are also plans to engage the support of local education authorities or national agencies, such as the National Centre for Languages (CILT) in organising sessions/workshops/professional development courses for teachers in which dissemination of, and consultation about, the review findings can be effected. The views of teachers can then be fed back into the review process.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: inclusion and exclusion criteria

Research studies were *included* in the mapping if they met all the following criteria:

1. They reported on research in **foreign or second language** learning.

2. The article described or included an **empirical study** carried out by the author(s) on learners and the way learners listen to foreign language text.

3. The spoken text was **unidirectional** (i.e. not interactive listening with the possibility of meaning negotiation).

4. The aim of the study was to explore **the comprehension of text** through listening *not* acquisition of features of the language.

5. The spoken text was **formal instruction-related**. That is, it was linked to some sort of teaching and learning programme, actual or hypothesised, even though the actual listening might be occurring outside the classroom. This would include, for example, listening in self-access centres. If the study was not conducted in a classroom environment (for example, laboratory setting), but had implications for teaching, it was included.

6. The studies were reported in or after 1950 (in the case of electronic searching). It is unlikely that pre-1950 acoustic technology is compatible with current technology as an independent variable.

7. The studies were **published**, including work published by research centres, language centres, departments, etc., or they were unpublished but of **doctoral** standard.

2.2.2 Identification of potential studies: search strategy

Studies were identified using searches of bibliographic databases and handsearching of key journals in the field. Details of the search terms and sources are given in Appendix 2.2.

2.2.3 Screening studies: applying inclusion and exclusion criteria

Following the searches, the citations were screened on the basis of the abstracts (where these were available) and titles, and included or excluded according to the inclusion and exclusion criteria 1–8. Where it was not clear from the title and/or abstract that they met the inclusion/exclusion criteria, full texts were ordered.

2.2.4 Characterising included studies

Once the studies had been identified, they were added to the EPPI-Reviewer database using EPPI-Centre Core Keywording Strategy (EPPI-Centre, 2003a). Both the EPPI-Centre generic keywording strategy and a review-specific keywording strategy were used to describe the studies. The keywording strategy included the following categories:

- the origin of the report
- the publication status of the report
- other linked reports
- the language the report was written in
- the country where the study was carried out
- the general topic focus of the study
- the programme name related to the study
- the population focus of the study
- the educational setting of the study

- the type of study the report described

Specific keywords for this Review Group included the following:

- the first language of the students
- language being studied
- type of listening activity
- technology used
- setting of listening activity
- level of focus on listening comprehension
- conditions in which the study was completed (broadly, experimental or non-experimental)

2.2.5 Identifying and describing studies: quality-assurance process

First, during the application of the inclusion and exclusion criteria, a substantial sample of the studies was screened by the whole group in order to ensure parity of approach. All keyworded studies were then keyworded by at least two members of the Review Group. Additionally, a number of studies had their abstracts and/or whole texts screened by EPPI-Centre personnel according to the inclusion/exclusion criteria.

2.3 In-depth review

2.3.1 Moving from broad characterisation (mapping) to in-depth review

Research studies in the systematic map were *included* in the in-depth review only if:

8. They investigated in some way the impact of prior knowledge of the subject matter or topic (or schemata, more broadly) used in the text on listening comprehension and/or provided a description or explanation of learner's prior knowledge and its impact on listening comprehension.

2.3.2 Detailed description of studies in the in-depth review

The EPPI-Centre data-extraction tool (EPPI-Centre, 2003b) was used to provide detailed description of the studies in the in-depth review.

2.3.3 Assessing quality of studies and weight of evidence for the review question

The EPPI-Centre weight of evidence (WoE) tool was used to assess the quality of evidence provided for the review question by individual studies. The questions for this were as follows:

WoE A: Taking account of all quality assessment issues, can the study findings be trusted in answering the study question(s)?

WoE B: Appropriateness of research design and analysis for addressing the question, or sub-questions, of this specific systematic review

WoE C: Relevance of particular focus of the study for addressing the question or sub-questions of this specific systematic review

 WoE D: Taking into account quality of execution, appropriateness of design and relevance of focus, what is the overall weight of evidence this study provides to answer the question of this specific systematic review?

In calculating WoE D, the Review Group adopted the following procedure. WoE D was given the same rating as WoE A unless lower ratings in both B and C further reduced confidence in the study to answer the review questions. In other words, the WoE D rating could be reduced but not raised by WoE B and WoE C. The rationale for this is that WoE A takes 'into account all quality assessment issues'. Research design, analysis and focus of the study cannot be divorced from an overall estimate of quality.

2.3.4 Synthesis of evidence

The synthesis is divided into two parts, based on the different approaches that studies took to investigating the review question. The first part of the synthesis compared the results of studies that had attempted to measure the relationship between prior knowledge and listening comprehension in some way. The studies adopted a variety of research designs to explore the question and measured listening comprehension in different ways. In order for the results of different studies using different measurement tools to be combined, their results were standardised. For this review, the standardised mean difference was selected; this is essentially the difference in means between the two groups in the evaluation divided by their pooled standard deviation, and is described throughout the report as an 'effect size'. A measure of uncertainty, the standard error, accompanies the standardised mean difference. In order to calculate an effect size, all that is needed is the number of people in each group, their post-test means (adjusted for baseline measures, if necessary) and their standard deviations. Unfortunately, these data are not always reported and further calculation from the data presented becomes necessary before an effect size can be found. To facilitate this process, specialised software, EPPI-Reviewer, was adapted to calculate effect sizes from the range of data encountered using formulae presented by Lipsey and Wilson (2001). The details of the approach and measures used in each of the studies and the approach used to calculate the effect sizes are given in Appendix 4.1. The majority of studies report multiple outcomes. The approach used to select the outcomes for effect size calculations was to calculate effect sizes for all outcomes which could be interpreted as assessing the impact of prior knowledge on comprehension and for which data could be constructed.

The second part synthesised the results of the studies that had investigated students' perceptions of the strategies they used for listening comprehension. The method of synthesis used here was to identify the themes/constructs which were reported across studies.

2.3.5 In-depth review: quality-assurance process

Four Review Group members collectively applied the inclusion/exclusion criteria in order to arrive at the final list of studies to be reviewed in depth. Two members of the Review Group carried out a data extraction for each included paper. The two members then compared their results and judgements, and a final Review Group version was made. A member of the EPPI-Centre team independently applied the inclusion criteria and extracted data on a sample of studies in a process of quality assurance.

3. IDENTIFYING AND DESCRIBING STUDIES: RESULTS

This chapter outlines the search strategy employed to identify studies for the systematic review, and describes the nature and extent of the research within the field of second language listening comprehension.

3.1 Studies included from searching and screening

The numbers of studies identified by the search process and included in different stages of the process of the review are shown in Figure 3.1. 2,120 potential papers were identified through bibliographic databases and handsearching, of which 84 met the criteria for inclusion in the map.

Figure 3.1: Filtering of papers from searching to map to synthesis

1. Identification of potential studies

Two-stage screening
Papers identified where there is not immediate screening (e.g. electronic searching)
N =2,120

One stage screening
Papers identified in ways that allow immediate screening (e.g. handsearching)
N = 30

Abstracts and titles screened
N = 2,120

Papers excluded
N =1879

Criterion 1
N = 64

Criterion 2
N = 343

Criterion 3
N = 363

Criterion 4
N = 554

Criterion 5
N = 252

Criterion 6
N = 89

Criterion 7
N = 7

Duplicate references excluded
N = 207

Papers Excluded
N =5

Potential includes
N = 266

Duplicate references excluded
N = 10

Papers not obtained
N = 1

2. Application of inclusion/ exclusion criteria

Full document screened
N = 255

Papers excluded
N = 171

Criterion 1
N = 0

Criterion 2
N = 56

Criterion 3
N = 0

Criterion 4
N = 72

Criterion 5
N = 43

Criterion 6
N = 0

Criterion 7
N = 0

3. Characterisation

Systematic map studies included
N = 84

4. In-depth review

In-depth review
Studies included N = 24

In-depth criterion 8
N = 60

3.2 Characteristics of the included studies

Table 3.1: Frequency report: mapped studies according to published journal or unpublished dissertation or unpublished report (N = 84)

Attribute	Number
Published	67
Unpublished	17
Total	*84*

It should be remembered that only dissertations at doctoral level were included in the map.

Table 3.2: Frequency report: language of publication (N = 84)

Language of reports	Number
English	81
French	3
Total	*84*

Table 3.3: Frequency report: country in which study was undertaken (N = 84)

Attribute	Number
USA	37
Canada	8
Japan	7
China (including Hong Kong)	5
Singapore	4
Taiwan	3
UK	3
Australia	2
Israel	2
The Netherlands	2
Germany	1
Iran	1
Morocco/UK	1
Poland and Puerto Rico	1
South Korea	1
Spain	1
USA and Mexico	1
No detail given	4
Total	*84*

Note: Some of these are reviewers' inferences as the country was not clearly stated.

We can immediately see the preponderance of studies carried out in the USA.

As we can see from Table 3.4, all the mapped studies focused on learners. Of these, one study, Tauroza and Luk (1997), focused on teaching language to learners who also happened to be second-language teachers.

Table 3.4: Frequency report: population focus (N = 84, not mutually exclusive)

Attribute	Number
Learners	84
Teaching staff	1

In Table 3.5, some studies had more than one setting. This was usually because 'post-compulsory' or 'other setting' was located in a higher education institution. We should note however the dearth of primary and secondary school studies.

Table 3.5: Frequency report: educational setting (N = 84, not mutually exclusive)

Attribute	Number
Higher education institution	64
Post-compulsory education institution	4
Primary school	2
Secondary school	10
Workplace	1
Other educational setting	9

It is noticeable from Tables 3.6 and 3.7 that almost half the studies investigated learners whose first language was English and over half of the studies investigated learners who are learners of English.

Table 3.6: Frequency report: first language of the students (N = 84, not mutually exclusive*)

Language	Numbers
English	35
Mixed	18
Japanese	9
Chinese	9
Spanish	8
German	4
Polish	3
Arabic	3
Cantonese	3
Dutch	3
French	2
Italian	1
Thai, Filipino, Indonesian	1
Russian	1
Farsi	1
Korean	1
Hebrew	1
Danish	1
Turkish	1
Taiwanese	1

Note: The reason that this table totals more than 84 is that in some studies there is an overlap between 'mixed' and specific L1s.

Table 3.7: Frequency report: second language being studied (N = 84, not mutually exclusive*)

Language	Numbers
English	48
Spanish	17
French	15
German	3
Italian	2
Other	2
Japanese	1

* The total in this table is more than 84 because some studies report on different groups of learners studying different languages.

Table 3.8: Frequency report: type of listening activity (N = 84, not mutually exclusive*)

Attribute	Number
Audio-recording	72
Audio-visual presentation	14
Other	12
Lecture	7

* In some studies, more than one type of listening activity was used.

It was reassuring to discover that audio-recorded material (Table 3.9), the type of activity most associated with listening comprehension in the UK education context, was the most prevalent among the focus of the reports.

Table 3.9: Technology used (In some studies more than one type of technology was used.) (N = 84, not mutually exclusive)

Attribute	Number
Audiotape	61
Video/DVD	16
Not stated	14
Other	5
None	2
Web pages	1

Table 3.10: Setting of the listening activity (classroom etc.) (N = 84, not mutually exclusive)

Attribute	Number
Classroom / lecture theatre	54
Language library / laboratory (individual access)	12
Language laboratory (group session)	11
Not stated	10
Non-institutional individual access point (e.g. computer access)	4

Table 3.11: Main or subsidiary focus in on listening (N = 84)

Attribute	Number
Listening comprehension is the main focus of the study.	70
Listening comprehension is a sub-focus/outcome of wider study.	14
Total	*84*

Examples of studies where the focus was only partly on listening comprehension:

- Main interest is in gender differences in various aspects of listening comprehension.

- The efficacy of the test procedure indirectly provides information relating to listening comprehension processes.

- Wider study of role of cultural contextualisation, learning strategy and learning styles: listening comprehension exercises are used as vehicle for exploration of these.

- Listening and reading comprehension are compared with the aim of finding out in which condition subjects recall more content/details of a text.

- The study evaluated the effect of vocabulary journal writing on different dependent variables: reading comprehension, listening comprehension, and vocabulary acquisition.

- The effect of studying abroad on listening and speaking skills was investigated. In addition, the study describes how students learned English in an experiential environment by participant observation, questionnaires and student journals.

- The study does not specifically examine a particular type of listening situation. It focuses on strategy use and, among these, listening strategies.

The review-specific keywording section asked reviewers to group the mapped studies broadly into experimental and non-experimental. Experimental conditions were defined broadly as being those in which an intervention was carried out with one or more groups of subjects: for example, asking a single group of subjects to listen to two or more passages, or asking two or more groups to listen to the same passage but under different conditions. As we can see from Table 3.12, these were divided almost equally.

Table 3.12: Conditions in which study completed (N = 84)

Attribute	Number
Experimental	43
Non-experimental	41

In Table 3.13, reviewers attempted to differentiate between foreign language environments (second language being studied in a country where it does not have linguistic community status) and second language (second language being studied in a country where it does have linguistic community status). This was not always possible or clear from the abstracts or even the full reports. Thus, if English was being studied in USA, UK, Canada, Australia, Singapore, it was coded as English as a second language (ESL) rather than English as a foreign language (EFL).

Table 3.13: Type of second language learning environment for English (N = 48)

Attribute	Number
English as a foreign language	22
English as a second or additional language	26

Table 3.14: Age of learners (N = 84, not mutually exclusive)

Attribute	Number
5–10	2
11–16	10
17–20	72
21 and over	69

It should be noted that there was quite a lot of overlap between categories in Table 3.14 as many of the studies were set in higher education institutions and hence spanned the last two categories. The two primary school studies were Peters (1999) and Vandergrift (2002). The studies in the 11–16 range were Baltova (1994), Harley (2000), O'Malley *et al*. (1989), Ricci (1995), Shohamy and Inbar (1991), Tauroza and Luk (1997), Thiele and Scheibner-Herzig (1983), Tsui and Fullilove (1998), and Vandergrift (1998a, 1998b).

Table 3.15: Type of study (N = 84)

Attribute	Number
Description	7
Exploration of relationships	37
Evaluation: naturally occurring	5
Evaluation: researcher-manipulated	35
Total	***84***

Table 3.16: Sex of learners

Attribute	Number
Female only	1
Male only	4
Mixed sex	79
Total	***84***

It should be noted that, under the category 'Mixed sex', many of these allocations were made on the basis of the reviewers' inferences. Studies were particularly remiss in identifying the sex of the subjects. This may be because the issue is less important internationally than it is in the UK.

Table 3.17 shows the topics that were investigated by the studies. Reviewers generated the categories of topics used from the free-text descriptions provided as part of the data extraction. There is therefore some overlap between

categories and some studies investigated more than one topic (see Appendix 3.1 for greater detail). This overall classification of the topic focus of the mapped studies does seem reasonably coherent and reflects the emergent status of listening comprehension as a field of enquiry.

Table 3.17: Topic of investigation (N = 84, not mutually exclusive)

Attribute	Number
Advance organisers	3
Authentic materials and situations	10
Conditions of learning and methods of teaching	7
Learner strategy elicitation	28
Learner strategy training	6
Perception and parsing	24
Prior knowledge	21

Table 3.18: Cross-tabulation: educational setting by language being studied (N = 84, neither category mutually exclusive)

	Higher education institution	Post-compulsory education institution	Primary school	Secondary school	Workplace	Other educational setting
English	38	4	0	6	0	4
French	10	0	2	3	0	0
Spanish	12	0	0	1	1	3
Italian	2	0	0	0	0	1
German	3	0	0	0	0	0
Japanese	1	0	0	0	0	0
Other	1	0	0	0	0	1

Table 3.19: Cross-tabulation: country in which study was carried out by language being studied (N = 84, not mutually exclusive)

	English	**French**	**Spanish**	**Italian**	**German**	**Japanese**	**Dutch**	**Russian**
USA	12	6	12	1	2			1
Canada	3	6						
Australia	1					1		
Taiwan	3							
Israel	1		1		1			
China	1							
Hong Kong	4							
UK	3		1	1				
Singapore	4							
The Netherlands		1					1	
Germany	1							
Spain	1							
Iran	1							
Japan	7							
South Korea	1							
Poland	1							
Puerto Rico	1							
Mexico			1					
Morocco	1							
Unclear	3							

Table 3.20: Cross tabulation: language being studied by type of listening activity (N = 84, not mutually exclusive)

	English	**French**	**Spanish**	**Italian**	**German**	**Japanese**	**Other**
Lecture	7	0	0	0	0	0	0
Audio-visual presentation	6	4	2	1	1	1	1
Audio-recording	41	13	16	2	2	1	1
Other	8	1	3	0	1	0	0

A point of interest is that only lectures in English have been studied. This reflects the status of English as the language of content instruction, that is, for academic purposes.

Table 3.21: Cross-tabulation: language being studied by study type (N = 84, not mutually exclusive)

	Description	Exploration of relationships	Evaluation: naturally occurring	Evaluation: researcher-manipulated
English	8	24	3	20
French	4	5	1	6
Spanish	4	10	1	4
Italian	1	1	0	0
German	0	1	0	2
Japanese	0	0	0	1
Other	0	0	0	2

Table 3.22: Cross tabulation: educational setting by study type (N = 84, not mutually exclusive)

	Higher education institution	Post-compulsory education institution	Primary school	Secondary school	Workplace	Other educational setting
Description	11	1	1	1	0	2
Exploration of relationships	31	1	1	4	1	1
Evaluation: naturally occurring	2	0	0	1	1	1
Evaluation: researcher-manipulated	29	2	0	4	0	6

The primary school (elementary school) studies (Peters, 1999; Vandergrift, 2002) were 'descriptive' and 'exploration of relationships' respectively. The secondary phase studies (usually ages 11–16) were as follows:

1. Baltova (1994)   Evaluation: researcher-manipulated
2. Harley (2000)   Evaluation: researcher-manipulated
3. O'Malley *et al*. (1989)   Exploration of relationships
4. Ricci (1995)   Evaluation: researcher-manipulated
5. Shohamy and Inbar (1991)   Evaluation: naturally occurring
6. Tauroza and Luk (1997)   Exploration of relationships
7. Thiele and Scheibner-Herzig (1983) Evaluation: researcher-manipulated
8. Tsui and Fullilove (1998)   Exploration of relationships
9. Vandergrift (1998a)   Description
10. Vandergrift (1998b)   Exploration of relationships

3.3 Summary of the map

The majority of studies included in the map were published in English and carried out in North America. The majority of the studies were carried out in post-compulsory education settings, with students in the post-compulsory age group. In the majority of studies, the language being learnt was English either as a foreign or second language.

4. IN-DEPTH REVIEW: RESULTS

This chapter details the studies included in the systematic review.

4.1 Selecting studies for the in-depth review

Studies were selected for the in-depth review based on whether they investigated in some way the impact of prior knowledge on listening comprehension. Studies may have investigated the association between prior knowledge and understanding, the incorporation of prior knowledge into teaching or assessment materials, and/or students' perceptions of their listening comprehension strategies.

One further comment should be made on this last point. The ability to understand spoken texts can be interpreted in two ways: it can mean the ability to understand a particular text at that moment in time (by rendering the conditions more favourable to understanding), or it can mean the students developing more effective listening skills enabling them at a future date to understand text more easily. The distinction is a subtle one but an important one in the view of the Review Group. After the application of the in-depth inclusion criteria, **24 studies** remained from the descriptive map.

4.2 Comparing studies in the in-depth review with studies in the map

Table 4.1 demonstrates that the students in studies in the in-depth review were more likely to have English as their first language. On all other characteristics, the distribution of studies in the in-depth review was broadly similar to that of studies in the map.

Table 4.1: First language of students in the studies in the systematic map and in-depth review (N=84 in systematic map, N=24 in in-depth review)

Attribute	Map	In-depth review
English	35	12
French	2	0
Italian	1	0
Spanish	8	1
Japanese	9	2
Other	29	3
German	4	1
Mixed	18	5

4.3.1 Further details of studies included in the in-depth review

Bacon (1992a) investigated the effect of prior knowledge on the use of different listening strategies amongst English speaking students learning Spanish at an American university. A single subject design was used, with students listening to text on familiar and unfamiliar topics. The outcomes measured were comprehension test scores, the use of top-down processing strategies and the use of bottom-up processing strategies.

Bonk (2000) investigated the interaction between lexical knowledge and listening comprehension by requiring 59 Japanese university students of low-intermediate to advanced English (L2) proficiency to listen to four texts of varying lexical difficulty. They were given a dictation of each of these texts to test their familiarity with the target lexical items in the texts. The outcome measure was their listening success on the texts.

Brindley and Slayter (2002) investigated the effects of varying the nature of the text (speech rate, text type, number of hearings, input source) and the response mode on learners' performance in listening comprehension. It did so by requiring subjects to listen to three texts: 'Education', a control task and then two passages in which one task characteristic or task condition was varied by manipulating response types, number of hearings, and speech rate. The area of relevance to the review is 'text type'. Outcome measures were listening comprehension success.

Chiang and Dunkel (1992) explored the importance of two factors in learners' ability to understand spoken English language texts: prior knowledge, operationalised as familiar or unfamiliar topic, and speech modification, operationalised as adding redundant information through additional sentences in a listening text. The authors were also interested in the relative scores of passage-dependent and passage-independent test items. 360 students took the Comprehensive English Language Test and, on the basis of their scores, were divided into low and high listening proficiency groups. Students at each level were then randomly assigned to one of the four experimental conditions: familiar or unfamiliar topic of text, passage-dependent or passage-independent test items. Subjects in each group listened to one of the lecturers recorded in one of the four conditions. The outcome measures were a post-lecture, multiple-choice test on main ideas and details contained in the lecture and general information about the two topics.

Chung (1999) investigated what is most beneficial for increasing levels of listening comprehension when using video: providing advance organisers; captions in the L2; a combination of both; or using none of these approaches. The study also explored any interaction between students' level of achievement and the teaching conditions used. Finally, it asked what were the students' attitudes to the four treatments. A group of 183, 17–19 year-old 4th year non English majors attending an institute of technology in Taiwan (Chinese L1) listened to four different video segments in each of the four conditions. They were given comprehension questions to test their level of comprehension and a questionnaire to assess their attitudes to the different forms of listening.

Dobson (2001) investigated the strategies used to complete a series of web-based listening tasks by five English speaking students learning French at an American university. The researcher met each of the five subjects individually for a total of five hours on a minimum of three occasions. The five subjects were first

given a questionnaire soliciting information on their background, strategy use (SILL) and learning styles (SAS). During their listening, reading and writing, the subjects were required to think aloud; the think-aloud procedure was videoed and audiotaped. After each task, the researcher conducted a quick interview, and a semi-structured interview during the final session. Analysis sought to investigate the effect of strategy use on task completion and self-regulation.

Dupuy (1999) investigated whether repeated listening of several brief tape-recorded interviews (defined as 'narrow listening') on topics familiar to the learners was better than more authentic (but probably difficult) texts for beginner and intermediate students. At the start of the study, all students received an information sheet on narrow listening and the topics available for listening. Students were given a questionnaire in which they were asked to comment on their feelings about the process and their responses were used as outcome measures.

Herron *et al*. (1998) investigated whether prior listening activities conducted by the teacher lead to better retention of information contained in subsequently watched L2 videos. The prior listening activities were either presented in the form of declaratives (statements about the topic) or interrogatives (questions about the topic). The 67 USA university students formed three groups: two experimental and one control, with two classes in each group. Two classes took part in the experiment, viewing videos from a multimedia course. The investigators randomly assigned the first of the 10 videos to either the Advanced Organiser (statements) (AO) condition or to the Advanced Organiser (questions) (AO?) condition for one section in each class. They then assigned that video to the opposite condition for the other class section. The control group (made up of two classes) watched the same 10 videos during the spring term of 1996. All students took the same post-viewing test immediately after watching the video and comprehension was used as the outcome measure.

Jensen and Hansen (1995) investigated whether listening proficiency moderates the effects of prior knowledge on understanding a lecture. They also wanted to know if prior knowledge is a significant factor in predicting scores on lecture sub-tests. University students (exact number and location not given) in naturally occurring groups were first tested for listening proficiency using the Test of Listening for Academic Purposes (T-LAP). Students' performance (scores) on the academic lecture portion of the T-LAP was examined to explore the effect of prior knowledge. A self-report form in which students answered a yes/no question as to whether they had studied the topic of the lecture beforehand assessed prior knowledge. Their responses to this question was then used to create two groups for each lecture: 1 = students not having studied the topic before and 2 = students who had studied the topic before.

Jones and Plass (2002) examined the potential of multimedia annotations for enhancing listening comprehension. Specifically, they investigated how the choice of different types of written and pictorial annotations in a listening comprehension activity affects students' comprehension from an aurally-presented authentic historic text. 171 US university students whose pre-test scores in proficiency had a mean of 2.92 on a scale of 0–4 were randomly allocated to four groups. A pre-test of their vocabulary knowledge was also administered to determine their knowledge of the vocabulary related to familiar topics in the texts they would hear. All students were found to have low prior knowledge of the topic vocabulary. They then listened to a text under the four conditions: no annotations available; only written annotations available; only pictorial annotations available; both written and

pictorial annotations available, in order to see the effects on comprehension via recall. The study has relevance in that they had prior knowledge of the topic but low knowledge of the topic's L2 vocabulary.

Kawai (2000) investigated whether activation of prior knowledge by including base-culture nouns in listening texts would (a) contribute to better motivation to work on listening tasks, (b) consequently increase the use of listening strategies, and (c) lead to better listening comprehension. College level students in Japan were divided into two groups. They were given a pre-test. Each group was then given an intervention (10 weeks) consisting of listening to one of two differently manipulated EFL texts containing either lots of Japanese words and concepts (linking to familiar cultural concepts) or American/Western words and concepts. A listening comprehension post-test measured success at comprehension. A strategy inventory measured listening strategies and a motivation checklist measured motivation.

Laviosa (2000) investigated the listening comprehension strategies of English speaking students studying Italian at an American university. The study was carried out through immediate retrospection whereby subjects were required to listen to three different radio stimuli: news reports, interviews and commercials. During the broadcasts, subjects were required to vocalise their thoughts (in English or Italian) and were allowed to self-select the moments when they were ready to express their oral responses and take breaks at these points to vocalise their thoughts. After the listening exercises, subjects were required to summarise what they remembered about the broadcast and then to complete a multiple-choice comprehension test.

Long (1990) investigated whether Spanish as a foreign language (SFL) listeners comprehend better when they possess schemata relevant to the listening topic. They also explored how linguistic knowledge affects SFL listening comprehension of familiar and unfamiliar topics. 188 University students studying Spanish in the United States took part in the study with the same students being tested under two different conditions. In condition 1, students listened to Spanish text about which they had lower level of subject knowledge (Ecuador goldrush), and then were tested on recall/comprehension of text. In condition 2, the same students listened to Spanish text about which they had higher level of subject knowledge (rockband U2); they were then tested on recall/comprehension of text.

Markham and Latham (1987) investigated how prior knowledge influences listening comprehension. This was proceduralised using groups created on the basis of self-reported religious beliefs: specifically, students from a Christian background, students from a Muslim background and students with no specific religious background. The three groups of students studying EFL at a USA university (total number 65) listened to texts in English about Christian and Muslim prayer rituals, which either matched or did not match their self-identified religious background. The passages were analysed for word length, T-scores and major idea units in order to make them comparable. Students were given a short list of background information questions (to test their prior knowledge) and blank pages on which to recall their understanding of the two texts, which were played twice each. Analysis of outcomes (listening comprehension success) was both quantitative and qualitative as a subgroup of six students was interviewed in the 'qualitative' part of the study.

O'Malley *et al.* (1989) investigated the learning strategies of students in an American high school whose first language was Spanish. Students were

designated as either effective or ineffective listeners according to (1) their English as a second language teachers, (2) the grade equivalent scores on a standardised reading test of functional vocabulary, and (3) analysis of the reading scores of a locally developed reading comprehension test. Students then carried out a series of think-aloud sessions in which their listening strategies were elicited and recorded. The listening strategies used by effective or ineffective listeners were compared.

Osada (2001) investigated the listening processes of less proficient Japanese EFL learners and, in particular, the relationship between bottom-up and top-down processing. The study investigated several hypotheses. whether, as the level of L2 proficiency *decreases*, the number of idea units recalled will decrease; low-level idea units will be recalled more than high-level idea units; the percentage of correct answers to the local questions will be higher than that to the global question; and the differences in the percentage of correct answers between local and global questions will be greater. 91 Japanese students studying EFL were assessed for their general listening proficiency. On the basis of these tests, they were divided into three groups: upper-third, middle and lower-third. The subjects listened twice to four passages, one passage at a time, over four weeks. For two of the passages, they were asked to write in Japanese everything that they could recall immediately after listening. For the other two passages, they had to answer global questions (requiring them to synthesise information and draw conclusions) and local questions (requiring them to locate details and understand single words).

Peters (1999) investigated the listening strategies of English primary school students in Canada studying French in immersion classrooms of French as a second language. Students were tested in September at the start of the school year on their listening comprehension. On the basis of their test results and information about their family and learning backgrounds, and interest in learning French, four more proficient and four less proficient subjects were chosen, with two girls and two boys in each group. In order to obtain data on strategy use and development, subjects completed eight listening comprehension activities between October and May at the rate of one a month. There were two types of activities: following directions and grid completion. For each listening task, subjects heard the passage once and completed a task of following directions or completing a grid. During the second listening, they completed a set of five multiple-choice questions. They could go back and revise the task during the second listening. For the think-alouds, following training, every second month half of the eight did individual listening tasks with the researcher or trained assistant and, at the same time, carried out think-alouds, verbalising the tasks they were using. The rest of the class, including the other four subjects, completed the same tasks, without think-alouds, back in the classroom.

Teichert (1996) investigated whether using advance organisers plus video and audiotapes improved listening comprehension. Three intact classes, a total of 50 students, were selected to carry out the investigation and non-randomly allocated to two experimental conditions (experimental group one = nine females, five males; experimental group two = 15 females, four males) and one control (10 females, seven males). Treatment consisted of presenting the students with three advance organiser types: (1) illustrations of what the text was about, (2) brainstorming of key vocabulary and cultural background, and (3) a set of five or six general questions about the topic. Student performance in listening comprehension pre- and post test was compared between experimental groups and with the control group who were not given any advanced organisers.

Tsui and Fullilove (1998) compared the mean scores of students studying English as a second language on different types of test items used in an examination of listening comprehension. Each item was a multiple-choice question. These were categorised into questions that could only be answered through top-down processing (i.e. students getting a picture of the overall text = global questions) and questions that could be answered using bottom-up processing (i.e. listening to individual words and sentences = local questions). Questions were also categorised into matching items, in which the schema activated at the start of the text is congruent with later input, allowing listeners to rely largely on top-down processing to get the right answer; and non-matching items, in which the initial schema is contradicted by later linguistic input. In that case, learners have to process later input very carefully and revise their initial hypotheses. The dataset used seven years of papers examining 20,000 students on responses to 177 questions. The exams were set in Hong Kong and the subjects were in the post-compulsory age group.

Vandergrift, in a series of studies, investigated the listening strategies of English speaking Canadian school students learning French. In Vandergrift (1998a) subjects were secondary-school students. Graded listening texts were played to them and the researcher stopped them at regular intervals and used a think-aloud protocol to determine which strategies they were using in order to work out what the text was about. Vandergrift (1998b) investigated the listening comprehension strategies of five secondary-school students with different levels of language proficiency. The students each heard a listening text in French with pre-determined stops in the presence of an interviewer. At each stop, the interviewer asked the listener to say what she was thinking about the text and these thoughts were recorded.

Vandergrift (2002), the largest study, involved 420 primary school students from 17 different classes. Each student completed at least one of three listening tasks, an accompanying reflexive exercise and a questionnaire on the formative qualities of tasks and activities. The tasks required students (a) to obtain specific information, (b) to understand the vocabulary related to the theme, and (c) to listen attentively to predict answers on the basis of previous background knowledge of pictures. In the first comprehension task, students listened for what they must feed animals listed on their task sheet. They used their world knowledge to tick from a list what they thought each animal would eat or drink and then listened to verify their predictions. For the second task, which involved students listening to descriptions of five families and matching the descriptions with the pictures, students first guessed who would be in each picture. They then listened and ticked in a box who belonged in each picture. After listening, they wrote down the clues they used to match each family with the right person. In the third task, students listened to messages suggesting activities on an answering machine and matched the activity with the person who suggested it. They then completed a self-evaluation section asking which had been most helpful: listening attentively, hearing the messages twice, focusing on keywords, or some other strategy. After the listening and evaluation exercises, students took part in a 'retour reflexif' – a group discussion with their teacher about what had helped them to understand and why, what their views were on the listening tasks and evaluation instruments, and what they liked best about the task. They were also asked what they learned in French, what they needed to improve, what they had found out about their French listening abilities, and how the instruments could be improved. The teachers recorded all responses for each class on one questionnaire.

Vanderplank (1988) sought to investigate the extent to which non-native speakers of English 'follow' the text (being able to repeat aloud or sub-vocally or see it in the mind's eye) or 'understand' (integrate it into their existing knowledge). The author argues that the distinction is roughly equivalent to top-down/bottom-up processing. 32 subjects took part in an experiment. 27 were non-native speakers (NNS) with a wide variety of L1s. Five were native or near native speakers (NS). They listened to 10 recordings of various types of texts (style, register, topic, linguistic level, stress per minute). They then filled in a subjective grading sheet in which they estimated the relative amount of following and understanding that they were doing on each text. Comparisons of comprehension were then made between groups and within groups relative to the text type.

Young (1996) investigated the listening comprehension strategies used by 20 volunteer Chinese students from six tertiary level institutions. The English Language Examination of the Hong Kong Certificate of Education results were used as an indicator of their language achievement. Each subject took part in an interview carried out by the investigator, which included a think-aloud exercise. The think-aloud exercise took place while the students listened to three recordings of texts on different topics and in different modes taken from commercial materials for listening skill development, randomly ordered. The think-aloud part of the interview was recorded. Subjects could think aloud in English or Chinese. The think-aloud protocols were coded for identification of listening comprehension strategies using a Listening Comprehension Strategies Coding Scheme. The only 'quantitative' results, which bear on the issue of prior knowledge, are those in which the learning strategy use of students with different levels of achievement, are compared. Of particular relevance to this review are differences in the use of 'elaboration' strategies, defined by the author as use of prior knowledge.

4.3.2 Weight of evidence (WoE)

The in-depth review question concerned the impact of prior knowledge of the topic (or schemata, more broadly) on listening comprehension. Studies which are included in the in-depth review and which are described in section 4.3.1 address the in-depth review question in one of two ways. Either they:

- attempted to measure or quantify the impact of prior knowledge on listening comprehension in some way

  and/or

- they explored learners' perceptions of their listening comprehension strategies

The synthesis can thus be divided into two parts on the basis of this distinction. The weight of evidence (WoE) is also divided according to this distinction.

Table 4.2: Weight of evidence (WoE) for studies in the in-depth review, part 1: studies that measured the relationship between prior knowledge and comprehension

Item	WoE A	WoE B	WoE C	WoE D
Bacon (1992a)	Medium	Medium	Medium	Medium
Bonk (2000)	Medium	Medium	Low	Medium
Brindley and Slatyer (2002)	Low	Low	Low	Low
Chiang and Dunkel (1992)	Medium	High	High	Medium
Chung (1999)	Medium	Medium	High	Medium
Herron *et al.* (1998)	Medium	Medium	High	Medium
Jensen and Hansen (1995)	Low	Medium	Medium	Low
Jones and Plass (2002)	Medium	Medium	Medium	Medium
Kawai (2000)	Low	Low	Low	Low
Long (1990)	Medium	Medium	Medium	Medium
Markham and Latham (1987)	Medium	Medium	High	Medium
Osada (2001)	Medium	Medium	Medium	Medium
Peters (1999)	Medium	Medium	Medium	Medium
Teichert (1996)	Low	Low	High	Low
Tsui and Fullilove (1998)	High	High	High	High
Vanderplank (1988)	Medium	Medium	Medium	Medium
Young (1996)	High	Medium	High	High

Table 4.3: Weight of evidence (WoE) for studies in the in-depth review, part 2: studies that investigated student's perceptions of strategies used among which featured prior knowledge

Item	WoE A	WoE B	WoE C	WoE D
Dobson (2001)	Medium	Low	Low	Low
Laviosa (2000)	Low	Low	Medium	Low
O'Malley *et al.* (1989)	Low	High	Medium	Low
Peters (1999)	Medium	Medium	Medium	Medium
Vandergrift (1998a)	Low	Low	Medium	Low
Vandergrift (2002)	Low	High	Medium	Low
Vandergrift (1998b)	Low	Medium	Medium	Low
Young (1996)	High	Medium	High	High

4.4 Synthesis

4.4.1 Studies that attempted to measure the relationship between prior knowledge and listening comprehension

Table 4.4 lists those studies that attempted formally to measure the impact of prior knowledge on listening comprehension.

Table 4.4: Study design, first and second language of studies measuring the impact of prior knowledge on listening comprehension

Included in in-depth extraction	Equivalent study design for effect size outcomes	First language	Second language
Bacon (1992a)	Single group within subject design	English	Spanish
Bonk (2000)	Single group within subject design	Japanese	English
Brindley and Slatyer (2002)*	Single group within subject design	Mixed	English
Chiang and Dunkel (1992)	Controlled experiment with random allocation to groups	Chinese	English
Chung (1999)	Controlled experiment with random allocation to groups	Chinese	English
Dupuy (1999)*	Single group within subject design	English	French
Herron *et al.* (1998)	Controlled experiment with non random allocation to groups	English	French
Jensen and Hansen (1995)*	Controlled experiment with non random allocation to groups	Mixed	English
Jones and Plass (2002)	Controlled experiment with random allocation to groups	English	French
Kawai (2000)	Controlled experiment with non random allocation to groups	Japanese	English
Long (1990)	Single group within subject design	English	Spanish
Markham and Latham (1987)	Single group within within subject design[#]	Mixed	English
Osada (2001)	Single group within subject design	Japanese	English
Teichert (1996)	Controlled experiment with non random allocation	English	German
Tsui and Fullilove (1998)	Single group within subject design	Chinese	English
Vanderplank (1988)	Controlled experiment with non random allocation	Mixed	English
Young (1996)	Controlled experiment with non random allocation	Chinese	English

* Insufficient data reported for the calculation of effect sizes

[#] Three groups in study, effect size used in review based on within group difference in mean scores

The findings of studies (as reported by their authors) that attempted to measure the relationship between prior knowledge and listening comprehension are given below.

Bacon (1992a)
Mean idea units recalled (as a measure of comprehension) for the familiar topic passage were higher than for the passage with less topic familiarity. While 58% of students reported learning new information from the former, only 26% did so for the latter. However, as disclosed by the subjects in the interviews, there was no significant correlation between the background knowledge of the topics concerned, and their level of comprehension. Comprehension benefited when subjects were able to relate what they heard to what they knew. Only 50% made such a connection. More successful learners showed effective use of prior knowledge. Less proficient listeners either focused too much on background knowledge or ignored it altogether.

Bonk (2000)

Although some subjects were able to achieve quite good comprehension with a lexical knowledge of less than 75% (suggesting the value of prior knowledge (PK) application), others only achieved the same level with even 100% lexical knowledge. However, very high comprehension scores were quite unlikely to occur with low lexical knowledge scores (i.e. under 80%), suggesting a need for the ability to decode lexical information quickly.

Brindley and Slayter (2002)

Not all data relating to study findings were reported. The authors conclude that texts became easier or harder according to the task being required. For example, the 'jobs' task was easiest when the table format was used. The faster version of the 'dogs' task was the most difficult. In other words, there was a complex interaction between different components of text and task. A particular item might remain 'easy' even in a difficult version of the task. Particular combinations of item characteristics appear to accentuate or attenuate the effect on difficulty. Easy or difficult features may well cancel each other out.

Chiang and Dunkel (1992)

For both the high and low listening proficiency subjects, prior knowledge had a significant impact on subjects' memory for information contained in the *passage-independent* test items. Subjects' performance on *passage-dependent* items did not differ significantly whether the familiar or unfamiliar topic was presented. In other words, prior knowledge was only effective in providing comprehension when the information in the passage actually matched the subject's guess of what the passage might contain.

Dupuy (1999)

Not all data on the study findings were reported. The authors state that an overwhelming majority of students both at the beginning and intermediate levels reported finding narrow listening (listening to brief answers to a small set of interesting questions as supplied by several different speakers) helpful in improving their French. Repeated focused listening, self-selection and topic familiarity helped make the input comprehensible for students at both levels.

Jensen and Hansen (1995)

Not all data related to study findings were reported. The authors state that the PK effect was inconsistent: there was statistical significance on only 5 of the 11 lectures. PK only accounted for 3%–9% of the variance in lecture performance. The listening proficiency variable accounted for between 25% and 52% of the variance in the lecture performance.

Kawai (2000)

No statistically significant gains for either group in terms of motivation or attitudes to English were found. Base culture concepts (where PK might have been activated) did not increase motivation. Base culture concepts did not increase strategy use. There were statistical gains of listening ability within groups but not between groups. Both groups made equal gains over the period measured.

Long (1990)

Low strength correlations were found between the subjects' grades and the total number of ideas recalled (suggesting a proficiency effect). When listening to the topic, familiar text subjects scored better in terms of total number of idea units recalled and the number of correct idea units recalled. However, there were no significant differences when asked to respond to specific items. The authors

suggest there is a strong effect for PK when listeners are free to respond to a text as they wish but less when they are guided by specific tasks in their responses. Additionally, some subjects used their PK to make wild guesses and misapplied their schema.

Markham and Latham (1987)
Subjects achieved higher scores when their prior knowledge 'matched' the topic they were listening to. The 'neutral subjects' did worse than either of the two 'matched' groups. However, the neutral subjects did better on the Muslim passage than on the Christian passage. The authors suggest that it might have been due to it being slightly easier in terms of syntactic complexity – suggesting an interaction of text difficulty with PK.

Osada (2001)
As the level of proficiency decreased, the number of idea units recalled decreased significantly. The group with lowest initial proficiency seemed to write at random what they happened to notice, regardless of the degree of importance. Global questions indeed proved to be more difficult than local questions. As the level of proficiency decreased, so the difference between the number of correct global and local questions decreased. There were few instances where participants replied to global questions correctly but failed to respond to the local questions. The study, according to its authors, contradicts previous studies that less proficient learners rely heavily on top-down processing. However, they accept that the students in this study were all of low proficiency anyway.

Tsui and Fullilove (1998)
Results consistently showed that (correct) items of *non-matching schema type* (i.e. harder) yielded the higher mean criterion scores (i.e. were chosen by the most successful students). Mean criterion scores of non-matching schema type items *among the global questions* were significantly higher than those of the matching schema type among the global questions. Mean criterion scores of non-matching schema type items *among the local questions* were significantly higher than those of matching schema type among the local questions. Bottom-up processing appeared to be more important than top-down processing in discriminating the listening performance of L2 learners.

Vanderplank (1988)
Native speakers are able to operate in a more varied and flexible way when listening to texts, switching from 'understanding' dominant, to 'following' dominant, to 'balanced' between the two. For the NNS group, certain recordings produced significantly more 'following' than 'understanding' than others. This is because listeners can sometimes *understand* the meaning of the discourse when the content is simple even though they may not follow it very well (i.e. they are able to deploy prior knowledge). For other texts, they may follow the language but get lost in the argument (i.e. are unable to deploy prior knowledge).

Young (1996)
When listening to an unfamiliar passage, the more successful learners tended to rely on their more profound linguistic knowledge and used metacognitive strategies to plan their listening process, and to evaluate comprehension, while the less successful learners concentrated on word level and used *repetition*, *summarisation* and *translation* to understand the text. Since the latter did not use metacognitive strategies, they might lose track of the text. With familiar passages, less successful learners tended to over-extend their use of prior knowledge.

Advance organiser-type studies

Chung (1999)
The combined group scored highest, the caption group scored second highest, and the advanced organiser group came third. The control group scored lowest. This possibly suggests that a combination of lexical and contextual information is most helpful. Most students considered the advanced organiser activity beneficial in helping them to listen. Most students also found the captions helpful.

Herron *et al.* (1998)
Findings suggest that, at the beginning level, college students retained information in French videos significantly better with an advance organiser than without one. The type of advanced organiser did not appear to make a significant difference.

Jones and Plass (2002)
Students' performance was highest when both pictorial and written annotations were available and lowest when no annotation was available. This suggests that stimulation of prior knowledge might be helpful. However, it is unclear whether the annotations provided only contextual data or actual information in the text.

Teichert (1996)
Post-test listening scores were significantly higher for the group that received advanced organisers, than that of the control group. Using multiple organisers plus audio and video appears to enhance listening comprehension at the intermediate level of German.

As indicated in the summaries provided above, the studies in this section of the synthesis conceptualised and measured prior knowledge in slightly different ways, used different research designs and analysed their data in different ways. In order to synthesise the results of these individual studies for the purpose of providing an answer to the review question, it was necessary to standardise the results in some way. Standardised effect sises were calculated for all studies where the required data were available (or could be estimated from the data presented). Details of the approach used are given in Chapter 2 and of the data used from each in study in Appendix 4.1.

Figure 4.1 is a forest plot of the effect sizes calculated for each of the included outcomes from each study. The text shows the study, approach used, measure used, effect size, 95% confidence interval for the effect size, weight (which can be ignored for the purpose of this exercise) and sample size. In the forest plot, the dot is the effect size estimate and the whiskers either side of the dot the 95% confidence intervals for each particular estimate. Interpretation of effect sizes is concerned with two elements: firstly, where the estimate lies in relation to zero (i.e. the point of no effect or no difference) and, secondly, the magnitude of effect. Interpretation of the magnitude of effect sizes is a controversial area. Given the differences in research design employed by the different studies and the assumptions made in some of the effect size calculations, it is probably unwise to draw any particular conclusions about the magnitude of effect sizes seen. All the effect sizes in the forest plot are on the positive side of zero: that is, the direction of effect is positive. With the exception of the outcomes 'Bacon 3' and 'Markham 3' (discussed below), this is the direction of effect that we would expect if the use of prior knowledge improved listening comprehension.

This result should not be overinterpreted as the 33 effects showing this pattern are not all independent: for example, 12 are from the study by Jones and Plass (2002). However, the presence of such a pattern when different first and second languages are involved, different operationalisations of prior knowledge are used, different outcomes are measured, in different ways, and across studies of different quality (as indicated by the weight of evidence) gives us greater confidence in concluding that there is an association between prior knowledge of the subject and listening comprehension performance.

However, results from two of the studies suggest that this relationship might not be entirely straightforward. In the case of Bacon 3, the outcome measure compared was the use of bottom-up strategies in familiar and unfamiliar texts. The positive effect size here indicates that bottom-up strategies were used more in familiar than unfamiliar text. One possible explanation of this might be that, if a listener is listening to a text of which the topic is familiar to them and their proficiency level matches the vocabulary/grammatical difficulty *and* speed of the text, then they are in the happy position of having everything working in their favour, and of therefore being able to focus on detail (bottom-up strategies) and get the absolute most out of the text. The difficulty is isolating the single variable of prior knowledge without knowledge of other possible confounding variables.

In the case of Markham 3, the outcome was the mean number of idea units recalled by 'neutral' students – that is, students who had claimed not to be either Christian or Moslem when listening to texts about Islamic and Christian prayer procedures. If the hypothesis that prior knowledge plays an important role in listening comprehension were true, the expected effect size would be near to zero (i.e. no difference for this outcome). However, students achieved higher scores in listening comprehension in the Moslem text. This could of course be due to bias, such as order or selection effects, but does suggest that the type of prior knowledge may be an issue.

Figure 4.1: Impact of prior knowledge on comprehension – effect sizes

Item	Effect (CI)	Weight %	Size
Prior knowledge and listening comprehension (all studies all outcomes)			
Long 1: Familiar v unfamiliar text - difference in total No. idea units recalled	0.43(-0.40, 1.26)	0.9	188
Long 2: Familiar v unfamiliar text - difference in % correct idea units	0.38(-0.13, 0.89)	2.4	188
Young: Use of 'elaboration' as listening strategy by 'high' v 'low' achievers	0.63(-0.34, 1.61)	0.7	18
Bonk: Difference in comprehension at 'High' (no PK) v 'low' (PK) lexical complexity	3.70(2.71, 4.69)	0.6	99
Teichert: Advanced organisers V control listening comprehension test score	0.80(0.19, 1.41)	1.7	50
Vanderplank: Differences in 'following' & 'Understanding' native & non-native speakers	0.62(-0.34, 1.59)	0.7	32
Jones 1: Written annotation V control immediate vocabulary test	1.77(1.26, 2.27)	2.5	86
Jones 2: Pictorial annotation V Control immediate vocabulary test	2.02(1.49, 2.56)	2.2	83
Jones 3: Written & pictorial annotation V control, immediate vocabulary test	3.06(2.43, 3.69)	1.6	86
Jones 4: Written annotation V control immediate comprehension test	0.89(0.45, 1.34)	3.1	86
Jones 5: Pictorial annotation V control immediate comprehension test	1.70(1.20, 2.21)	2.4	83
Jones 6: Written & pictorial annotation V control, immediate comprehension test	1.97(1.45, 2.49)	2.3	86
Jones 7: Written annotation V control, delayed vocabulary test	1.11(0.58, 1.63)	2.3	65
Jones 8: Pictorial annotation V control, delayed vocabulary test	1.53(0.99, 2.06)	2.2	70
Jones 9: Written & pictorial annotation V control, delayed vocabulary test	1.98(1.41, 2.56)	1.9	70
Jones 10: Written annotation V control, delayed comprehension test	0.21(-0.28, 0.70)	2.6	65
Jones 11: Pictorial annotation V control, delayed comprehension test	0.92(0.42, 1.41)	2.5	70
Jones 12: Written & pictorial annotation V control, delayed comprehension test	1.09(0.59, 1.59)	2.4	70
Kawai: Culturally familiar v unfamiliar texts, listening comprehension test scores	0.05(-0.57, 0.67)	1.6	40
Osada: Performance on global (PK) V local (no PK) questions	1.05(0.78, 1.31)	9.1	91
Bacon 1: Familiar V unfamiliar text, comprehension test score	0.34(-1.05, 1.73)	0.3	50
Bacon 2: Familiar V unfamiliar text, Use of top-down strategies (i.e. using PK)	0.26(-0.41, 0.92)	1.4	50
Bacon 3: Familiar V unfamiliar text, use of bottom-up strategies	0.28(-0.77, 1.34)	0.6	50
Herron 1: Advanced organiser statements V control, comprehension test score	0.86(0.31, 1.41)	2.0	67
Herron 2: Advanced organiser statements and questions V control, comprehension test score	0.73(0.18, 1.27)	2.1	67
Markham 1: Familiar V unfamiliar text, total idea units recalled, Moslem students	1.81(0.99, 2.62)	0.9	16
Markham 2: Familiar V unfamiliar text, total idea units recalled, Christian students	0.02(-1.12, 1.16)	0.5	21
Markham 3: 'Neutral' students, Christian V Moslem passage, total idea units recalled	1.17(0.61, 1.72)	2.0	28
Chiang 1: Familiar V unfamiliar texts, Higher ability group, modified text, comprehension test score	0.71(0.28, 1.14)	3.4	90
Chiang 2: Familiar V unfamiliar texts, Higher ability group, unmodified text, comprehension test score	1.01(0.57, 1.44)	3.2	90
Chiang 3: Familiar V unfamiliar texts, lower ability group, modified text, comprehension test score	1.24(0.79, 1.69)	3.0	90
Chiang 4: Familiar V unfamiliar texts, lower ability group, unmodified text, comprehension tests core	1.08(0.63, 1.52)	3.2	90
Tsui: Scores on Global (PK) V local (no PK) questions	0.31(-0.09, 0.71)	3.9	98
Chung 1: Advanced Organisers V control	0.16(-0.10, 0.42)	9.3	170
Chung 2: Caption V control	0.56(0.30, 0.82)	9.3	170
Chung 3: Advanced organizers & captions V control	0.74(0.48, 1.00)	9.3	170
	0.91(0.83, 0.99)		

4.4.2 Studies that attempted to identify strategies used by learners when listening

The studies in this category all investigated some aspect of students' use of prior knowledge in listening comprehension by analysing students' responses in listening comprehension exercises and/or by asking students which strategies they used. A summary of the results and conclusions of each of these studies is given below.

Dobson (2001) investigated the knowledge, strategies and information resources listeners used to accomplish listening web-based tasks and overcome any difficulties. Also investigated were the effects these factors have on the subjects' self-regulation and accomplishment of the listening tasks. Analysis sought to investigate the effect of strategy use on task completion and self-regulation. The authors state that occasionally prior knowledge hindered comprehension by leading the subject to lose the train of thought. Students' prior knowledge of current events did play a role in influencing their comprehension and selection of news stories. Listening comprehension greatly diminishes when the difficulty of a text is accompanied by a lack of interest in the topic, particularly when students have little background knowledge of the topic. World event knowledge appeared to have more of an influence on their comprehension and selection of clips than on their self-regulation. All students seemed aware that their world knowledge could cause them to misinterpret the context but, as they were able to review the clips, they could repeat listening until they were satisfied with their interpretation of the meaning.

Laviosa (2000) investigated the Listening Comprehension Processes and Strategies of Learners. The author states that, for all subjects, memory was a problem and they used repeated listening to compensate for brief storage of information in working memory. The efficiency of a strategy employed depended not only on the subjects' second language knowledge but also on individual differences in perceiving problems and on their ability to employ strategies successfully and orchestrate the use of a variety of effective strategies. Background knowledge was not a strategy that was used very often. Quantitative results suggest that certain strategies are associated with certain problem types. Certain problems predict certain strategies that will be used. For example, the most common problem was 'new word' and it was solved mostly by 'using cognates' and less by 'vocalisation' or 'visualisation'. On the other hand, the problem of 'known word in unfamiliar topic' was solved mostly by the 'associating' strategy.

O'Malley *et al.* (1989) sought to determine distinct phases in listening comprehension (perceptual processing, parsing, utilisation) by asking what strategies are employed by listeners in these different phases, and whether learners identified as effective or less effective listeners use different strategies. The authors state that ineffective listeners used different strategies from effective listeners. Selective attention (a criterion of perception?) was a mark of an effective listener. In some cases, elaborations interfered with, rather than assisted, selective attention – students might get involved in recalling prior knowledge and the attention wandered from the listening task. Sometimes prior knowledge gave the wrong inference. Prior knowledge was used to assist comprehension and to assist recall after the listening. Prior knowledge can be divided into 'world knowledge', which is generally shared, and personal knowledge, which is

generally 'restricted'. Students used prior knowledge to 'self-question' about the material they were listening to rather than abandon the text, as ineffective listeners often did; effective listeners used prior knowledge to create something that was personally meaningful, if inaccurate. Elaborations formed while listening emerged later during a recall task. However, there were some examples of unsuccessful recall via prior knowledge where prior knowledge had been successful in the earlier process of comprehension. Whether or not they are retained may depend on the richness of the schemata at the time of listening. The authors conclude that effective listeners either have more prior knowledge available, have the information better organised, access the prior information more efficiently, or use the information more strategically. Prior knowledge can be 'superimposed' on a listening task unsuccessfully.

Peters (1999) investigated the listening strategies of primary school children in French immersion programmes. Irrespective of proficiency level, cognitive strategies were used much more than either metacognitive or socio-affective strategies; socio-affective strategies were least used. Linguistic inferencing (associated with prior knowledge) was the most used cognitive strategy, successful in 61% of cases. Academic inferencing (drawing on words and phrases learnt in the classroom) was used less but was more successful (97%). The proportion of successful strategy use was higher for the more proficient subjects (80% compared with 61%). More proficient students also used more metacognitive strategies, although the less proficient subjects were more successful in their use. While less proficient subjects used inferencing more (associated with prior knowledge), they used it much less successfully. Less able listeners tended to use elaboration more in the early part of the year when their linguistic knowledge and skills were inadequate (they were guessing on the basis of a few familiar sounding words) and less later in the year when their linguistic knowledge and skills were improving. In summary, the two groups used about the same number of strategies but the difference lies in the degree of successful use. More proficient subjects succeeded more than less proficient in understanding the use of cognitive and metacognitive strategies. The author concludes that subjects use both bottom-up and top-down processing but there is very little evidence of an interactive approach to construct meaning for the input on the basis of declarative knowledge. It appears that the difference between more and less proficient subjects lies in their ability to draw on metacognitive strategies.

Vandergrift (1998a) investigated whether successful and unsuccessful listeners use different strategies. In particular, how do listeners construct meaning? The author states that he found differences in strategy use by listening ability and language proficiency. Novice level listeners rely more heavily on prior knowledge in order to compensate for large chunks of unfamiliar input. Successful listening at this level requires the flexibility to continually weigh the validity of this framework in the light of new evidence. Intermediate listeners, due to their larger linguistic base, rely less on schematic knowledge, and are able to have a deeper understanding of the text. The author concludes that successful listening comprehension necessitates overcoming cognitive constraints in working memory. What is selected for processing becomes crucial. In order to do this, listeners need to focus on semantic cues that can be encoded in memory quickly, resist the compulsion to translate, chunk larger units of meaning into propositions, and allocate less time to decoding individual words.

Vandergrift (1998b) investigated the listening strategies of beginning learners of French with a particular focus on metacognition. The least proficient students had limited linguistic knowledge to enable them to understand a text spoken at rapid

speed. Both used their prior knowledge in English and strategies, such as transfer and elaboration, to help them to build schema from words they can pick out. They then built a conceptual framework from this. However, there was variance even at this level, with one subject using a more top-down approach, the other, a more bottom-up approach. At this level, a bottom-up approach is less successful. The three subjects with a higher level of proficiency showed bigger differences between good listeners and poor listeners. They had greater linguistic knowledge than those at beginner level and, as they understood more words, they felt obliged to translate but were unable to keep up with the speed of the speaker. Translation permits little interaction with the text and so the poor listeners often changed schema during the listening and do not create a solid and coherent schema. They lacked metacognitive strategies, such as control of understanding and selective attention, which would have enabled them to interact with the text at a deeper level. The author concludes that successful listeners use more metacognitive strategies and use these strategies at a deeper level with a text to construct meaning. Comprehension monitoring is a key strategy, which guides the use of other strategies, both metacognitive and cognitive.

Vandergrift (2002) investigated the influence that guided reflection on the listening process has on learners' understanding of this process. To what extent do learners possess strategic, task and person knowledge? Which strategies are revealed in their strategic knowledge? The main results indicated that students are aware of the factors that affect listening comprehension (task knowledge), they have some understanding about themselves as L2 listeners (person knowledge), and they are aware of what they can do to improve performance in future listening tasks (strategic knowledge). The author concludes that reflection on the process of listening by the students (as evidenced by their comments) raised their awareness of the listening process and helped them understand the strategies involved in successful completion of the L2 listening tasks (strategic knowledge). This provided them with knowledge to better guide their understanding of oral texts in French (task listening) and, to a lesser extent, awareness of themselves as learners/listeners (person knowledge).

Young (1996) investigated the listening comprehension strategy use of university level Chinese English as a second language (ESL) students. More successful and less successful students differed in strategy use in terms of quality, especially when listening to a passage with an unfamiliar topic. When listening to an unfamiliar passage, the more successful learners tended to rely on their more profound linguistic knowledge and used metacognitive strategies to plan their listening process, and to evaluate comprehension, while the less successful learners concentrated on word level and used repetition, summarisation and translation to understand the text. With familiar passages, less successful learners tended to over-extend their use of personal/background knowledge. The author concludes that there is a sequential link between cognitive and metacognitive strategies. When listening to transactional texts and with the topics of these not disclosed, those learners who have greater repertoire of strategies used the cognitive strategies involved in inferencing to make use of contextual clues, or elaboration to activate their background knowledge to help them construct an interpretation of the text.

There are a number of difficulties in synthesising data from these studies. Firstly, the approaches used to eliciting students' perceptions varied. Secondly, results were reported in different formats and different terminology was used (e.g. metacognitive strategies, top-down processes, prior knowledge). Thirdly, with the exception of the studies by Peters (medium WoE) and Young (high WoE), the

other studies in the section were all graded as having a low weight of evidence. One of the main reasons for this weighting was the poor reporting of the methods and results. Synthesis therefore focused on identifying themes in the reported results and/or conclusions made by the authors.

Notwithstanding these difficulties, it is clear that in all of the studies the authors' interpretation is that top-down processing strategies, including the use of prior knowledge, are part of students' repertoire of listening strategies. This corresponds with the findings from the synthesis of measurement studies and gives more weight to the conclusion that prior knowledge does play an important role in listening comprehension. However, some of the studies suggest that the use of top-down strategies employing prior knowledge varied systematically between students of different second-language ability.

O'Malley *et al.* (1989) investigated the listening strategies of intermediate level students. The principal characteristics of effective listeners at this level were self-monitoring, elaboration and inferencing. Effective listeners made use of both top-down and bottom-up strategies; in other words, an interactive listening approach. Ineffective listeners used mostly bottom-up strategies. It is unclear from the data why ineffective listeners did this. In other words, were they in any way impeded from using a more interactive approach by some other factor which had not been controlled for, for example low vocabulary knowledge or the inability to hold longer chunks of language in acoustic memory?

Peters (1999) investigated the listening comprehension strategies used by primary-school learners of 'different ability levels' learning French in a 'Bain Linguistique' programme on different task-types, over a period of nine months. However, the different ability levels were characterised by level of listening comprehension proficiency. No other language proficiency measures are reported. The author attributes the subjects' greater use of cognitive strategies compared with metacognitive strategies to their limited knowledge of French. She argues that, as they concentrate their efforts on trying to understand, they make greater demands on their limited processing capacity. However, the author is not able to control for other variables, such as grammatical knowledge, vocabulary knowledge, as these are not tested. Moreover, since the tasks get more difficult as the year progresses, it is not surprising that the success rate does not improve. The combination of strategies also changes, and the results suggest that they do not use the strategies in the same way at the end of the year.

Vandergrift (1998a) investigated novice and intermediate levels of language proficiency as determined by an oral proficiency interview (ACTFL/ETS – Lowe, 1982.). We should note that these are general levels of language proficiency, not specifically listening proficiency. The author found that there were differences in strategy use by language proficiency. Novice-level listeners relied more heavily on prior knowledge in order to compensate for large chunks of unfamiliar input. Intermediate listeners, because of their larger linguistic base, relied less on schematic knowledge, and were able to have a deeper understanding of the text.

Young (1996) investigated the possible differences in the frequency of use of strategies and strategy repertoires between the more successful and less successful learners. Success was measured according to English achievement scores and self-ratings of listening ability. Self-ratings of listening ability had no effect on frequency of strategy use or strategy repertoires. English achievement had a significant main effect on the repertoire of metacognitive strategies and frequency of use of planning and grouping. There were significant differences

between the more successful and less successful students in the frequency of use of planning and problem identification, and in their metacognitive strategy repertoires. The former had a higher use of these strategies than the latter.

In all these studies, direction of causality between strategy use and general language proficiency is not established. Do listeners use more strategies because they have greater proficiency in the language or do they achieve greater proficiency because of effective strategy deployment? Moreover it is unclear which is the more important variable, general language proficiency or listening proficiency.

5. FINDINGS AND IMPLICATIONS

The review set out to explore the research that had been carried out in unidirectional listening comprehension in a second or foreign language. While recognising that both theoretical and empirical evidence suggests that top-down processes are inseparable from bottom-up processes, the review's in-depth focus was on top-down processes, particularly the strategy of applying prior knowledge at certain points before and during the decoding of the incoming speech stream.

5.1 Summary of principal findings

5.1.1 Identification of studies

2,120 potential papers were identified, of which 84 met the criteria for inclusion in the map and 24 for inclusion in the in-depth review. The main method of identifying studies was through bibliographic databases; only limited handsearching was completed.

5.1.2 Mapping of all included studies

The majority of studies in the review were published in English. With this caveat in mind, the mapping of studies suggests that the majority of research on unidirectional listening comprehension has been conducted in North America, in the post-compulsory education setting and in the majority of cases, with students whose first language was English. The overall mapping of studies shows that research interest has indeed focused on the three processes of listening: perception, parsing and utilisation/integration of meaning. If we refer back to Table 3.17, we note that learner strategy elicitation studies formed just under one-third of the mapped studies. These were studies that explored qualitatively both top-down and bottom-up processes. If we combine studies specifically on prior knowledge with studies looking at advance organisers, we have a total of 24, which is identical to the number on perception/parsing. In other words, there is the appearance of a coherent research agenda over the last 25 years.

5.1.3 Summary of synthesis of studies in in-depth review

- There appear to be very few studies of unidirectional listening comprehension in the compulsory education sector (none in the UK).

- There appear to be very few studies of unidirectional listening comprehension in the UK.

- Unidirectional listening comprehension has largely been investigated in a fairly narrow range of L1 and L2 languages.

- With one exception, all the investigations of the associations between prior knowledge of the subject and listening comprehension measured short-term listening comprehension performance only.

- With the above caveats in mind, there appears to be a positive association between prior knowledge and listening comprehension: two outcomes from two high WoE studies, 26 outcomes from 10 medium WoE studies, and two outcomes from two low WoE studies.

- Studies where prior knowledge was deliberately incorporated into the strategy for teaching and/or assessment (i.e. advanced organiser-type studies) found that students' short-term listening comprehension performance was greater when such strategies were used: 17 outcomes from three medium WoE studies and one outcome from one low WoE study.

- However, the finding that prior knowledge facilitates comprehension in general should not be interpreted as meaning that any prior knowledge used in any way will facilitate comprehension. A number of studies suggest that prior knowledge can lead to inaccurate comprehension if it is not supported by later in-text information or if the listener does not listen for possible contradicting information.

- The terminology used to describe and classify listening comprehension strategies is inconsistent across the field.

- With the above caveat in mind, it would appear that students perceive that they use top-down processing strategies, including prior knowledge as aids to listening comprehension

- It is suggested in some studies that the way in which prior knowledge is used as a comprehension strategy may vary depending on the learners' L2 language proficiency: one high, one medium and two low WoE studies.

The pattern of positive effect sizes found clearly suggests that using learning or assessment tools that stimulate the use of prior knowledge facilitates listening comprehension. However, the relationship between prior knowledge of the topic of a text and comprehension success may not be as straightforward as this result suggests. A number of studies would appear to demonstrate that the situation is much more complex (Chiang and Dunkel, 1992; Jensen and Hansen, 1995; Tsui and Fullilove, 1998). The key finding of Tsui and Fullilove is that listeners cannot rely on prior knowledge if the information in the text is not in line with it – that is, if it contradicts the listener's expectations. The Tsui and Fullilove study was judged to be of high quality and providing high weight of evidence. It extracted those aspects of listening which best matched overall listening proficiency rather than one aspect of it. It therefore appears to be the case that prior knowledge can work against comprehension especially when existing or developing schema do not match subsequent information in the text. This is supported by other studies. Prior knowledge may lead to misinterpretation (Dobson, 2001) or lack of focus and attention on the text (O'Malley *et al.,* 1989), at least in some learners (Young, 1996).

A range of factors may influence the individual student's ability to use prior knowledge when processing text, including their listening proficiency (higher listening proficiency matched against text difficulty will bring about different use of prior knowledge); their overall language proficiency (their vocabulary and syntax knowledge will affect the speed with which they can decode the incoming language leaving greater space for the application of prior knowledge); the detail of their prior knowledge of the topic; and the match between the type of prior knowledge that is being activated (global knowledge, specific event knowledge or

personal knowledge) and the topic information in the text. In one study (Bonk), the effect size suggested that 23% of the variance in comprehension ratings was a direct result of the vocabulary difficulty. In other words, prior knowledge does not necessarily compensate for such variables as lexical difficulty, speed of text, and so on.

Prior knowledge, in the studies reviewed, is often embedded under the more general term 'inferencing'. Inferencing, however, may contain a number of strategies interacting with prior knowledge that need to be examined, and this rarely comes through in the studies examined. For example, inferencing may refer to the text structure or to the sequencing of ideas in a unit (or units) of speech. Moreover, the construct of prior knowledge itself had not been sufficiently defined nor unpacked for its component parts. These component parts (which contribute to the overall schemata), the evidence is beginning to suggest, are specific topic knowledge; general topic knowledge; knowledge of the L2 vocabulary of the topic; personal knowledge or experience of the topic (knowledge that only the listener has); shared knowledge; and task-related knowledge. It is clear that the relationship between knowledge of the topic and knowledge of the L2 vocabulary related to that topic cannot be assumed. It is hypothesised that knowledge of certain vocabulary types (technical vocabulary or metalinguistic vocabulary) would correlate positively with knowledge of the topic, whereas other more general types of vocabulary (e.g. knowledge of leisure vocabulary) may not if these are being applied to the feelings of the speakers in the text.

The position of prior knowledge application, as one strategy among a number of other top-down strategies (e.g. use of logic), is not resolved. Clearly, the use of a strategy such as prior knowledge in listening is often connected with overcoming linguistic deficiency problems. Listeners infer the meaning of a text the 'surface' of which they do not feel confident with. Precisely how prior knowledge interacts with these surface problems remains unclear. However, prior knowledge may also interact with comprehension problems related to propositional content. A listener may understand the surface text, but the content of the text may not match his/her prior knowledge of that topic. Integration of the propositional content, in this situation, may be skewed by the listener's own prior knowledge (PK), by using PK to guess at the content.

There is some evidence from the review that the best listeners are those who understand, even though the content of the incoming text does not match the existing or developing schema. This entails flexibility of listening strategy use, alternating just at the right moment between bottom-up and top-down processes. They take steps to verify any predictions made on the basis of PK. There is, therefore, evidence in the studies that some listeners employ strategies (including PK) more effectively than others. There is no evidence that we know *why* they do this – for example, there may well be a sequential link between cognitive and metacognitive strategies. Comprehension monitoring (the ongoing process of checking what one thinks one has understood with new evidence emerging from the text) appears to be a key metacognitive strategy which needs to be applied with a prior knowledge strategy. So why do some learners not apply comprehension monitoring? The evidence suggests that this kind of monitoring is prevalent in L1 listening (see, for example, Vanderplank, 1988). Why can it not be transferred to L2 listening? Is it just that learners do not know how to do so? That is possible, and therefore they can be taught this skill. It is possibly the case, however, that working memory limitations are inhibiting the orchestration of prior knowledge. In other words, for some learners, their working memory capacity just does not allow them to orchestrate the interactive processes effectively, to attend

to both PK and bottom-up features of the text. Unfortunately, this is explored in only one study (Laviosa, 2000), and tentatively at that. In any case, the issue of transfer of strategies from first-language behaviour to second-language behaviour is a contentious one, not resolved by the in-depth review.

The review evidence does suggest fairly strongly that providing students with some kind of advance organiser facilitates their comprehension, probably at all levels, by stimulating, among other things, their prior knowledge of the topic, whether general or specific (Chung, 1999; Herron *et al.*, 1998; Jones and Plass, 2002; Teichert, 1996). It looks likely that both visual and semantic-graphic stimuli generate the best kinds of connections. What there is, as yet, no evidence for is that providing advance organisers develops listening skills over time and in different situations. In other words, there is a difference between *facilitating* listening comprehension and *improving* listening comprehension. Moreover, in certain authentic listening situations (e.g. radio news items), the listener can only stimulate prior knowledge *as* he/she is listening *not* before. This mental operation or strategy has then to compete with other strategies in the limited processing capacity of working memory. It follows therefore that combinations of strategies are going to provide the best listening results unaided by the teacher. The studies reviewed, which examined advance organisers, make a number of assumptions that their methods and findings do not substantiate. There is thus a fundamental confusion in the literature, in our opinion, between being able to comprehend a text or texts at the time of the investigation (and used for the investigation) with the development of the skill of listening long term. Unless we are mistaken, none of the studies in the advance organiser category tested for skill development, only for comprehension. Testing for skill development could have been done by greater use of delayed testing of listening without any reference to, for example, advance organisers. If subjects who had been instructed in the use of advance organisers had autonomously and later demonstrated greater overall listening ability against controls, then we would be safer in concluding that it was the intervention that had been the main independent variable in developing their listening skills. In any case, we felt that there was too close a relationship between the type of training the students were receiving in the advance organiser condition and the way their listening ability was being tested. This is a standard validity issue but one which is, unfortunately, often forgotten in the strategies literature in general.

5.2 Strengths and limitations of this systematic review

As has already been mentioned, identifying the studies for in-depth extraction from the map was not a simple matter due to the interactive nature (paradoxically) of the unidirectional listening process. In a sense the lonely listener is using himself/herself as a sounding board 'faute de mieux' whereby all the negotiation of meaning normally present in two-way interaction (clarification requests, confirmation checks, comprehension checks, etc.) has to be done by one person while listening. It is therefore possible that more studies which looked at other strategies and processes should have been included in the in-depth review because they may indirectly have provided some illumination of the effect of prior knowledge. The review group recognises this as a possible limitation. However, we would argue that the two sections of the in-depth review do have an internal consistency and do offer each other some insights.

In terms of how well our 24 studies answered our research question, we have the following final figures. Of the 17 which attempted to measure or quantify the impact of prior knowledge on listening comprehension, the ratings for weight of evidence D were two high, 11 medium and four low. We interpret this as meaning that our conclusions above, limited and tentative as they are, are based on some solid evidence whereby a majority of the studies 'had something reasonably important to tell us'. With regard to studies which explored learners' perceptions of their listening comprehension strategies, including the use of top-down strategies, among which featured prior knowledge, the ratings for weight of evidence D were one high, one medium and six low. This does not mean that the studies were necessarily of poor quality in terms of the aims they set themselves, merely that they do not, taken as a whole, provide strong evidence about students' perceptions of their listening strategy use.

It is surprising that prior knowledge is not given greater prominence in the studies which described listeners' perceptions of the strategies they used. This is a limitation of the research available given both our results and some of the paradoxes we have unearthed in relation to the function of prior knowledge in comprehension.

None of the studies in the in-depth review was conducted in the UK and only a small number were conducted with students of compulsory school age, which raises questions about the generalisability of findings to this sector in the UK. Most studies were quite good on reliability of procedures but less on internal reliability of the data-collection instruments.

5.3 Implications

5.3.1 Policy

In the Framework for KS3 Modern Languages (DfES 2003), listening is not given a central position in the development of learners' proficiency. Furthermore, its association with speaking is unclear. Of course, listening during interaction is important. However, given the clarification opportunities that interaction offers, it incorporates different strategies from those used in unidirectional listening. Policy-makers should make quite clear to practitioners and teacher educators what are the difficulties and potential strategies associated with unidirectional listening. Furthermore, the Framework Objectives for Listening and Speaking make only limited reference to the need for learners to develop effective listening strategies. Where these occur, they lack precision, and teachers are given little indication of how they might go about teaching learners to, for example, 'improve their capacity to follow speech of different kinds and in different contexts' (Framework Objective 7L2). The use of prior knowledge for interpreting texts is not mentioned until the Year 9 set of Objectives.

With regard to the development of listening over time, we draw some implications below for practitioners. Policy-makers need to take account of these implications in their documentation, in their in-service provision and in their advice to examining bodies. The latter need to promote a much clearer focus on the development of strategies and skills in learners working towards public examinations, rather than simple topic coverage.

The National Curriculum Attainment Target 1 (Listening and Responding) needs to take into account much more explicitly the findings of this review. For example, much greater clarity needs to be provided of the role of prior knowledge between level 3 (pupils show that they understand short passages made up of familiar language) and level 5 (pupils show that they understand extracts of spoken language made up of familiar material from several topics). It is unclear to the Review Group whether 'familiar' here means that it is a topic which the learners are likely to know something about, or whether it is language (vocabulary and morphosyntax) that they have already come across. If the latter, then the expectation that it is not until level 7 that pupils are expected to 'understand... unfamiliar language' is far too late. The review has provided evidence that top-down process in interaction with bottom-up processes allow listeners to understand unfamiliar language.

There are therefore strong implications for policy-makers to place a much greater emphasis on the skill of listening as a focus of study.

5.3.2 Practice

In the conclusions of her non-systematic review published some ten years ago Rubin (1994) concluded as follows:

> for strategy training, we need more work identifying problems and strategies ….which kind of training for which kinds of students…(p 216)

We suggest that this question has still not been answered by the studies in the review. We have evidence that training students to use advance organisers is effective in certain listening tasks, but extrapolation to listening in general remains an area for future research. Intervention studies in listening, in any case, are still few in number.

The results suggest that learners need to be advised as to how to apply strategic knowledge, in our case, prior knowledge, flexibly and in combination with other listening strategies. Given the results found here, it would appear unlikely that using a single approach to developing listening comprehension (e.g. narrow listening – see Dupuy, 1999) will be successful. It is not sufficient to say that it may be inappropriate for beginners. Even beginners need to learn to use top-down and bottom-up strategies flexibly.

The complexity of the inter-relationship between top-down and bottom-up processing strategies suggests a wide variety of listening texts and tasks for learners.

Throughout the different phases of language learning teachers should bear in mind that a mixture of approaches will be the most beneficial for long-term listening skill development:

- topic-specific texts with high prior knowledge (PK) – develop the ability to infer without knowing all words

- topic-specific texts with low PK – develop the ability to decode and gradually develop schema

- non-topic specific or multi-topic texts – ability to switch from PK reliance to non-PK reliance

5.3.3 Research

Future research needs to explore whether time needs to be put aside in the teaching curriculum for teaching listening as a specific skill. The studies in this review adopted different research traditions and methods. It is right and proper that different research methods are employed in developing answers to the kinds of overarching question of this review. However, to what extent these different research traditions are informing one another is open to debate. Certainly, there is little interaction in the reviews of the literature between the strategy elicitation groups and the prior-knowledge groups, and in the discussion section they do appear to remain hermetic. We would argue that this interaction between related themes and between different research methods is essential if we are to come closer, in future, to answering more clearly the overarching review questions. Similarly, authors use a bewildering variety of different terminology to describe listening comprehension strategies. It is largely impossible to deduce whether authors are reporting about the same, cognitive, metacognitive or affective strategies.

The review provides evidence of low numbers of studies carried out in this area in the UK. Additionally, there were even fewer studies in the compulsory phase of education, a phase where the Review Group feels there is the greatest need to understand the problems that students are having. Lastly, the considerable number of studies focusing on English as the target language does not provide as much illumination on the issue as the Review Group would have liked, although this was to be predicted. Particularly in a language such as French (still the most studied in UK schools), where the relationship between the sound and its graphic representation is such a complex one, we would have hoped for a stronger body of evidence. It is clear that researchers in the UK need to address these issues.

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Appendix 1.1: Advisory Group membership

Owing to resource constraints, it was not possible to set up an advisory group which met on a formal basis. On the other hand, the progress and early drafts of the review were drawn to the attention of teachers on the MSc in Applied Linguistics and Second Language Acquisition at the University of Oxford as well as PGCE students in MFL at that institution. Additionally, discussions with local teachers were carried out with a view to securing the importance and relevance of the review.

Appendix 2.1: Inclusion and exclusion criteria

Inclusion criteria for the systematic map

1. They reported on research in **foreign or second language** learning.

2. The article described or included an **empirical study** carried out by the author(s) on learners and the way learners listen to foreign language text.

3. The spoken text was **unidirectional** (i.e. not interactive listening with the possibility of meaning negotiation).

4. The aim of the study was to explore **the comprehension of text** through listening *not* acquisition of features of the language.

5. The spoken text was **formal instruction-related**. That is, it was linked to some sort of teaching and learning programme, actual or hypothesised, even though the actual listening might be occurring outside the classroom. This would include, for example, listening in self-access centres. If the study was not conducted in a classroom environment (for example, laboratory setting) but had implications for teaching, it was included.

6. The studies were reported in or after 1950 (in the case of electronic searching). It is unlikely that pre-1950 acoustic technology is compatible with current technology as an independent variable.

7. The studies were **published**, including work published by research centres, language centres, departments, etc., or they were unpublished but of **doctoral** standard.

Inclusion criteria for in-depth review

8. They investigated in some way the impact of **prior knowledge of the topic** (or **schemata,** more broadly) on listening comprehension and/or provided a description or explanation of learner's prior knowledge and its impact on listening comprehension.

Appendix 2.2: Search strategy for electronic databases

Electronic searching

The following bibliographic databases were searched: SSCI, Psycinfo, ERIC, BEI and the Australian Educational Index.

Search terms

The search was conducted by identifying and combining synonyms for the following terms: Listening Comprehension; Modern Foreign Language; Second Language, Education.

Appendix 2.3: Journals handsearched

System – Vol. 1, 1973 to current
TESOL Quarterly – Vol. 23, 1989 to current
The Modern Language Journal – 1992 to current
Language Learning Journal – 1990 to current
Language Teaching –1995 to 2003
Applied Linguistics – 1982 and 2003

Some handsearching was carried out on the following but it was not comprehensive:

Studies in Second Language Acquisition
ELT Journal
Language Learning

Appendix 2.4: EPPI-Centre keyword sheet, including review-specific keywords

V0.9.7 *Bibliographic details and/or unique identifier*

A1. Identification of report
Citation
Contact
Handsearch
Unknown
Electronic database
(Please specify.) ....
 	
A2. Status
Published
In press
Unpublished
 	
A3. Linked reports
Is this report linked to one or more other reports in such a way that they also report the same study?
 	
Not linked
Linked (Please provide bibliographical details and/or unique identifier.)
....
....
....
....
 	
A4. Language (Please specify.)
....
 	
A5. In which country/countries was the study carried out? (Please specify.)
....
....
....
	A6. What is/are the topic focus/foci of the study?
	Assessment
	Classroom management
	Curriculum*
	Equal opportunities
	Methodology
	Organisation and management
	Policy
	Teacher careers
	Teaching and learning
	Other (Please specify.)........................
	
	A7. Curriculum
	Art
	Business studies
	Citizenship
	Cross-curricular
	Design and technology
	Environment
	General
	Geography
	Hidden
	History
	ICT
	Literacy – first language
	Literacy further languages
	Literature
	Maths
	Music
	PSE
	Physical education
	Religious education
	Science
	Vocational
	Other (Please specify.)........................
		A8. Programme name (Please specify.)
		
		....
		
		A9. What is/are the population focus/foci of the study?
		Learners
		Senior management
		Teaching staff
		Non-teaching staff
		Other education practitioners
		Government
		Local education authority officers
		Parents
		Governors
		Other (Please specify.)...........................
		
		A10. Age of learners (years)
		0–4
		5–10
		11–16
		17–20
		21 and over
		
		A11. Sex of learners
		Female only
		Male only
		Mixed sex
			A12. What is/are the educational setting(s) of the study?
			Community centre
			Correctional institution
			Government department
			Higher education institution
			Home
			Independent school
			Local education authority
			Nursery school
			Post-compulsory education institution
			Primary school
			Pupil referral unit
			Residential school
			Secondary school
			Special needs school
			Workplace
			Other educational setting (Please specify.)...
			
			A13. Which type(s) of study does this report describe?
			A. Description
			B. Exploration of relationships
			C. Evaluation
			    a. naturally-occurring
			    b. researcher-manipulated
			D. Development of methodology
			E. Review
			    a. Systematic review
			    b. Other review

Review-specific keywords

Section A: MFL Listening – review-specific keywords

A.1 Language being studied	A.1.1 English A.1.2 French A.1.3 Italian A.1.4 Japanese A.1.5 Other A.1.6 German A.1.7 Spanish
A.2 First language of students	A.2.1 English A.2.2 Italian A.2.3 Japanese A.2.4 German A.2.5 Mixed A.2.6 Other A.2.7 Spanish A.2.8 French
A.3 Type of listening activity	A.3.1 Lecture A.3.2 Audio-visual presentation A.3.3 Audio-recording A.3.4 Other
A.4 Technology used	A.4.1 Video/DVD A.4.2 Audio-tape A.4.3 Webpages A.4.4 None A.4.5 Not stated A.4.6 Other
A.5 Setting of listening activity	A.5.1 Classroom/lecture theatre A.5.2 Language laboratory (group session) A.5.3 Language library/laboratory (individual access) A.5.4 Non-institutional individual access point (e.g. computer access) A.5.5 Not stated
A.6 Focus on listening comprehension	A.6.1 Listening comprehension is the main focus of the study.. A.6.2 Listening comprehension is a sub-focus/outcome of wider study.
A.7 Conditions in which study completed	A.7.1 Experimental A.7.2 Non-experimental
A.8 Focus on prior knowledge	A.8.1 Yes A.8.2 No

Appendix 3.1: Topic or focus of studies in the systematic map

Studies investigating authentic materials and situations[1]

Study	Brief description
Bacon and Finnemann (1990)	*How novice learners believe they interact with authentic input*
Herron and Seay (1991)	*The effect of authentic oral texts on student listening comprehension in the foreign language classroom*
Hoeflaak and Verloop (2000)	*The study investigated a corpus (10,000 words) of authentic French listening material taken from Radio France Inter. The corpus was analysed for intonation (rising and falling tone), pausing (compared with pauses in a written equivalent); speech rate.*
Kim (1999)	*Identifies foreign language learners' dispositions towards authentic input and their listening strategies* *Investigates the effects of the implementation of a curriculum with an emphasis on authentic listening input in the foreign language classroom*
Markham (1988)	*Gender and the perceived expertness of the speaker as factors in ESL listening recall*
Parkinson *et al.* (1991)	*Attitudes of adult learners in French, Spanish and Italian community classes to listening materials*
Seya (1995)	*The impact of study abroad on listening and on speaking*
Terrell (1993)	*To what extent does taped video of Spanish language television lend itself to the instruction of listening strategies?*
Thanajaro (2000)	*Main aim: to examine the influences of authentic listening materials on listening ability of the students* *Secondary aim: to identify some of the learning strategies used by the students*
Thiele and Scheibner-Herzig (1983)	*Value of 'total physical approach' as a means of developing listening comprehension skills together with authentic and semi-authentic texts for listening comprehension*

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[1] Some studies investigated more than one aspect of listening comprehension and consequently appear in more than one of the following tables.

Studies investigating conditions of learning and methods of teaching

Study	Brief description
Arnold J (2000)	*Do visualisation and relaxation techniques help learners improve their listening comprehension?*
Delgado (2002)	*Can learners be helped to achieve a higher level of grammatical sensitivity, and better comprehension of the language by exposing them to a number of communicative and metacognitive experiences?*
Dupuy (1999)	*Is repeated listening of several brief tape-recorded interviews on topics familiar to the learners better than more authentic (but probably difficult) texts for beginner and intermediate students?*
Ginther (2002)	*Do participants perform better on the test items when visuals accompany the audio text?*
Huang and Eskey (1999–2000)	*Value and effects of using closed captions for comprehension of TV programmes and acquisition of vocabulary and phrases compared with TV without closed captions*
Jones and Plass (2002)	*Examined the potential of multimedia annotations for enhancing listening comprehension. Vocabulary from an aurally-presented authentic historic text*
Ruhe (1996)	*Enhancement of listening comprehension of classroom lectures through the provision of an organisational graphic*

Studies investigating learner strategy elicitation in general

Study	Brief description
Bacon (1992a)	*A description of the phases and processes involved in listening*
Bacon (1992b)	*The relationship between gender, comprehension, processing strategies, and cognitive and affective response in listening*
Benson (1989)	*How do students listen to academic lectures. Particularly:* *(1) Is listening affected by the student's conception of what constitutes learning?* *(2) Is listening conditioned by anticipated requirements?* *(3) To what extent does background knowledge, particularly in the case of graduate students, affect listening?* *However, the study examines not the process of listening but the product. Therefore prior knowledge is not examined in terms of listening but in terms of academic attitude to what is being taught - whether accepting or rejecting a lecturer's propositions.*
Braxton (1999)	*Investigated the influence that cultural background and preferred learning styles had on the strategies that four ESL students chose to use in an ESL university classroom, specifically one dealing with academic listening*
Buck and Tatsuoka (1998)	*Although the article is essentially about a particular language test (rule-space procedure), its underlying focus is 'the investigation of the sub-skills of listening'....*
Chien and Wei (1998)	*Are there any differences in listening strategy use between groups who are at different proficiency levels?* *Is there a causal relationship between a range of strategies and good listening performance?* *Are some strategies more important than others?*

Study	Brief description
Dobson (2001)	*What knowledge, strategies and information resources do listeners use to accomplish listening web-based tasks and overcome any difficulties?* *What effects do these factors have on the subjects' self-regulation and accomplishment of the listening tasks?*
Feyten (1991)	*What does listening entail? Do students' listening skills affect language achievement? What is the relationship between ability in listening and language acquisition?*
Goh (1997)	*What beliefs do learners have about listening in a second or foreign language?* *Are they aware of their mental processes when listening? What listening strategies do they employ?*
Goh (1998)	*What are the listening strategies and tactics of ESL learners? Do listeners of varying listening proficiency use different strategies and tactics?*
Goh (1999)	*Factors which influence learner listening comprehension; examines the extent of awareness of these factors among learners.*
Goh (2002)	*What strategies and tactics are used by ESL learners?* *How do listening comprehension tactics interact? Does tactic use and interaction differ with listening ability?*
Kang (1999)	*Models the structural relationships among four language learning strategy factors and two language proficiency factors (listening and grammar/reading results of TOEFL tests) among Asian students at high and low proficiency levels.*
Kawai (2000)	*Should target or base culture be used in FL learning materials for listening comprehension? What is the effect on motivation, strategy use, learning styles?*
Kim (1999)	*Explores relationships among dispositions, strategy use, and L2 listening proficiency*
Krashen (1996)	*An introspective report of learning process by the author and his approaches to listening comprehension in Spanish*
Laviosa (2000)	*The Listening Comprehension Processes and Strategies of Learners of Italian*
Lund (1991)	*Do listeners recall more main ideas, while readers recall more details of a text? Do listeners produce more idiosyncratic responses, indicating greater reliance on the creative construction of meaning? Does repetition of the task help listeners more than readers, by enabling listeners to add detail to their central constructs of meaning?*
O'Malley *et al*. (1989)	*Is it possible to determine distinct phases in listening comprehension (perceptual processing, parsing, utilisation)? What strategies are employed by listeners in these different phases? Do learners identified as effective or less effective listeners use different strategies?*
Osada (2001)	*Investigates the listening processes of less proficient Japanese EFL learners and, in particular, the relationship between bottom-up and top-down processing*
Peters (1999)	*The listening strategies of primary school children in French immersion programmes*
Reseigh Long (1991)	*What do learners think they are doing when listening to authentic texts? What types of conscious listening strategies do they employ?*

Study	Brief description
Thrall (1994)	*The study investigated the extent to which cognitive level is measured by an instrument exploring 'conceptual level' (which could be described as a learning style or approach) and the language learning strategies that the students used. There is some focus on the listening strategies and general approaches to listening comprehension.*
Vandergrift (1998a)	*Do successful and unsuccessful listeners use different strategies? How do listeners construct meaning? Does this differ according to the language proficiency and listening ability of the learner?*
Vandergrift. (1998b)	*The listening strategies of beginning learners of French, with a particular focus on metacognition*
Vandergrift (2002)	*What influence does guided reflection on the listening process have on learners' understanding of this process? To what extent do learners possess strategic, task and person knowledge? What strategies are revealed in their strategic knowledge?*
Vogely (1995).	*What do university-level learners of Spanish believe are the strategies used by good listeners? How do they view themselves as listeners? What comprehension and repair strategies do they feel they use; how do these perceptions and strategies relate to their listening proficiency?*
Young (1996)	*Investigates the listening comprehension strategy use of university-level Chinese ESL students. The effects of achievement, gender, self-ratings of listening ability, and topic familiarity on strategy use are examined.*

Studies investigating learner strategy training

Study	Brief description
Kohler (2002)	*Do students of Spanish benefit from a programme of metacognitive strategy training?* *The areas of focus are listening comprehension, vocabulary, phrase and grammar acquisition, and language performance in specific tasks.*
McGruddy (1995)	*Does strategy training in listening have an effect on performance with advanced-level students?*
Ozeki (2000)	*Whether listening strategy training improves the listening strategies and skills of female students of English in a Japanese university. It also examines whether strategy training is successful in terms of students' attitudes, the durability of strategies and their transfer.*
Ricci (1995)	*The effect of a vocabulary learning strategy training programme (vocabulary journal writing) on reading and listening comprehension and on recall of vocabulary*
Seo (2000)	*The impact of a programme of strategy training in listening by learners of Japanese at the tertiary level*
Thompson and Rubin (1996)	*Can strategy training improve listening comprehension?*

Studies related to the perception and parsing phases of listening

Study	Brief description
Baltova (1994)	*Assessed the importance of visual information for second language comprehension. Four conditions:* *(1) sound only: learners listened to brief short story* *(2) video-and-sound: learners listened and watched its videotaped version* *(3) silent viewing: learners watched video without sound* *(4) no story: learners were not familiarised with the story in any mode*
Blau (1990)	*The effect of syntax, speed and pauses on listening comprehension. Do alterations in the input affect SL comprehension?* *Study 1: Manipulation of speed and syntax* *Three treatments: (1) simple sentences at slow and normal speeds, (2) complex sentences with intact clues to underlying structure at slow and normal speeds, and (3) complex sentences without optional surface clues to underlying structure at slow and normal speeds.* *Study 2: Pausing as additional input modification; effect of speed and pauses* *Three treatments: (1) normal speed, (2) slowed to approx. 185 wpm, and (3) with three-second pauses inserted at selected sentence, clause and phrase boundaries*
Brett (1997)	*Application of computer technology to the listening skill. Comparative effects of use of multimedia on listening comprehension. Compares learner success rates on comprehension and language recall tasks while using three different media of audio, video and multimedia.*
Brindley and Slayter (2002)	*What are the effects of varying the nature of the text (speech rate, text type, number of hearings, input source) and the response mode on learners' performance in listening comprehension?*
Call (1985)	*To what extent does short-term memory span, for various types of auditory input, have an effect on the ability to comprehend content?*
Castro *et al.* (1975)	*What errors are made by native speakers from Thailand, the Philippines and Indonesia when completing English Proficiency tests in phoneme discrimination? Do different ethnic groups make different errors?*
Cervantes and Gainer (1992)	*Japanese students learning English. Two issues:* *(1) Whether listening to texts which have been simplified syntactically helps students to understand their meaning* *(2) Whether listening to a text several times (repeating) helps students to understand their meaning* *The study also explores the interaction between these two variables.*
Champagne-Muzar (1996)	*Do adult learners of French in a formal setting, who undergo a programme of training in phonetics, make greater gains in a test of receptive phonetics skills than those who have not received such training? In particular:* *– in sound discrimination* *– in intonation discrimination* *– in rhythm discrimination* *Do learners who have undergone phonetics training make greater gains in listening comprehension than those who have not?*

Study	Brief description
Chiang and Dunkel (1992).	*What is the effect of speech modification in the form of elaboration and redundancy of information on the comprehension and retention of information presented in EFL lectures?* *Is there a significant interaction between speech modification and listening comprehension proficiency?* *Is there a significant interaction between prior knowledge and test-type?*
Conrad (1989)	*Do native and non-native speakers of English differ in their aural processing strategies when listening to time-compressed speech?* *Do non-native speakers of English of high proficiency use different aural processing strategies from non-native speakers of medium proficiency?*
Flowerdew and Tauroza (1995)	*To what extent does the insertion of discourse-markers by someone giving a lecture in a foreign language have an effect on the comprehension of the information in that lecture? The study seeks to demonstrate that previous findings suggesting that discourse-markers do not have an effect were methodologically flawed.*
Glisan (1985)	*To what extent are the listening comprehension scores and level of retention of sentence pattern among English learners of Spanish and native speakers of Spanish affected by the word order of sentences in listening passages? Do speakers of English (a language in which the subject-verb-object pattern is the most usual) have particular difficulty in understanding sentences which use an object-verb-subject pattern?*
Greenberg and Roscoe (1988)	*What is the relationship between listening comprehension ability and the ability to process information in echoic memory? Do weaker listeners suffer more from echoic memory interference than stronger listeners?*
Hagiwara and Kuzumaki (1982)	*What are the most frequent errors attributable to misperception of English pronunciation made by Japanese learners during listening dictation?*
Harley (2000)	*Whether age and L1 make a difference to perception strategies used in listening to English*
Issidorides and Hulstijn (1992)	*Whether or not linguistically more complex input which the learner may have difficulty in producing him or herself impedes listening comprehension*
Kiany and Shiramiry (2002)	*Difference between the listening comprehension ability of elementary EFL learners who are given frequent dictation exercises and the listening comprehension ability of those who are not*
Ruhe (1996)	*Enhancement of listening comprehension of classroom lectures through the provision of an organisational graphic. Is enhanced listening comprehension due to the graphic structure or to the vocabulary labels on graphic nodes?*
Scott (1994)	*Does auditory memory and perception of English monolingual subjects and English/Spanish bilinguals differ with age?*
Shohamy and Inbar (1991)	*The effect of text type and of question type on the comprehensibility of second-language spoken text*
Smith (1980)	*Do learners who are exposed to new language delivered at a slower than normal speed develop better listening comprehension skills than those exposed to speech at normal rates?*
Tauroza and Luk (1997)	*Is there a significant difference in the extent that ESL learners in Hong Kong comprehend received pronunciation-accented English rather than Hong Kong-accented English?*

Study	Brief description
Tsui and Fullilove (1998)	*Is bottom-up processing (focusing on words and phrases in the text) more important than top-down processing (using the listener's prior knowledge and inferencing) in discriminating the listening performance of L2 learners?* *Although this topic is linked to testing, it has direct relevance to teaching approaches related to listening.*
Vanderplank (1988)	*To what extent do non-native speakers of English 'follow' the text (being able to repeat aloud or sub-vocally or see it in the mind's eye) or 'understand' (integrate it into their existing knowledge) – distinction is roughly equivalent to top-down/bottom-up processing?*

Studies relating to the learners' prior knowledge of the topic

Study	Brief description
Bacon (1992a)	*A description of the phases and processes involved in listening comprehension with particular reference to top-down and bottom-up processes*
Bonk (2000)	*The relationship between second-language lexical knowledge and listening comprehension*
Brindley and Slatyer (2002)	*What are the effects of varying the nature of the text (speech rate, text type, number of hearings, input source) and the response mode on learners' performance in listening comprehension?*
Chiang and Dunkel (1992).	*What is the effect of prior knowledge or schemata on learners' retention of lecture information? Is there a significant interaction between prior knowledge and test-type?*
Dobson (2001)	*What knowledge, strategies and information resources do listeners use to accomplish listening web-based tasks and overcome any difficulties?*
Dupuy (1999)	*Is repeated listening of several brief tape-recorded interviews on topics familiar to the learners better than more authentic (but probably difficult) texts for beginner and intermediate students?*
Jensen and Hansen (1995)	*Whether level of proficiency in English would affect whether prior knowledge could be used by students in listening to lectures*
Jones and Plass (2002)	*The study examined the potential of multimedia annotations for enhancing listening comprehension – specifically, how the choice of written and pictorial annotations in a listening comprehension activity affects students' comprehension and acquisition of new vocabulary from an aurally-presented authentic historic text.*
Kawai (2000)	*Target or base culture in foreign language learning materials for listening comprehension, motivation, strategy use, learning styles Whether the familiarity with the base culture enhances comprehension in some way*
Laviosa (2000)	*The Listening Comprehension Processes and Strategies of Learners There is a close investigation of top-down processes.*
Long (1990)	*Do Spanish as a foreign language (SFL) listeners comprehend better when they possess schemata relevant to the listening topic? How does linguistic knowledge affect SFL listening comprehension of familiar and unfamiliar topics?*
Markham and Latham (1987)	*How does prior knowledge influence listening comprehension? This is proceduralised through using groups with very specific religious background knowledge.*

O'Malley *et al.* (1989)	*Is it possible to determine distinct phases in listening comprehension (perceptual processing, parsing, utilisation)? There is a strong focus on top-down processes.*
Osada (2001)	*Investigates the listening processes of less proficient Japanese EFL learners and in particular the relationship between bottom-up and top-down processing.*
Peters (1999)	*The listening strategies of primary school children in French immersion programmes*
Tsui and Fullilove (1998)	*Is bottom-up processing (focusing on words and phrases in the text) more important than top-down processing (using the listener's prior knowledge and inferencing) in discriminating the listening performance of L2 learners?* *(Although this topic is linked to testing, it has direct relevance to teaching approaches related to listening).*
Vandergrift (1998a)	*Do successful and unsuccessful listeners use different strategies? How do listeners construct meaning? There is a strong focus on top-down strategies.*
Vandergrift (1998b)	*The listening strategies of beginning learners of French with a particular focus on metacognition. There is a strong focus on top-down strategies.*
Vandergrift (2002)	*What influence does guided reflection on the listening process have on learners' understanding of this process? To what extent do learners possess strategic, task and person knowledge? What strategies are revealed in their strategic knowledge?*
Vanderplank (1988)	*To what extent do non-native speakers of English 'follow' the text (being able to repeat aloud or sub-vocally or see it in the mind's eye) or 'understand' (integrate it into their existing knowledge) – distinction is roughly equivalent to top-down/bottom-up processing?*
Young (1996)	*Investigates the listening comprehension strategy use of university level Chinese ESL students. The effects of achievement, gender, self-ratings of listening ability, and topic familiarity on strategy use are examined.*

Studies which have investigated the use of advance organisers

Study	Brief description
Chung (1999)	*What is most beneficial for increasing levels of listening comprehension using video: providing advance organisers, captions, a combination of both, or using none of these treatments?* *Is there any interaction between students' level of achievement and the teaching conditions used?* *What are students' attitudes to the four treatments?*
Herron *et al.* (1998)	*Do prior listening activities or advance organisers provided and conducted by the teacher lead to better retention of information contained in subsequently watched L2 videos? The prior listening advance organisers' activities were either presented in the form of declaratives (statements) or interrogatives (questions).*
Teichert (1996)	*The effect of advance organisers (illustrations, brainstorming, questions) plus video- and audiotapes to gain access to the topic on listening comprehension*

Appendix 3.2: Details of studies in the systematic map

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Arnold (2000) Seeing through listening comprehension exam anxiety	*English*	*Spain*	17–20 *inferred* 21 and over	Higher education institution	Evaluation: researcher-manipulated	Spanish	English	Audio-recording	Listening comprehension is the main focus of the study.
Bacon (1992a) Phases of listening to authentic input in Spanish – a descriptive study	*English*	*USA*	17–20 21 and over	Higher education institution	Exploration of relationships	English	Spanish	Audio-recording	Listening comprehension is the main focus of the study.
Bacon (1992b) The relationship between gender, comprehension, processing strategies, and cognitive and affective response in foreign language listening	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships	English	Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Bacon and Finnemann (1990) A study of attitudes, motives and strategies of university foreign language students and their disposition to authentic oral and written input	*English*	*USA*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	English	Spanish	Audio-recording	Listening comprehension is the main focus of the study.
Baltova (1994) The impact of video on the comprehension skills of core French students	*English (abstract in French)*	*Canada*	11–16	Secondary school	Evaluation: researcher-manipulated	English	French	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study.
Benson (1989) The academic listening task: a case study	*English*	*USA*	21 and over	Higher education institution	Exploration of relationships	Other: *Arabic*	English	Lecture Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Blau (1990) The effect of syntax, speed and pauses on listening comprehension	*English*	*Poland and Puerto Rico*	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	Spanish Other: *Polish*	English	Audio-recording	Listening comprehension is the main focus of the study.
Bonk (2000) Second language lexical knowledge and listening comprehension	*English*	*Japan*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	Japanese	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Braxton (1999) Adult ESL language learning strategies: case studies of preferred learning styles and perceived cultural influences in academic listening tasks	*English*	USA	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	Spanish Japanese Other: *Arabic* Mixed	English	Lecture Audio-recording	Listening comprehension is the main focus of the study.
Brett (1997) A comparative study of the effects of the use of multimedia on listening comprehension	*English*	UK	17–20 *inferred* 21 and over	Higher education institution	Evaluation: researcher-manipulated	French Spanish German Mixed	English	Audio-visual presentation Audio-recording Other *Multimedia*	Listening comprehension is the main focus of the study.
Brindley and Slayter (2002) Exploring task difficulty in ESL listening assessment	*English*	Australia	17–20 *inferred* 21 and over	Other educational setting	Evaluation: naturally occurring	Mixed: *ESL Immigrant learners*	English	Audio-recording Other *A 'live' version (i.e. faster speech rate) of the three texts was read from a script by a teacher.*	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Buck and Tatsuoka (1998) Application of the rule-space procedure to language testing: examining attributes of a free response listening test	*English*	*Japan*	17–20 21 and over	Higher education institution	Exploration of relationships Evaluation: naturally occurring	Japanese	English	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Call (1985) Auditory short-term memory, listening comprehension, and the input hypothesis	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships	Spanish: Other *Arabic*	English	Audio-recording	Listening comprehension is the main focus of the study.
Castro *et al.* (1975). Filipino, Indonesian and Thai listening test errors	*English*	*At a regional language centre (RELC) for personnel in the Southeast Asian Ministers of Education (SEAMEO) region.*	17–20 21 and over *inferred*	Higher education institution Post-compulsory education institution	Exploration of relationships	Other: *Thai, Filipino Indonesian*	English	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Cervantes and Gainer (1992) The effects of syntactic simplification and repetition on listening comprehension	*English*	*Japan*	17–20 21 and over *inferred*	Higher education institution	Evaluation: researcher-manipulated	Japanese	English	Lecture Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Champagne-Muzar (1996) L'apport des faits phonetiques au developpement de la comprehension auditive en langue seconde	*French*	*Canada*	17–20 inferred 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	French	Audio-recording	Listening comprehension is the main focus of the study.
Chiang and Dunkel (1992) The effect of speech modification, prior knowledge and listening proficiency on EFL lecture learning	*English*	*Taiwan*	17–20 21 and over inferred	Post-compulsory education institution Other educational setting *Chinese Naval Academy in Taiwan*	Evaluation: researcher-manipulated	Other: *Chinese*	English	Lecture Audio-recording	Listening comprehension is the main focus of the study.
Chien and Wei (1998) The strategy use in listening comprehension for EFL learners in Taiwan	*English*	*Taiwan*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships	Other: *Chinese*	English	Audio-recording	Listening comprehension is the main focus of the study.
Chung (1999) The effects of using video texts supported with advance organisers and captions on Chinese college students' listening comprehension: an empirical study	*English*	*Taiwan*	17–20	Higher education institution	Evaluation: researcher-manipulated	Other: *Taiwanese (Chinese speaking)*	English	Audio-visual presentation	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Conrad (1989) The effects of time-compressed speech on native and EFL listening comprehension	*English*	*USA*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	English Other: *Polish*	English	Audio-recording	Listening comprehension is the main focus of the study.
Delgado (2002) Metacognitive and communicative experiences in the second language classroom and the development of grammatical competence	*English*	*USA*	21 and over	Other educational setting *UN Foreign Language Programme; UN Headquarters in New York*	Evaluation: researcher-manipulated	Mixed	Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Dobson (2001) Self-regulated listening of French languages students in a web environment	*English*	*USA*	17–20 21 and over	Higher education institution	Exploration of relationships	English	French	Audio-recording Other *Pre-determined web-based news broadcasts on France2*	Listening comprehension is the main focus of the study.
Dupuy (1999) Narrow listening: an alternative way to develop and enhance listening comprehension in students of French as a foreign language	*English*	*USA*	17–20 21 and over *inferred*	Higher education institution	Evaluation: naturally occurring	English	French	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Feyten (1991) The power of listening ability: an overlooked dimension in language acquisition	*English*	*USA*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	English	French Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Flowerdew and Tauroza (1995) The effect of discourse markers on second language lecture comprehension	*English*	*Hong Kong*	17–20 21 and over *inferred*	Higher education institution	Evaluation: researcher-manipulated	Other: *Chinese*	English	Lecture	Listening comprehension is the main focus of the study.
Ginther (2002) Context and content visuals and performance on listening comprehension stimuli	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Evaluation: researcher-manipulated	Mixed	English	Audio-recording *and video*	Listening comprehension is the main focus of the study.
Glisan (1985) The effect of word order on listening comprehension and pattern retention: an experiment in Spanish as a foreign language	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships	English Spanish	Spanish	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Goh (1997) Metacognitive awareness and second language listeners	*English*	*Singapore*	17–20 21 and over	Higher education institution Post-compulsory education institution	Description	Other: *Chinese*	English	Other *No specific details are given. Students reported on their beliefs and strategies for listening in general.*	Listening comprehension is the main focus of the study.
Goh (1998). How ESL learners with different listening abilities use comprehension strategies and tactics	*English*	*Singapore*	17–20 21 and over	Higher education institution	Description Exploration of relationships	Other: *Chinese*	English	Other *The transcripts of recordings were read aloud by the researcher.*	Listening comprehension is a sub-focus/outcome of wider study.
Goh (1999) How much do learners know about the factors that influence their listening comprehension	*English*	*Singapore*	17–20 *inferred*	Higher education institution	Description	Other: *Chinese*	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Goh (2000) A cognitive perspective on language learners' listening comprehension problems	*English*	*People's Republic of China*	17–20 *inferred.* 21 and over	Higher education institution	Description Exploration of relationships	Other: *Chinese*	English	Lecture Audio-visual presentation Audio-recording Other *Students were asked to keep weekly diaries on all listening events as part of their listening course.*	Listening comprehension is the main focus of the study.
Goh (2002) Exploring listening comprehension tactics and their interaction patterns	*English*	*Singapore*	17–20	Higher education institution	Exploration of relationships	Other: *Chinese*	English	Other *Passages were read aloud by researcher (as stated in linked study).*	Listening comprehension is the main focus of the study.
Greenberg and Roscoe (1988) Echoic memory interference and comprehension in a foreign language	*English*	*Israel*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships	English	Spanish German	Audio-recording Other *No details are given – listening test is described as a 'test of responses to a standard set of spoken commands'.*	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Hagiwara and Kuzumaki (1982) An analysis of errors in listening dictation with specific reference to the cause of misperception of English pronunciation	*English*	*Japan*	17–20 *inferred* 21 and over	Higher education institution	Description	Japanese	English	Audio-recording	Listening comprehension is the main focus of the study.
Harley (2000) Listening strategies in ESL: do age and L1 make a difference?	*English*	*Canada*	11–16 *Inferred*	Secondary school	Evaluation: researcher-manipulated	Other: *Cantonese and Polish*	English	Audio-recording	Listening comprehension is the main focus of the study.
Herron *et al*. (1998) A comparison study of student retention of foreign language video: declarative versus interrogative advance organiser	*English*	*Probably USA*	17–20 *inferred* 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	French	Audio-visual presentation	Listening comprehension is the main focus of the study.
Herron and Seay (1991) The effect of authentic oral texts on student listening comprehension in the foreign language classroom	*English*	*USA*	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	French	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Hoeflaak and Verloop (2000) Vers une autonomie croissante de l'apprenant du francais langue étrangère	*French*	*Netherlands*	17–20 21 and over	Higher education institution	Description	Other: *presumably Dutch*	French	Audio-recording	Listening comprehension is the main focus of the study.
Huang and Eskey (1999-2000) The effects of closed-captioned television on the listening comprehension of intermediate English as a foreign language (ESL) students	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Evaluation: researcher-manipulated	Mixed: *Probably a mixed class at a summer school course*	English	Audio-visual presentation Other *A video of a TV programme*	Listening comprehension is the main focus of the study.
Issidorides and Hulstijn (1992) Comprehension of grammatically modified and nonmodified sentences by second language learners	*English*	*Netherlands*	17–20 21 and over	Other educational setting	Evaluation: researcher-manipulated	English Other: *Also Dutch and Turkish* Mixed	Other *Dutch*	Audio-recording	Listening comprehension is the main focus of the study.
Jensen and Hansen (1995) The effect of prior knowledge on EAP listening-test performance	*English*	*No details given*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	Mixed: *probably - no details given*	English	Lecture	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Jones and Plass (2002) Supporting listening comprehension and vocabulary acquisition in French with multimedia annotations	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English Mixed	French	Audio-visual presentation	Listening comprehension is the main focus of the study.
Kang (1999) Modelling relationships between the use of English as a second language learning strategies and the test performance of Asian students	*English*	USA	17–20 *Inferred* 21 and over	Higher education institution	Exploration of relationships	Mixed: *Asian students*	English	Audio-recording	Listening comprehension is the main focus of the study.
Kawai (2000) Effects of cultural contextualisation in listening materials on motivation and strategy use	English	*Japan*	17–20 *inferred* 21 and over	Higher education institution	Exploration of relationships Evaluation: researcher-manipulated	Japanese	English	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study
Kiany and Shiramiry (2002) The effect of frequent dictation on the listening comprehension ability of elementary EFL learners	*English*	*Iran*	17-20 21 and over	Higher education institution	Evaluation: researcher-manipulated	Other: *Iran: Farsi/ Arabic*	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Kim (1999) An exploration of listening comprehension linked to authentic input and language learning strategies in a second language	*English*	*South Korea*	17–20 *inferred* 21 and over	Higher education institution	Description Exploration of relationships Evaluation: researcher-manipulated	Other: *Korean*	English	Audio-recording	Listening comprehension is the main focus of the study.
Kohler (2002) The effects of metacognitive language learning strategy training on lower-achieving second language learners	*English*	*USA*	17–20 21 and over	Other educational setting *Missionary Training Centre, Provo, Utah*	Evaluation: researcher-manipulated	English	Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study
Krashen (1996) The case for narrow listening	*English*	*USA and Mexico*	21 and over	Other educational setting *Not limited to any specific setting*	Description	English	Spanish	Audio-recording	Listening comprehension is the main focus of the study.
Laviosa (2000) The listening comprehension processes and strategies of learners of Italian: a case study	*English*	*USA*	17–20 21 and over	Higher education institution Other educational setting *Not mentioned*	Exploration of relationships	English	Italian	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Long (1990) What you don't know can't help you: an exploratory study of background knowledge and second language listening comprehension	*English*	USA	17–20 21 and over	Higher education institution	Exploration of relationships	English	Spanish	Audio-recording	Listening comprehension is the main focus of the study.
Lund (1991) A comparison of second language listening and reading comprehension	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	German	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Markham and Latham (1987) The influence of religion-specific background knowledge on the listening comprehension of adult second-language students	*English*	USA	17–20 21 and over	Higher education institution	Exploration of relationships	Mixed: *Students were from over 30 different countries, from Europe, Asia, Africa, South America.*	English	Audio-recording	Listening comprehension is the main focus of the study.
Markham (1988) Gender and the perceived expertness of the speaker as factors in ESL listening recall	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	Mixed: *wide range of L1; 52% from Asia*	English	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study. *.*

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
McGruddy (1995) The effect of listening comprehension strategy training with advanced level ESL students	*English*	*USA*	21 and over	Higher education institution	Evaluation: researcher-manipulated	Mixed	English	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study.
O'Malley *et al.* (1989) Listening comprehension strategies in second language acquisition	*English*	*USA*	11–16	Secondary school	Exploration of relationships	Spanish	English	Audio-recording	Listening comprehension is the main focus of the study.
Osada (2001) What strategy do less proficient learners employ in listening comprehension? A reappraisal of bottom-up and top-down processing	*English*	*Japan*	17–20 21 and over	Higher education institution	Exploration of relationships	Japanese	English	Audio-recording	Listening comprehension is the main focus of the study.
Ozeki (2000) Listening strategy instruction for female EFL college students in Japan	*English*	*Japan*	17–20 21 and over	Higher education institution	Evaluation: Researcher-manipulated	Japanese	English	Audio-recording	Listening comprehension is the main focus of the study.
Parkinson *et al.* (1991) The reaction of learners to tape-based listening comprehension materials in French, Spanish and Italian 'community classes'	*English*	*Scotland*	17–20 21 and over	Higher education institution	Description	English	French Spanish Italian	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Peters (1999) The listening strategies of pupils in immersion classrooms of French as a second language	*French*	*Canada*	5–10	Primary school	Exploration of relationships	English	French	Audio-recording	Listening comprehension is the main focus of the study.
Reseigh Long (1991) Listening processes in authentic texts	*English*	*USA*	17–20 *inferred* 21 and over	Higher education institution	Description	English	Spanish	Audio-recording	Listening comprehension is the main focus of the study.
Ricci (1995) Effect of vocabulary journal writing on foreign language comprehension and vocabulary acquisition	*English*	*USA*	11-16	Secondary school	Evaluation: researcher-manipulated	English	Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Ruhe (1996) Graphics and listening comprehension	*English*	*Canada*	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	Other: *Variety of L1s, mainly Asian* Mixed	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Scott (1994) Auditory memory and perception in younger and older adult second language learners	*English*	*USA*	17–20 21 and over	Workplace	Exploration of relationships Evaluation: naturally occurring	English	Spanish	Audio-recording Other *Not stated – random digits and words/phrases are described as being read by a native Spanish speaker and a bilingual English/Spanish speaker.*	Listening comprehension is the main focus of the study.
Seo (2000) Intervening in tertiary students' strategic listening in Japanese as a foreign language	*English*	*Australia*	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	Japanese	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study.
Seya (1995) The linguistic impact of a study abroad programme on individual Japanese college students: a case study	*English*	*Canada*	17–20 21 and over	Other educational setting *study abroad programme*	Description Evaluation: researcher-manipulated	Japanese	English	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.
Shohamy and Inbar (1991) Validation of listening comprehension tests: the effect of text and question type	*English*	*Probably Israel*	17–20	Secondary school	Evaluation: naturally occurring	Other: *Presumably Hebrew – not clear*	English	Audio-recording	Listening comprehension is the main focus of the study.

A systematic review of the role of prior knowledge in unidirectional listening comprehension

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Smith (1980) A study of the effect of 'slowed speech' on listening comprehension of French	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	French	Audio-recording	Listening comprehension is the main focus of the study.
Tauroza and Luk (1997) Accent and second language listening comprehension	*English*	*Hong Kong*	11–16	Secondary school	Exploration of relationships	Other *Cantonese*	English	Audio-recording	Listening comprehension is the main focus of the study.
Teichert (1996) A comparative study using illustrations, brainstorming, and questions as advanced organisers in intermediate college German conversation classes	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English German	German	Audio-visual presentation	Listening comprehension is the main focus of the study.
Terrell (1993) Comprehensible input for intermediate foreign language students via video	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	Spanish	Other *Video*	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Thanajaro (2000) Using authentic materials to develop listening comprehension in the English as a second language classroom	*English*	USA	11–16 17–20 21 and over	Higher education institution	Description	Mixed	English	Audio-recording	Listening comprehension is the main focus of the study.
Thiele and Scheibner-Herzig (1983) Listening comprehension training in teaching English to beginners	*English*	*Germany*	11–16	Secondary school	Evaluation: researcher-manipulated	German	English	Audio-recording Other *Total Physical Response*	Listening comprehension is the main focus of the study.
Thompson and Rubin (1996) Can Strategy Instruction improve listening comprehension?	*English*	USA	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	English	Other *Russian*	Audio-visual presentation	Listening comprehension is the main focus of the study.
Thrall (1994) Conceptual level and students' approaches to learning Spanish as a second language	*English*	USA	17–20 21 and over	Higher education institution	Exploration of relationships	English	Spanish	Audio-recording	Listening comprehension is a sub-focus/outcome of wider study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Tsui and Fullilove (1998) Bottom-up or top-down processing as a discriminator of L2 listening performance	*English*	*Hong Kong*	17–20	Secondary school	Exploration of relationships	Other: *Cantonese and possibly others (reviewer's inference) since setting is Hong Kong*	English	Audio-recording	Listening comprehension is the main focus of the study.
Vandergrift (1998a) Successful and less successful listeners in French: What are the strategy differences?	*English*	*Canada*	11–16 17–20	Secondary school	Description Exploration of relationships	English	French	Audio-recording	Listening comprehension is the main focus of the study.
Vandergrift (1998b) Metacognition and listening comprehension in a second language	*French*	*Canada*	11–16 17–20	Secondary school	Exploration of relationships	English	French	Audio-recording	Listening comprehension is the main focus of the study.
Vandergrift (2002) 'It was nice to see that our predictions were right': developing metacognition in L2 listening comprehension	*English*	*Canada*	5–10 11–16	Primary school	Description	English	French	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Vanderplank (1988) Implications of differences in native and non-native speaker approaches to listening	*English*	*either Scotland or Finland*	17–20 21 and over	Higher education institution	Exploration of relationships	Mixed	English	Audio-recording	Listening comprehension is the main focus of the study.
Vanderplank (1993) 'Pacing' and 'spacing' as predictors of difficulty in speaking and understanding English	*English*	*UK (Scotland)*	17–20 21 and over *inferred*	Higher education institution	Exploration of relationships	French Italian Spanish Other: *Danish, Dutch, Russian* German	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Vanderplank (1981) Using the language laboratory to develop the listening ability of adult learners of English by means of practice in the perception of stress	*English*	*Morocco and UK*	17–20 21 and over	Higher education institution Post-compulsory education institution Other educational setting *British Council Language Centre, Rabat, Morocco*	Evaluation: Researcher-manipulated	Mixed	English	Audio-recording	Listening comprehension is the main focus of the study.
Vogely (1995) Perceived strategy use during performance on three authentic listening comprehension tasks	*English*	*USA*	17–20 21 and over	Higher education institution	Description Exploration of relationships	English	Spanish	Audio-visual presentation Audio-recording	Listening comprehension is the main focus of the study.
Young (1996) Listening comprehension strategies used by university level Chinese students learning English as a second language	*English*	*Hong Kong*	17–20 21 and over	Higher education institution	Exploration of relationships	Other: *Chinese*	English	Audio-recording	Listening comprehension is the main focus of the study.

Item	Language of report	In which country/countries was the study carried out? (Please specify.)	Age of learners (years)	What is/are the educational setting(s) of the study?	Which type(s) of study does this report describe?	First language of students	Language being studied	Type of listening activity	Focus on listening comprehension
Zhao (1997) The effects of listeners' control of speech rate on second language comprehension	*English*	*USA*	17–20 21 and over	Higher education institution	Evaluation: researcher-manipulated	Mixed: *Students were from China, Colombia, Korea, Taiwan, Turkey and Venezuela.*	English	Audio-recording	Listening comprehension is the main focus of the study.

Appendix 4.1: Details of studies in the in-depth review, measuring the impact of prior knowledge outcomes and data sources used for effect size calculation

Bacon (1992a)

Subjects listen to text on familiar (mean 1) and unfamiliar subjects (mean 2).
Outcome 1: Comprehension test scores
Outcome 2: Use of top-down strategies
Outcome 3: Use of bottom-up strategies

If the hypothesis that prior knowledge is important, then one would expect a positive effect size on outcomes 1 and 2. Presumably if students are using prior knowledge more in familiar texts (= top-down processing), then one would expect them to be using bottom-up processing less with familiar texts, leading to a negative effect size for outcome 3.

Bonk (2000)

The Review Group argues that lexical complexity is an aspect of prior knowledge. Students were tested after listening to passages with increasing amount of lexical complexity (defined as increasing amount of low frequency vocabulary) without varying any other aspects of the text. Presumably the argument is that, at lower levels of lexical complexity, students can make more use of prior knowledge (PK) in comprehension, whereas they are unable to use prior knowledge as much when the lexical complexity is greater. Effect size is calculated using passage 1 score = mean 2 (low lexical complexity = high PK). Passage 2 score = mean 1 (high lexical complexity = low PK). Mean 2 = mean 1/Baseline Standard Deviation to give Hedges corrected G.

Chiang and Dunkel (1992)

Students divided into two strata: higher (HILP) and lower (LILP) levels of English language proficiency, based on pre-intervention comprehension test scores. Within each stratum, students were randomly allocated into one of four groups conditions. Outcomes are differences in mean test scores.

Group 1 Outcome 1: HILP – Modified texts, familiar (with prior knowledge) *v* Unfamiliar (no prior knowledge) texts
Group 2 Outcome 2: HILP – Unmodified texts, familiar *v* Unfamiliar texts
Group 3 Outcome 3: LILP – Modified texts, familiar *v* Unfamiliar texts
Group 4 Outcome 4: LILP – Unmodified texts, familiar *v* Unfamiliar texts
Modification = elaborated information in the form of paraphrasing and repetition of information in the text

The study results are generally poorly reported. Specifically, no standard deviations or standard errors are given and the number of participants given in each group by the authors does not match the total *N* given in ANOVA analysis. Calculation of the effect sizes is therefore based on the assumption that the *N* for each group/condition is 45 as stated by the authors. The analysis used standard deviations from the study by Herron *et al*. for the intervention (0.12) and control group (0.1). The outcome reported in the Heron *et al.* study

used a scale of 0–1. The data given in Table 3 of the Chiang and Dunkel study were converted to the same scale by creating a % score for each group.

Chung (1999)

Students were divided into four groups. Each group watched four video clips in a different order. All the students in each group received the three experimental and the control conditions. This is equivalent to a non-randomised controlled experimental design with crossover. The outcome was a mean comprehension test score administered after watching each video.

Outcome 1: Advanced organisers (AO) *v* Control
Outcome 2: Captions *v* Control
Outcome 3: Captions plus AO *v* Control

Herron et al. (1998)

Study design of three groups: non-random allocation to two experimental conditions and control.

Herron 1 outcome: The intervention is a series of statements about the text (video).
Herron 2 outcome: The intervention is a series of statements and a question about the text (video).

In both cases, the sentences were written on the board and read out by the teacher. The control watched the video only and was the same for both experiments. The outcomes are scores in a comprehension test completed immediately after watching the video. The questions in the test were not related to the advanced organisers and could only be answered from the video text.

Jones and Plass (2002)

Participants were randomly assigned to one of four treatments with the listening text: (a) with no annotations available, (b) with only written annotations available, (c) with only pictorial annotations available, and (d) with both pictorial and written annotations. Outcomes are mean test scores for each group. Students undertook vocabulary and comprehension tests both immediately after watching the video and three weeks later. Effect sizes were calculated using the means and standard deviations for each group.

12 outcomes reported: 3 exp *v* control x 2 tests x 2 time periods

Kawai (2000)

Students were divided into two groups (non-random). Students completed listening comprehension tests after listening to texts that used culturally familiar nouns (e.g. Japanese Enka) (base culture oriented group – that is, prior knowledge) and after listening to similar texts which contained culturally unfamiliar nouns (e.g. college football) (target culture oriented group) to test the hypothesis that, by the use of proper nouns in the base culture context, achievement in listening comprehension will increase. Outcome used to calculate the effect size is the difference between the change in the pre-test and post-test scores of each group. No Standard deviations are given by the authors for these scores, so the post-test standard deviation from the control (TC) group was used as this provided the most conservative estimate.

Long (1990)

A single group of students listened to two texts – one about a subject of which they expected to have less prior knowledge (Ecuadorian Goldrush) and one which they were expected to have greater prior knowledge (the rock band U2). Comprehension was measured in two ways.

Outcome Long 1 is based on a measure of the difference in total number of idea units recalled. Outcome Long 2 is based on the results of the percentage of correct idea units selected from a checklist of items.

The effect size for both outcomes was calculated using the T-values given by the authors for the difference between the students for each set of text scores. The confidence intervals for outcome 1 were estimated using as a value for the standard error those estimated for the Markham and Latham paper outcome 'idea units' recalled, as the outcome and design of the study is similar. No standard errors are reported. The confidence intervals for outcome 2 were estimated using as a value for the standard error those estimated for the Jones and Plass study as the outcome measure and design of the study is similar.

Markham and Latham (1987)

Students were divided into three groups based on self-identified religious background, Moslem, Christian and neutral. Students listened to two texts – one about Christian religious practices and one about Islamic religious practices. Comprehension was tested by identifying the total number of major idea units, elaborations and distortions during a recall task conducted immediately after students listened to the tapes. The Review Group has concerns about the validity and reliability of the 'elaborations' and 'distortions' measures; therefore effect sizes were calculated only for the 'total idea units recalled' results. The effect sizes were calculated based on the difference between the mean scores within each group for the unfamiliar (mean 1) and 'unfamiliar' text – in effect, a single group pre- and post-test design. The standard deviation used in the effect size calculation is taken from the 'control' (i.e. unfamiliar text result).

For the 'neutral' students, the effect size is calculated based on the differences in mean number of idea units recalled in the Christian and Moslem texts. The standard deviation used was the average for the two scores. For this outcome, it is worth noting that, if the hypothesis that prior knowledge affects comprehension was true the expected results for this group would be no difference in the average scores between the two passages.

Osada (2001)

This study evaluated how Japanese students of English performed on comprehension tests requiring the use of top-down processing strategies and bottom-up processing strategies. Top-down processing strategies include the use of prior subject knowledge. The students listened to four different texts, which appear to have been similar in terms of difficulty. All the students were described as being of lower level ability in relation to English language learning but, for the purpose of the study, were divided into three ability groups based on scores in obtained in English proficiency tests carried out prior to the study. The study tested a number of hypotheses. In terms of the broad review question about the impact of prior knowledge in listening comprehension, the results from hypothesis 3 appear most relevant. After listening to texts, participants asked a series of questions divided into two types: local = questions which only require bottom-up processing, and global = questions which require use of top-down (prior knowledge) processing. Mean scores on the two sets of questions were compared. (Mean 1 = global, mean 2 = local). All participants described as low ability in terms of second-language learning.

Teichert (1996)

The study used a non-equivalent pre-test/post-test control group design. Students in the experimental group received several different advanced organisers, including illustrations, information about cultural background and questions on the topic before receiving the texts, and, in the control group, the texts were received without any advanced organisers. The experiment appears to have lasted for a whole semester. All students took the same standardised listening test before and after the experiment. The effect size was calculated using the mean post-test scores and standard deviations for each group.

Tsui and Fullilove (1998)

The mean scores of students studying English as a second language on different types of items were used for a test of listening comprehension. An 'item' is a multiple-choice question. These were categorised into questions which could only be answered through top-down processing (i.e. students getting a picture of the overall text = global questions) and questions which could be answered using bottom-up processing (i.e. listening to individual words and sentences = local questions). The Review Group argue that top-down processing involves the use of prior knowledge. The N for each group in this case is the number of global questions the number of local questions. Mean score is higher for top-down processing questions. The results suggest that students scored better on questions that allowed more top-down processing (i.e. more use of prior knowledge).

Vanderplank (1988)

In this study, native speakers (NS) and non-native speakers (NNS) of English listened to 10 recorded English texts with varying levels of complexity, including the extent to which participants were likely to have prior knowledge of the subject. Participants were asked to estimate the extent to which they comprehend each text through 'following' and/or 'understanding'. The author states that validity and reliability of self-categorisation of this kind had been previously demonstrated and that 'understanding' involves, among other things, the use of prior or pragmatic knowledge. The results are presented by the author in the form of the proportion of cases where 'following' was greater than, less than or the same as 'understanding' for the two groups. The effect size used here was calculated based on the difference in the percentage of cases where 'following' was greater than, or less than, 'understanding' between the two groups. There were fewer cases of understanding being less than following and more cases of understanding being greater than following in the NS group. The results suggest that the NS were able to, or did make, greater use of understanding (i.e. prior knowledge for comprehending the text).

Young (1996)

The study investigated students' self-reported strategy use in processing listening text. The only 'quantitative' results, which bear on the issue of prior knowledge, are those in which the learning strategy use of students with different levels of achievement are compared. Of particular relevance are differences in the use 'elaboration' strategies defined by the author as use of prior knowledge. The effect size is based on the MANOVA result reported for the achievement main effect on the frequency of use of listening strategies. The t-value was calculated from the p-value for 'elaboration' in Table 8 (p 155) and the sample size of the two groups.