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# IDENTIFICATION, EVALUATION AND ACQUISITION OF VOCABULARY FOR IELTS: A CASE STUDY OF THE IELTS ACADEMIC READING TEST AND MATERIALS FOR ITS ACQUISITION

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| | |
|---|---|
| AR | (IELTS) Academic Reading test |
| AFL | Academic Formulas List |
| AVL | Academic Vocabulary List |
| AWL | Academic Word List |
| BA | Bachelor of Arts |
| BEL | Basic Engineering List |
| BNC | British National Corpus |
| BSc | Bachelor of Science |
| CANCODE | Cambridge and Nottingham Corpus of Discourse in English |
| CATSS | Computer Adaptive Test of Size and Strength |
| CEFR | Common European Framework of Reference |
| CIPT | Cambridge IELTS Practice Tests |
| CLT | Communicative Language Teaching |
| COCA | Corpus of Contemporary American English |
| EAP | English for Academic Purposes |
| ELT | English Language Teaching |
| EEWL | Engineering English Word List |
| ETS | Educational Testing Service |
| GSL | General Service List |
| GT | (IELTS) General Training test |
| HE | Higher Education |
| IELTS | International English Language Testing System |
| KWIC | Key Word In Context |
| L1 | first – or native - language |
| L2 | second – or foreign - language |
| MSc | Master of Science |
| MAWL | Medical Academic Word List |
| MWE | Multiword Expression |
| MWU | Multiword Unit |
| NGSL | New General Service List |

OPAL Oxford Phrasal Academic Lexicon

PTE Pearson Test of English

PVST Phrasal Vocabulary Size Test

SiLT Studies in Language Testing, Cambridge English

SLA Second Language Acquisition

TOEFL Test of English as a Foreign Language

UWL University Word List

VST Vocabulary Size Test

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# INTRODUCTION: MAKING THE CASE

IELTS is taken annually by over 3.5 million candidates on an international level (IELTS.org, 2023)[1] and is recognized by over 10,000 Higher Education (HE) institutions around the globe (Chen & Liu, 2020). Jointly owned by Cambridge Assessment, the British Council and IDP Education, IELTS is one of the two largest providers of English language proficiency testing in the world (Isbell & Kremmel, 2020), alongside Educational Testing Service (ETS), the developers of TOEFL (Test of English as a Foreign Language). IELTS is offered in two different versions. The Academic module assesses readiness to study in an English-speaking HE environment, and in 2021 75.5% of test takers sat this version (IELTS.org, 2023)[2]. The

[1] An IELTS.org news article about numbers of test-takers: https://www.ielts.org/news/2019/ielts-grows-to-three-and-a-half-million-a-year

[2] The IELTS.org page with test statistics: https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

General Training (GT) module, on the other hand, targets purposes of work, immigration and study below degree level, and was taken by 24.5% of the total IELTS candidature according to the most recent statistics (IELTS.org, 2023, see footnote 2).

The Academic module of IELTS is accepted or even required for entry into most universities in the English-speaking world, but is also increasingly a requisite for admission into English-medium university courses outside the Anglosphere, as a result of the rapid process of internationalization of HE (Macaro, Curle, Pun, An & Dearden, 2018). Progressively more courses at undergraduate and postgraduate level are being provided using English as the medium of instruction even though they are not situated inside the English-speaking world (Lasagabaster, Doiz & Sierra, 2014). The reasons for this development are many and varied, and include the drive to attract international students, and also the weight and status of English as the international language of academia (Macaro et al., 2018). As a consequence, university students today need to be functional in English to certain levels of proficiency in order to be able to take part in and complete their courses of study. Prospective students need to provide proof that they possess the level of English required for the courses they want to enroll in, and IELTS is increasingly accepted by universities to ascertain these levels of proficiency in English. Supplying proof of sufficient English mainly affects international students, as home students are often accepted on the basis of their English results from school (e.g. in Sweden[3] or the Netherlands[4]).

[3] University admissions data for Sweden: https://www.universityadmissions.se/en/entry-requirements/english-language-requirements/

[4] Entry requirements for the Univesity of The Hague (Netherlands): https://www.thehagueuniversity.com/study-choice/applications-finances-and-moving-here/applying/entry-requirements

However, there are countries where this is not the case (e.g. Italy[5]), and these students too need some form of English certification; IELTS is increasingly accepted for application purposes in these contexts also. Passing IELTS Academic with a good score has therefore become a goal for millions of students across the globe, making IELTS a major gatekeeper English language examinations today, alongside competitor exams TOEFL and the Pearson Test of English Academic (PTE Academic).

The aim of the test is to establish the extent to which candidates' proficiency in English will enable them to study at HE level in an English-speaking environment. It claims to achieve this by assessing candidates' ability to communicate in English (IELTS.org, 2023)[6] through the four separate tests Listening, Academic Reading (from here on, AR), Academic Writing, and Speaking. The exam does not specifically test knowledge of grammar or vocabulary. Rather, assessment of both grammar and vocabulary is embedded within the Speaking and Academic Writing tests, as can be seen from the descriptors of the different level bands for the two tests (see Appendix 1 and 2). The Listening and AR tests do not specifically assess language at all and focus exclusively on testing the target language skills. The example AR and Listening test questions in Figures 2.2 to 2.5 illustrate this feature of the exam, which is explored in detail in Chapter 2.

Although the minimum scores required for admission at HE institutions can vary greatly, most universities seem to position the cut-off score at 6.0 – 6.5 (Pearson, 2021), i.e. a level B2 on the

[5] Entry requirements for Politecnico di Torino (Italy): https://didattica.polito.it/lauree_magistrali/2021/it/requisiti_linguistici_ingegneria_interni

[6] The description of IELTS on the official website: https://www.ielts.org/about-ielts/what-is-ielts

Common European Framework for Reference (CEFR) level B2 (IELTS.org, 2023)[7]. Some examples of IELTS scores required in Europe are shown in Chapter 2 (Table 2.1), where the IELTS scoring system is discussed, as well as the use made of the scores. Some universities require specific band scores in each of the four IELTS papers, while at others the requirement regards the overall score. A minimum overall score of 6.5 is typically demanded at undergraduate level, while scores at CEFR level C1 (IELTS 7.0 – 8.0) are often the requirement at Master's level or for degree courses that involve large amounts of reading, writing and speaking at high-proficiency levels.

## i. Passing IELTS successfully

IELTS candidates often approach the exam with little to very little time to prepare due to short deadlines imposed by university application procedures as well as by career opportunities and requirements. The English language requirements that are typically part of these procedures and career developments may involve attaining IELTS scores that are above the candidates' current level of proficiency. As a result, candidates can find themselves in the need of improving their ability in English in a short period of time.

Prospective IELTS candidates are well-served with regard to developing the four language skills of reading, listening, speaking and writing, as well as exam technique, thanks to the profusion of training materials and sources of information that are widely available. The three official IELTS webpages www.ielts.org, www.idp.com and takeielts.britishcouncil.org provide a variety of

[7] IELTS mapped onto the CEFR scale: https://www.ielts.org/about-ielts/ielts-in-cefr-scale

free training videos, activities and exercises, as well as practice test questions. Short online courses are available for payment, as are services such as IELTS writing task correction by expert staff. The main ELT publishers list numerous IELTS training materials and coursebooks in their catalogs. Finally, the internet is an endless source of material, both free and commercial, at variable degrees of quality and reliability. Some of these materials are discussed in Chapters 2, 3 and 6 in relation to vocabulary learning for IELTS.

When it comes to improving language ability towards the exam, however, the situation changes radically. Official information about IELTS provides little explicit news about grammar and vocabulary in and for the exam, despite the fact that candidates seeking to resit the exam are advised to "work to improve their English" (IELTS, 2019a, p.29). The official IELTS websites are devoid of a specific language development program or materials, beyond a handful of short pages and videos on a small selection of grammar and vocabulary issues. The advice given as to what to work to improve is not supported with sources of grammar explanations, vocabulary lists, language development or practice. Furthermore, it is questionable whether candidates at lower levels of proficiency are even able to understand the advice provided. Some examples of such material can be seen in Chapter 2, which explores the issue of preparing for IELTS, as part of an overview of the test (Figures 2.17 and 2.18).

Any specific clues as to the language necessary for attaining the different IELTS scores can only be found with regard to the Speaking and Writing tests, in the band descriptors for these papers available through the official websites (see Appendix 1 and 2). However, a systematic approach to developing the language that characterizes each band level is neither provided nor proposed on the official IELTS

websites. Band-level-based textbooks normally include grammar and vocabulary sections, e.g. the Cambridge *Mindset* series (Crosthwaite, De Souza & Lowenthal, 2017), or Macmillan's *Ready for IELTS* (McCarter, 2017). However, these only make up a part of the books' content, most of the space being dedicated to training students to deal with the various test items and improve their overall performance in the four IELTS papers. In any case, only a limited number of published textbooks are endorsed by the IELTS organization, and therefore most of these materials cannot reliably be considered sources of information and development towards the exam. At the same time, the very absence of clear and systematic information from IELTS on language content and development in and towards the exam raises questions as to the grounding of publications issued both by, or independently of, the IELTS organization.

As stated above, grammar and vocabulary are only specifically tested in the Speaking and the Writing test of IELTS, as shown in the band descriptors (see Appendix 1 and 2), while they are not assessed in the Listening and the Reading tests (IELTS.org, 2023). However, this language assessment is comprehensive rather than discrete. This means that there are no questions that specifically test grammar or vocabulary, but rather that the evaluation of language knowledge is embedded within the larger construct of testing oral or written communicative ability. In fact, the preparation strategy proposed on the official IELTS webpage[8] makes no explicit reference to language learning, and instead suggests that prospective candidates understand and gain familiarity with the test format and test questions by doing practice tests.

[8] Suggestions on the official webpage for how to prepare for IELTS: https://www.ielts.org/for-test-takers/how-to-prepare

Commercially available textbooks for IELTS preparation issued by the main publishers in the sector seem to have adopted a similar approach. They typically focus mainly on developing exam skills in listening, reading, speaking and writing. The language work included seems to be aimed less at overall proficiency development than at improving performance in the Writing tasks and at handling typical questions in the Speaking test. Given the absence of guidelines from the IELTS organization with regard to grammar and vocabulary in the exam, it is unclear how the language development component is informed in these textbooks. Some examples of grammar and vocabulary work extracted from books listed in publishers' 2023 catalogs are provided in Figures 2.14, 2.15, 2.16, 3.13 and 3.14.

Clearly, this skills-based approach works for many people. Although IELTS does not publish data on success rates, the fact that millions of students around the world sit the exam and successfully enroll for university study seems to indicate that the approach is effective. Recent research suggests that taking exam training courses that focus on practice tests and test technique can lead to small but determining score increases (Trenkic & Hu, 2021). However, an unknown number of these annual exam candidates are retakers. IELTS does not differentiate between first-time candidates and retakers in their test statistics (IELTS.org, 2023)[9], but re-sitting the exam is obviously necessary for students who fail, and it is allowed by IELTS without limitations, as explained on their dedicated webpage (IELTS.org, 2023)[10]. In fact, Hamid (2016, p.475) posits that there are probably more retakers than first-time candidates in any given year. Some resits are of course not the product of failure

[9] Most recent statistics on IELTS test-taker performance: https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

[10] Information on re-sitting IELTS: https://www.ielts.org/for-test-takers/resitting-the-test

but of new needs that arise in the lives of test-takers who already hold an IELTS score that is insufficient for subsequent admission, career or immigration requirements (Sinclair, Larson & Rajendram, 2019). In any case, a resit aims to attain a higher score than that obtained in a prior attempt. Although greater familiarity with the test format and question types can lead to score improvements, as shown in the study by Trenkic and Hu (2021), any major rise in results can only be the outcome of increased language proficiency. In fact, IELTS advises candidates that "they are unlikely to gain a better score unless they work to improve their English" (IELTS, 2019a, p.29). This suggestion is in contrast with the general strategy for preparation for IELTS currently promoted by the organization and supported by published pedagogical materials.

Trenkic and Hu (2021) found that the – small but significant - increase in overall scores that resulted from intensive familiarization with the test format in their study did not spill over to other improvements of language ability. Thus, the teaching-to-the-exam approach could be failing those candidates who need to make a larger improvement in their overall scores. In fact, the likelihood that large numbers of IELTS candidates may be retakers (Hamid, 2016) indicates that the strategy may not be working for all candidates, and that a different strategy is (also) needed.

If a preparation scheme based primarily on skills training proves inadequate or insufficient, the obvious alternative is a program of study aimed at improving language knowledge. In fact, and as noted above, IELTS advises students to "work to improve their English" (IELTS, 2019a, p.29) before attempting to retake the exam, and to "keep in mind that your score is unlikely to improve without a significant effort to improve your English" (IELTS.org, 2023 - see footnote 10 above). Surprisingly, no details are provided as to how

this could be carried out. Improving language proficiency, of course, requires time and dedication. However, in the context of IELTS, and as outlined above, longer periods of study are often not possible. Moreover, there is research that suggests that dedicating a long time to preparing for IELTS does not necessarily result in relevant score gains (Green, 2004). The question then becomes how language knowledge can be improved rapidly. This thesis posits that with a view to passing IELTS Academic successfully, a possible way forward may lie in learning vocabulary.

## ii. The role of vocabulary in IELTS Academic

Most would agree that vocabulary is essential for communication in general, as "words are the basic building blocks of language" (Read, 2000, p.1). Research shows that over 60% of the variances between CEFR levels can be attributed to vocabulary size (Milton, 2010, p.211). In an exam that measures communicative ability as is IELTS, vocabulary should intuitively be a major factor. However, neither grammar nor vocabulary are tested in the IELTS AR or the Listening test, and in the Speaking and Academic Writing tests language use is evaluated as part of the broader perspective of overall performance and communicative ability, as can be seen from the assessment criteria (Appendix 1 and 2). Nonetheless, IELTS Academic makes strong lexical demands throughout all four papers that the exam is composed of. Candidates must manage a sequence of long, lexically dense texts in the AR paper, cope with a succession of increasingly difficult passages in the Listening test, and coherently discuss a variety of issues while displaying lexical variety, flexibility and accuracy in the Speaking and the Academic Writing tests. A high percentage of the questions in the AR and the Listening test require knowledge of synonymy and paraphrase in order to identify the

correct answer. Thus, learning vocabulary for the exam should be of great relevance to IELTS candidates.

'Learning vocabulary' is of course a very broad and loosely defined concept. Put simply, increasing knowledge of vocabulary can occur in terms of size, i.e. learning more vocabulary, and in terms of depth, that is, learning more about the vocabulary already known. These two dimensions of vocabulary knowledge have long been of interest in the literature, and are discussed in Chapter 1. With regard to IELTS, there is research that suggests that vocabulary size in particular may positively impact overall scores in the exam, as candidates achieving higher scores unsurprisingly seem to possess larger vocabulary sizes (Bax, 2013; Drummond, 2018). Therefore, it would appear that, in general, increasing vocabulary size should be of significant value to IELTS candidates and their teachers.

When considering vocabulary size, a distinction should be made between what is conventionally called receptive and productive vocabulary size. These two aspects of lexical knowledge have been the object of a vast production of research, which is reviewed in Chapter 1 of this thesis. The literature is divided as to the conceptualization of the two aspects of vocabulary knowledge (see Schmitt, 2010, pp.80-87 for an overview). However, for the sake of providing a brief definition, receptive vocabulary size is generally understood to mean how much vocabulary is known at an aural or written comprehension level. Productive vocabulary size, on the other hand, denotes how much vocabulary any given language user can produce when speaking or writing. Developing productive knowledge of vocabulary tends to occur through a gradual process involving extensive and continuous interaction with and use of the target language. By contrast, it seems that vocabulary can be increased more rapidly for receptive purposes, particularly in terms

of orthographic knowledge, that is, for the recognition and comprehension of written lexis (Nation, 2013; Sökmen, 1997; Webb & Nation, 2017). Receptive knowledge of written vocabulary can increase swiftly because it involves a small number of variables. In fact, Schmitt (2014, p.919) suggests that in the context of reading, receptive knowledge largely consists in form–meaning knowledge. Receptive aural knowledge, not to mention productive vocabulary knowledge, involve a far broader range of variables, from phonological knowledge to grammar and spelling. As a consequence, if a large sight vocabulary can be developed relatively quickly, this could positively impact IELTS reading scores, as is discussed in detail in Chapters 5 and 6.

The Reading test is one of the IELTS papers where candidates worldwide attain their highest scores, according to 2021 global IELTS test performance statistics (IELTS.org, 2023 – see footnote 9 above). This could lead to the conclusion that efforts to prepare for IELTS are best dedicated to the other tests. However, it should be borne in mind that the overall score in IELTS is the average of the individual scores obtained in each of the four tests that compose the exam. Clearly, in order to adequately prepare for IELTS it is necessary to work to improve performance in the tests that present most difficulty. At the same time, an equally effective strategy for success in IELTS can be to work to improve performance in the papers in which good scores are more likely to be achieved. Attending to strengths might impact overall exam scores as significantly as the obvious strategy of attending to weaknesses, with the advantage that building on strengths might render results more quickly. As speedy learning processes are fundamental for IELTS preparation, and given the research findings outlined above regarding the development of receptive vocabulary knowledge, the present thesis postulates that focusing attention on increasing

receptive vocabulary size for the AR test could be an optimal path to pursue with a view to success in IELTS.

### iii. Vocabulary for IELTS Academic Reading (AR)

The key role of vocabulary in reading is intuitively evident and it is also well established in the literature (Cheng & Matthews, 2018; Laufer & Ravenhorst-Kalovski, 2010; Masrai, 2019; Nation, 2001; Read, 2000; Schmitt, Jiang & Grabe, 2011). Without the recognition and comprehension of the words in a text, little reading comprehension can occur. Exactly how much vocabulary needs to be recognized in a text for sufficient comprehension to occur is still a matter of debate, although 98% percent is the figure that has found most favor in the literature (Hirsch & Nation, 1992; Hu & Nation, 2000; Nation, 2001, 2006). These research findings imply that quite a large vocabulary size is needed for reading.

As outlined above, and as is discussed in depth in Chapters 2, 3 and 4, the AR test makes strong lexical demands on the test taker, in spite of the fact that vocabulary is not actually assessed in this test. Candidates have one hour to read three long texts and answer 40 questions about them. The reading texts are shortened versions of passages taken from real-world sources such as science magazines and non-fiction books, cut to the IELTS length of 800-900 words. The AR passages are not simplified to fit any given learner level, and may be quite lexically dense, i.e. they can include relatively high proportions of content words, although not specialist terms. The test questions assess reading skills rather than language knowledge, and range from testing "detailed understanding of specific points" to "an overall understanding of the main points of the text", "recognize[ing] opinions or ideas", "distinguish[ing] main ideas from supporting ones", "recognize[ing] relationships and connections between facts"

or "locat[ing] specific information" in the passage (IELTS.org, 2023)[11]. However, close scrutiny of the test questions reveal that a great many require the ability to recognize synonymy and paraphrase in the wording of the question and the part of the text that supplies the answer. Thus, overall, a good knowledge of vocabulary is of great importance for success in this test, alongside robust reading skills.

## iv. Framing the problem

Given the relevance of a strong vocabulary knowledge for the AR test, it should be of great interest to test-takers, teachers and materials writers to gain an understanding of the vocabulary that can help IELTS candidates attain a useful score in this test. Yet when seeking to develop this knowledge, the interested parties encounter a glaring lack of official information, dedicated training material and research.

The primary source of information about all issues regarding the exam should be the IELTS organization itself, through the websites of the three partners that make up the consortium – Cambridge Assessment English[12], IDP Education[13] and the British Council[14] – and through the various information brochures and handbooks, which can be downloaded from these official websites. A perusal of these media reveal very little about vocabulary and the exam, as is discussed in depth in Chapter 2. No set vocabulary syllabus is mentioned, and the organization makes no official statement as to what vocabulary is useful for the different parts of the exam, or how

[11] The official description of the AR test can be found here: https://www.ielts.org/about-the-test/test-format
[12] The main IELTS website, managed by Cambridge Assessment English: www.ielts.org
[13] The IDP website for IELTS: https://ielts.idp.com/
[14] The British Council website for IELTS: https://takeielts.britishcouncil.org/

large this vocabulary might be. In fact, none of the official IELTS media specifically address systematic vocabulary learning for any paper in the exam.

Some useful information about vocabulary and IELTS may be gained from published research. At the same time, using research as a resource for IELTS preparation poses a number of problems. In the first place, it is doubtful that the average exam candidate or busy classroom practitioners have the time or even the necessary background to exploit this literature for exam preparation. More likely beneficiaries might be materials writers, although a problem identified in recent research on vocabulary pedagogy is that there may be little contact between the worlds of textbook writing and academic research (Schmitt, 2019). Secondly, many of the investigations available to the scientific community are produced for and within the IELTS consortium in their Research Reports (IELTS.org, 2023)[15]. This research is guided by the specific interests of the organization, which are, logically, geared towards the improvement of the examination from a technical point of view and not towards revealing details that might help candidates perform better. Nonetheless, researchers and materials writers can glean useful insight from these studies with regard to vocabulary and IELTS AR, as is discussed in Chapter 3. A further problem posed by research as a resource for IELTS preparation is that published research on vocabulary and IELTS largely focuses on the tests of the productive skills – the Speaking and the Writing papers, while the Listening and the Reading papers have to date garnered far less research attention with regard to vocabulary.

[15] IELTS Research Reports can be accessed from this webpage: https://www.ielts.org/for-researchers/research-reports

All the major English Language Teaching (ELT) publishers list some form of IELTS training materials in their catalogs, and all such materials include some vocabulary work. Some examples are provided in Figures 2.14 - 2.15. However, as the sample pages in the figures reveal, this vocabulary work tends to be heavily skewed towards the Speaking and the Writing papers. Furthermore, the criteria used to select the vocabulary covered is typically not made explicit, and given the scarcity of officially disseminated information about vocabulary in IELTS, it is unclear how these materials are informed. This unsatisfactory state of affairs is studied in Serrano van der Laan (2020) and correlates with numerous studies of vocabulary learning materials, which reveal an overarching approach to vocabulary teaching and learning that is haphazard and unprincipled (Acosta Moncada et al., 2016; Demetriou, 2017; Folse, 2004; Lawley, 2010a; López-Jiménez, 2010, 2013; Milton, 2009; O'Loughlin, 2012; Schmitt, 2019). A discussion of the state of the art of vocabulary in published training materials for IELTS is provided in Chapter 3.

To sum up, the sources that can offer information and guidance for IELTS preparation – the exam provider, training materials and research – supply little information about vocabulary and the exam. What little information and pedagogical resources that are available on vocabulary in IELTS Academic regard the Speaking and Academic Writing tests, while vocabulary in connection to the AR and Listening papers is essentially not addressed. The present thesis seeks to shed light on this unknown territory by investigating the vocabulary in IELTS AR, with the ultimate aim of identifying some pedagogically useful guidelines for vocabulary learning towards success in this test.

## v. Aim, research questions and scope of the thesis

This thesis sets out from the belief that knowledge of what and how much vocabulary to learn for IELTS AR should be highly useful for IELTS candidates and their teachers, and could also allow materials writers to produce better informed and therefore more useful IELTS training materials. After all, and to quote Schmitt (2010b, p.29), "[i]n order to understand the best way to help learners acquire vocabulary, one must first know the extent of the vocabulary learning task".

The relevance of vocabulary to the AR test has been introduced in Section III above, and Section IV outlined the surprising absence of information and research about vocabulary and the AR test. This thesis aims to identify the vocabulary that appears in AR texts, and to propose a finite number of lexical items that should make a strong contribution towards achieving an IELTS score higher than 6.5 in the AR test, considering that an overall score of 6.5 is typically the minimum HE entry requirement. The ultimate aim of the thesis is to provide pedagogically useful information about vocabulary in the AR test that may help exam candidates, teachers, and materials writers faced with training for IELTS. These aims can be reformulated into the following research questions:

(a) what vocabulary is typically present in IELTS AR texts in terms of frequency, formulaicity and genre (academic or general vocabulary)?

(b) how much of this vocabulary can help to pass the test with a score higher than 6.5?

The present investigation centers on the reading test in the IELTS Academic module – the AR test - and wholly disregards the reading test in the other existing version of IELTS, the GT module. This choice was determined by two main considerations. First of all, the Academic module of IELTS has far greater diffusion compared with the GT test, as shown by the test statistics mentioned at the beginning of this Introduction (IELTS.org, 2023 – see footnote 9 above). A second consideration was that the author's pedagogical experience of and familiarity with IELTS almost exclusively regards the Academic module. An English instructor at a public Italian university for over 20 years, her students have almost exclusively sat IELTS Academic. This has allowed her to develop an in-depth familiarity with, and insight into, this version of the exam. By contrast, she has only been able to develop minimal practical knowledge of the GT module. The author's ultimate aim is to help university students such as hers pass IELTS successfully, and therefore investigating the Academic test rather than the GT test was an obvious choice.

As a completely independent study, that is not funded, commissioned, supported or endorsed by IELTS or any other examination board or by any publisher, the present investigation only had access to publicly available IELTS material. This essentially consists in the free test sample materials supplied on the official IELTS websites and the volumes of past papers published on a more or less annual basis by Cambridge University Press, the aim of which is to provide test practice material for prospective candidates. This thesis analyzes the AR passages in six of these Cambridge IELTS Practice Tests (from here on, CIPT) volumes, namely Cambridge IELTS 4 (2005) - Cambridge IELTS 9 (2013) (see Figure 4.1), for a total of 72 texts, in order to identify the vocabulary used in them and thus answer the research questions leading this thesis.

As the source material analyzed was restricted to the six CIPT volumes selected, it is possible that the conclusions drawn in this thesis may not fully extend to effective IELTS AR tests, since these could include texts with a wider lexical variety than that which appears in the texts chosen for this investigation. Nonetheless, the findings of this investigation should provide insight into the test that could be of great use to both prospective IELTS candidates and their teachers. The main contribution of the present study consists in proposing an answer to the "what words should I learn" and "is this enough" questions that inevitably assail the student or the teacher facing vocabulary learning for IELTS. The thesis identifies for the first time a possible vocabulary syllabus for IELTS AR and lays the ground for developing a principled approach to acquiring this vocabulary. It also hopes to prove a useful contribution to pedagogically-orientated research on vocabulary learning and teaching in general.

## vi. Structure of the thesis

After this introductory chapter, Chapter 1 provides an overview of the main themes raised by this investigation, identifying and discussing the key underlying theoretical issues. First, the chapter discusses some categories of vocabulary that have an important bearing on reading, namely high- to low-frequency lexis, formulaic language, and academic vocabulary. The state of the art of current knowledge on these categories is discussed, and their relevance to IELTS AR is established. Then, the relationship of vocabulary to reading comprehension and ability is described and discussed, with reference to the most relevant literature on the matter. In the second half of the chapter, the issue of learning vocabulary is addressed. First two opposing approaches to vocabulary acquisition are discussed, incidental or direct learning, and reviews the

sometimes irreconcilable debate around the optimal approach. Most of the authoritative points of view in current literature promote a well-balanced mix of the two approaches. How realistically such an approach might be applied to learning vocabulary for IELTS is discussed.

The role of textbooks in the vocabulary learning process is examined after this, given the extended reliance of both teachers and learners on published learning materials. The relationship between materials writing and research is examined, and the effect of this relationship on how textbooks are informed by research and pedagogical principle is discussed with regard to their vocabulary content. Some important failings of textbooks identified by the research with regard to vocabulary learning are highlighted.

Given the relevance of direct learning of vocabulary for exam preparation, the chapter then reviews two important pedagogical instruments: word lists and word cards. The chapter overviews some influential word lists and describes some of the pedagogical principles underlying their design, as well as the research that supports their usefulness. Critical views of word lists are also reviewed. The last part of the chapter casts a glance at the specific task of learning vocabulary for exams, and at the state of the art of teacher-support materials in this area.

Chapter 2 offers an overview of IELTS Academic in order to provide sufficient background for the investigation of the AR texts developed in the central chapters of the thesis. The chapter describes the test format in detail, as well as its administration and declared assessment aims. The assessment construct adopted by IELTS is examined and compared to other well-known English language tests. The scoring system used in IELTS is explained and its correlation

with the CEFR is discussed, and the relationship of IELTS scores with HE admission requirements around the world is discussed both objectively and critically. Differences between countries and between different levels of HE are pointed out. The relevance of IELTS in the sphere of English language testing and in the context of global HE is discussed, with reference to the test's central role as gate-keeper to HE and the socio-economic and educational impact this awards the test.

IELTS is critically analyzed from a number of perspectives in Chapter 2. With regard to IELTS preparation, the chapter examines how the exam providers describe the test and the type of preparation they propose for it, and compares this to publicly available sample test materials and the linguistic demands they effectively seem to make. Published test-training materials appear to follow the guidelines disseminated by IELTS. These preparation strategies are contrasted with test-taker approaches to the test, where time seems to be the determining factor. The chapter shows that IELTS candidates tend to have narrow time-frames for test preparation, and discusses how well the IELTS guidelines and practice material, as well as published training materials and preparation courses, match this learner reality. The main flaw of the construct seems to be that the needs of those candidates who need to significantly increase their scores are unsuitably catered for with these preparation approaches. The relevance of vocabulary knowledge for IELTS is examined in the light of these test-takers' needs and of the preparation strategies and materials mostly available today.

Another dimension of IELTS that is critically analyzed in Chapter 2 is the way IELTS scores are interpreted and used. On the one hand, the chapter shows that the test's validity as a predictor of students' ability to function in an English-speaking HE environment is strongly

debated in the literature, although the test is largely used to ascertain exactly this ability. On the other hand, insufficient assessment literacy on the part of the staff in charge of processing IELTS scores is identified as highly problematic from both a practical and an ethical point of view. Finally, Chapter 2 reviews voices that are critical of IELTS' gatekeeper role, given the socio-economic, and even political, impact this has on students, universities and societies as a whole. The role played by IELTS in the commodification of HE is also examined in this chapter.

Chapter 3 narrows the focus to IELTS AR, exploring the role vocabulary plays in this test. An overview of the test strongly suggests that knowledge of vocabulary is crucial to success in IELTS AR, both with a view to understanding the reading passages and to correctly answering the questions. Some example texts and questions are examined, and evidence of the key role of vocabulary is discussed. The chapter highlights the conspicuous dearth of reference to vocabulary in relation to the AR test in official IELTS information and training materials, and goes on to examine other authoritative sources of knowledge about vocabulary and IELTS AR. First, the existing literature on IELTS is perused in search of direct and indirect knowledge about vocabulary and the AR test. Secondly, IELTS textbooks are surveyed for their vocabulary-learning content. The main insights gathered from each of the two sets of sources, literature and textbooks, are provided in list form and then discussed critically. Comparisons are made between the knowledge about vocabulary and the AR test conveyed by these sources and what the official channels of information about IELTS communicate. Discrepancies and gaps between the two sources and the official channels are pointed out and discussed.

Chapters 4 to 6 constitute the main body of the investigation. Chapter 4 is a study of the AR passages in the six CIPT volumes selected for this investigation, with the aim of providing background for Chapter 5, which analyzes the vocabulary in these texts. After a description of the CIPT volumes and an explanation of the choice to use them as source material in this investigation, Chapter 4 describes and analyzes the AR passages in the six CIPT volumes selected for study, comparing them with the information published by IELTS about the AR test. Their average length and structure are analyzed, and their sources are identified and researched. Their adscription to recognizable genres is discussed, with a particular emphasis on the appropriateness of labeling the texts as academic. The topics covered by the passages are identified and the issue of text authenticity is discussed.

Chapter 5 consists in an in-depth analysis of the vocabulary in the AR passages in the six CIPT volumes selected for this investigation, first in terms of individual words and then in terms of multi-word units (MWUs, Martinez & Schmitt, 2012). The tools selected to perform the analysis are described, and the reasons for their choice are discussed. Detailed descriptions of the procedures followed are provided. The results of the analysis are provided separately for individual words and MWUs. The findings are discussed and some pedagogical implications are considered

Chapter 6 examines the practical application of the findings reported in Chapter 5. First, a possible minimum vocabulary is explored, that could facilitate attaining an IELTS score of 7.0 in the AR test, on the basis of the vocabulary identified in Chapter 5. After that, different ways of learning this vocabulary are considered, within an overall approach based on self-study. Existing tools and materials are discussed that could be suitable for learning IELTS AR vocabulary,

and possible future materials are explored. The usefulness of using a vocabulary knowledge test to develop vocabulary-learning programs tailored to candidates' individual needs is argued. To this purpose, some relevant existing vocabulary knowledge tests are reviewed.

Finally, Chapter 7 concludes the thesis, summarizing and reviewing the main findings and their possible pedagogical applications, and exploring their implications for preparing for IELTS as well as their wider implications in terms of vocabulary learning and teaching more generally. Some limitations of the present investigation are discussed, and suggestions for future research are advanced together with proposals for practitioners involved in IELTS training.

The references used in this thesis are provided in the List of References, and supplementary documentation such as sample IELTS test material is supplied in the Appendices.

# 1. THEORETICAL BACKGROUND

That vocabulary is crucial to language learning is an obvious notion to any language learner. Although less evident at first glance when preparing for IELTS AR, it soon becomes clear that vocabulary is a major underlying factor in the test. Vocabulary learning, however, is no simple task, whether for general purposes or with a view to success in IELTS. The sheer number of items to learn, the complexities intrinsic to lexical items and to using them, and identifying suitable and effective learning strategies and materials are among the many causes of difficulty. When learning vocabulary it is easy to feel overwhelmed by a task that never seems to end – there is always more vocabulary to learn – and it can be difficult to see any order that might structure the learning process. Vocabulary appears so much less tidy and systematic than grammar.

Yet research has done much to help make vocabulary learning more tidy, and the field has developed an array of instruments and learning approaches that help provide important degrees of order to vocabulary learning. Some key issues that have been brought to light are particularly relevant to vocabulary learning in the context of preparing for IELTS AR. Among these issues are the fact that some words are more frequently used than others, making them particularly useful to learn; that some words are characteristic of an academic context while others are more common in general usage; that many highly frequent individual words very often are part of longer formulaic constructions. Research has also facilitated a better understanding of what is involved in receptive and productive vocabulary knowledge, and of the differences between size and depth of vocabulary knowledge. Concrete figures have been identified to answer the question of how many words must be known in order to read different types of non-graded texts, and different degrees of text coverage have been calculated on the basis of the number of known and unknown words in a text. The recent rapid developments of digital corpora have made it possible to create a number of corpus-based, pedagogical word lists and tools that are of great utility for vocabulary learning. Different approaches have been suggested for the efficient use of these lists.

This chapter discusses all the above issues, in a critical overview of the theoretical background that underpins the present investigation. As the subject of this thesis is vocabulary and the IELTS AR test and possible materials for its acquisition, the chapter focuses on issues around vocabulary knowledge and learning that have a bearing on reading, and more specifically, on reading in IELTS AR.

## 1.1. Two important dimensions of vocabulary knowledge

This subsection explores two important dimensions of vocabulary knowledge with a key bearing on reading. First, receptive and productive vocabulary knowledge is discussed. This is followed by a review of breadth (or size) and depth of vocabulary knowledge. The two dimensions are therefore discussed separately, but in reality the boundaries between them are not easy to establish. In fact, Schmitt (2014, p.919) proposes that receptive/productive knowledge of lexical items are dimensions of depth of knowledge, as the two aspects of word mastery involve different amounts of knowledge about a given lexical item. Specifically, receptive knowledge of a word may simply involve form-meaning recognition, thus involving little depth of knowledge. Productive knowledge of a word, on the other hand, requires knowledge of many more issues, i.e. greater depth, including derivational, collocational and syntactic information about the word. At the same time, size of vocabulary knowledge is closely related to productive and receptive knowledge. As is explained below, research tends to show that the two dimensions have rather different sizes, with receptive knowledge generally computed as larger. Thus, treating the two dimensions independently is an artificial separation of closely interwoven aspects of vocabulary knowledge, but that, however, makes it possible to break down an otherwise unwieldy subject into a more manageable discussion.

### 1.1.1. Receptive/productive knowledge

Any language learner experiences being able to understand more words than they can produce, as in fact even in their native or first language (L1), most people know more words than they effectively use. As a result, the division of vocabulary knowledge between

receptive and productive knowledge is quite straightforward. From this perspective, receptive knowledge involves the ability to understand a word that is read or heard, while productive knowledge regards the ability to produce a word when speaking or writing. However, when observed more closely, the two dimensions of vocabulary knowledge cannot easily be separated, and the precise relationship between them is not clear (Schmitt, 2014). As a consequence, the literature has as yet not been able to develop an accepted conceptualization of what each of the two knowledge dimensions entail. One important problem affecting a shared conceptualization is how the two dimensions are measured, with very inconsistent results ensuing from different testing approaches (Schmitt, 2010a, p.80)

Numerous attempts at conceptualizing the two constructs have been made. Melka (1997) viewed receptive and productive knowledge of a word as positioned along a learning continuum in which knowledge moves from receptive to productive as knowledge about the word increases. This notion seems quite straightforward and neatly supports the widely-held view described above, according to which more words are typically known receptively than productively. After all, it is easy to know a little about many words, allowing recognition of words met in reading or listening, while it is more difficult to know enough to be able to produce the right word for the right context when speaking or writing. However, Read (2000) identified the main flaw of this line of reasoning, namely the supposedly linear incremental nature of vocabulary knowledge, and asked what the threshold might be for receptive knowledge to become productive (Read, 2000, p. 154). No research to date has been able to answer this question (Schmitt, 2010a, p.81).

In a different conceptualization that does not pose a threshold problem, Meara (1997) posited that vocabulary knowledge does not develop along a continuum, but rather depends on how it is organized inside the mental lexicon. Words that can be connected to productively-known vocabulary items can become activated, as it were, while receptively-known items can only be activated by external stimulus. This would explain why it is possible to use some words productively even after a short time of study, and why other words are only recalled if seen or heard. At the same time, this lexical organization perspective leads to the difficulty of ascertaining how many links to other member of the lexicon are necessary for productive mastery to occur (Schmitt, 2010a, p.82).

Despite the lack of an accepted conceptualization, Schmitt (2014, p.919) underlines the pedagogical usefulness of the word-knowledge perspective, i.e. Melka's idea of a continuum. However, he suggests that word acquisition does not occur in a linear fashion, but rather that knowledge of individual items will be positioned at different points of the receptive-productive continuum at different moments in time Schmitt (2010a, p.82). This involves shifting from receptive to productive, but also from productive to receptive, knowledge. The ecological validity of the construct is supported by the fact that any practitioner has evidence of its workings in the classroom. Further evidence of its pedagogical value is that reception and production appear as two established constructs in the CEFR (Council of Europe, 2020), an instrument designed to support and guide learning, teaching and assessment, and, according to Hulstijn, Alderson and Schoonen (2010, p.15), "probably the best researched scales of foreign language proficiency in the world". The Companion Volume for the CEFR (Council of Europe, 2020, p.47) defines reception as "receiving and processing input: activating what are thought to be appropriate schemata in order to build up a representation of the

meaning being expressed and a hypothesis as to the communicative intention behind it". Production is more simply defined as "includ[ing] speaking, signing and writing activities" (Council of Europe, 2020, p.60). Both are easily recognizable definitions for any classroom practitioner.

Research has mostly found that learners seem to display more receptively-known vocabulary than productively-known vocabulary, i.e. their receptive lexicon is larger than their productive lexicon (Amin, 2020; Laufer, 2005; Laufer & Paribakht, 1998; Nation, 2001; Schmitt, 2014; Webb, 2008). It can be safely said that these findings match most teachers' and student's experience, which tends to show that learners understand more vocabulary than they can produce.

Within this larger receptive knowledge, it would appear that as learners progress in language proficiency, they develop a distinctly larger baggage of sight vocabulary than oral vocabulary (Milton & Hopkins, 2006; Milton & Riordan, 2006). Receptive knowledge of written words seems to be strong because recognition and comprehension of the written form of a word tends to be easier overall than recalling the word without a written prompt, i.e. for productive purposes (Schmitt, 2014, p.927; van Zeeland, 2013, p.66).

All of the above insight about receptive vocabulary knowledge has important implications for reading, which is clearly facilitated by a strong knowledge of sight vocabulary. This is confirmed by the ample existing literature on the relationship between reading and vocabulary, which is discussed in Section 1.3 below. In terms of success in the IELTS AR test, the fact that learners normally set out with a comparatively stronger receptive than productive knowledge of lexis should imply that IELTS candidates, and especially those at

higher levels of proficiency, should perform well in the AR test. In fact, and as mentioned earlier, IELTS statistics show that the highest scores are obtained in the Reading and Listening tests (see Figure 1.1) – i.e. in those that involve receptive skills.

**Academic mean performance by gender**

| GENDER | LISTENING | READING | WRITING | SPEAKING | OVERALL |
|---|---|---|---|---|---|
| Female | 6.50 | 6.29 | 5.96 | 6.18 | 6.30 |
| Male | 6.50 | 6.22 | 5.88 | 6.10 | 6.24 |

**Figure 1.1:** Mean performance scores in each individual IELTS test and overall scores for 2021 by gender. Source: https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

Although the exact role that vocabulary plays in achieving these scores has to date not received much attention (Chen & Liu, 2020, p.5), in one of the few existing studies, Drummond (2018) found that successful AR candidates possess a strong baggage of receptive vocabulary. Thus, it would seem that IELTS candidates would do well to dedicate efforts to preparing for the AR test, as they would be likely to more easily and more quickly attain a good score in this test than in the others. Such a strategy could help to improve overall test scores. At the same time, because sight vocabulary plays a key role in reading, IELTS candidates would also be well-advised to work to develop their receptive vocabulary knowledge.

### 1.1.2. Breadth/depth of knowledge

Another apparently straightforward statement about vocabulary knowledge is that a large vocabulary is needed to function in any language, and that it is necessary to know quite a bit about this vocabulary in order to be able to use it. In other words, size and depth are key aspects of vocabulary knowledge. From the point of view of the experience of teachers and learners, the two constructs

typically appear as clearly separate. In a learning culture that privileges rote learning, students may know quite a few words learnt from lists – i.e. they may have a large vocabulary size - although not know much about these words – i.e. not much depth of knowledge (Schmitt, 2014, p.914-915). In learning contexts that depend on mainstream textbooks, learners may know quite a bit about a rather small amount of words, as is discussed in Section 1.4 below. That is, they may have quite a bit of depth of knowledge about a small overall size of vocabulary.

However, although the research largely recognizes the two constructs as distinct (Schmitt, 2014, p.914), it also reveals how interrelated they are, to the point of making the boundaries between the two "fuzzy" (Schmitt, 2014, p.921). For instance, receptive and productive knowledge can be observed as aspects of depth of knowledge, since different levels of knowledge about a lexical item are necessary depending on if it is known receptively or productively. At the same time, however, receptive and productive knowledge involve different vocabulary sizes, with receptive vocabulary typically being larger (see Section 1.1.1. above). Finally, size and depth do not necessarily develop simultaneously, and the gap between the two areas of knowledge seems to increase as vocabulary sizes grow and lower frequency vocabulary is incorporated, as shown in Miralpeix and Muñoz (2018).

Research of vocabulary size has mostly regarded English (Schmitt, 2010a, p.6). Although it would seem that a large body of lexis is necessary for any language to be used, research suggests that this may be particularly true for English (Nation & Meara, 2020, p.48-49). How many words this actually involves is as yet unresolved in the literature, in part due to the methodological flaws in much of the research which has led to widely varying figures (Nation, 2006, p.60;

Schmitt, 2010a, p.6). In any case, these figures refer to what might be native speaker vocabulary size. They may therefore be less relevant for learners, for whom the amount and the quality of lexis to learn is determined by their vocabulary learning goals. Nonetheless, some figures that have met with acceptance in the field of second language (L2) teaching and learning regard vocabulary size for reading and listening. Nation (2006) provided the figures 6- to 7000 word families as needed for listening, and 8- to 9000 word families as necessary for reading. Some nuances and adjustments have subsequently been advanced for these figures. For instance, Schmitt, Gardner and Davies (2017) posit that final totals depend on genre, e.g. the vocabulary size needed to read a novel in English may not be the same as the size needed to read a technical report or an academic paper. Vocabulary size for listening purposes is now mostly considered to be around 3- to 4000 word families. Webb and Rodgers (2009a) found that adequate comprehension of a wide variety of film genres was possible with such a vocabulary size. Schmitt and Van Zeeland (2013) reassessed the figures proposed by Nation (2006) in the light of research that suggests that vocabulary may play a smaller role in listening than in reading, and therefore a smaller vocabulary size may be sufficient for adequate comprehension.

Depth of vocabulary knowledge seems to be rather more difficult to determine and to conceptualize. The component or dimensions approach (Read, 2000) is a quite widely accepted way of conceptualizing depth. It involves breaking down knowledge of a lexical item into it various components, from knowledge of it written or phonological form to its collocations, register or level of frequency. The acquisition of the various components of knowledge of a word occurs over time and at different rates depending on degree and type of exposure, that is, how many times the word is encountered,

and whether these encounters are intentional or incidental (Schmitt, 2014, p.917-918). A problem with the component perspective, however, is that it considers vocabulary as made up of individual words developing in an apparently isolated way, with no relation to other words. Meara and Wolter (2004) noted that this seems unlikely, and instead proposed a network model that considers a greater interrelation between items. In their model, an increased interrelation implies greater depth of knowledge. A further way of looking at depth is considering what a learner can do with a lexical item. As discussed in Section 1.1.1 above, Melka (1997) viewed receptive and productive knowledge as dimensions of depth, i.e. she considered whether a learner could produce or only understand a lexical item as indicators of how much the learner knew about it. Fluency, or how far a learner can use a lexical item both for comprehension and production, can be another way of observing depth of knowledge, as proposed by Schmitt (2014, p.920). Overall, however, what the various conceptualizations reveal is that depth is a very broad and complex construct, and as such, it is difficult to measure.

With a view to reading, depth of vocabulary knowledge may play a less significant role in comprehension, since aspects of deeper word knowledge such as morphology (inflection, derivation, affixation, compounding), phonology and collocation are provided by the context (Schmitt, 2014, p.919). However, a number of studies suggest that depth may play a greater role in reading comprehension than has been recognized so far (Li & Kirby, 2015; Qian, 1999, 2002). More specifically, Chen and Liu (2020) show that the type of task performed when reading determines the greater or lesser influence of depth of knowledge. These and other studies are discussed in Section 1.3 below, which looks into the relationship between vocabulary and the reading skill.

## 1.2. Categories of vocabulary

Among the variety of categories that words can be classified into (e.g. Schmitt, 2010a, p.75), the three that are covered in this section seem particularly relevant to vocabulary learning with a view to passing the IELTS AR test successfully. Frequency has by now been established as being one of the most relevant characteristics of vocabulary (Carter, 1998; Barclay & Schmitt, 2019; Milton, 2009; Nation & Meara, 2020; Schmitt, 2010a; Vilkaitė-Lozdienė & Schmitt, 2020). It provides crucial information about the relative value of learning a lexical item (Webb & Nation, 2017, p.21), with the items that have a high frequency in any given context being the most primarily useful. Receptive knowledge of frequent vocabulary is clearly crucial to reading, and texts that are more lexically dense require knowledge of mid-frequency vocabulary as well (Masrai, 2019; Schmitt & Schmitt, 2014). Formulaic language has been recognized as being far more extended in language than was previously thought (Erman & Warren, 2000; Martinez & Schmitt, 2012; Nattinger & De Carrico, 1992; Schmitt & Carter, 2004), and is not exclusive of the spoken realm. In fact, research has revealed that formulaic units that are not understood or, worse yet, not recognized as units, can lead to major difficulties in reading comprehension (Martinez & Murphy, 2011). Finally, in an analysis of the vocabulary present in IELTS AR texts it is necessary to determine whether it can usefully be categorized as 'academic', as opposed to 'general usage'. There is an unresolved debate in the literature around the utility of the notion of 'academic' vocabulary - Durrant (2014), Gardner and Davies (2014), and Hyland and Tse (2011) are some examples of different positions on the matter - and this is reviewed in a dedicated subsection below.

### 1.2.1. Frequent to less frequent vocabulary

Schmitt (2010a, p.63) claims that frequency "is arguably the single most important characteristic of lexis", and Milton (2009, p.242) states that "the importance of frequency in vocabulary learning is as near to a fact as it is possible to get in L2 acquisition". In practical terms, word frequency allows a principled selection of vocabulary to learn, with higher frequency words having the greatest learning value, as these are the lexical items that will be encountered and needed most often when interacting in or with a language. In fact, the literature urges teachers and materials writers to ensure that students have a good knowledge of frequent vocabulary (Nation, 2001; Schmitt & Schmitt, 2014; Webb & Nation, 2017), as it is key towards both spoken and written communication.

The amount of words that qualify as high-frequency in general-usage English has been revised in recent years to around 3000 words. In their seminal reassessment of frequency and vocabulary size, Schmitt and Schmitt (2014) successfully argued that the earlier, widely accepted figure of 2000 high-frequency word families (Nation, 2001; Nation & Hwang, 1995; Read, 2000; West, 1953a) has been disproved by more recent, corpus-driven research. Schmitt and Schmitt (2014, p.488) showed that discourse coverage diminishes significantly after the first 3000 most frequent words in English, with words from the 4k level and beyond providing less than 3% coverage. By contrast, the first 3000 most frequent words in English can afford around 90% of spoken and written discourse Nation (2006, p.79). Although such a coverage level is insufficient to allow acceptable comprehension of a text (Schmitt & Schmitt, 2014, p.490), it is clearly indispensable.

Earlier categorizations of words according to frequency tended to classify words into high-frequency and low-frequency, with some intermediate categories, such as Nation's (2001) "academic" and "technical" classes. However, Schmitt and Schmitt (2014, p.485, 493) pointed out that such classifications were untenable, as vocabulary used in academic and technical fields is not exclusive to these realms and cuts across general-usage high frequency vocabulary. They argued for the recognition of "mid-frequency" vocabulary, which might range from the 4000th most frequent word in English to the 8k level, which is clearly less frequent than levels 1-3k, but equally clearly more frequent than the lexis that has traditionally been labelled "low frequency" and seemed to be any lexis beyond the 10,000 most recurring word families. Schmitt and Schmitt (2014, p.495-496) contended that mid-frequency vocabulary provides the further discourse coverage necessary to move beyond the rudimentary comprehension afforded by high-frequency vocabulary, allowing acceptable comprehension. Their review of the existing literature revealed that work by other authors had already made it evident that mid-frequency vocabulary allows the 98% coverage necessary for pleasurable viewing of television programs and films (Webb & Rodgers, 2009a, 2009b), or for reading magazines and newspapers (Nation, 2006) or university textbooks (Laufer & Ravenhorst-Kalovski, 2010). As a result of this identification of mid-frequency vocabulary, Schmitt and Schmitt (2014, p.494) argued for a reassessment of the boundary for low-frequency vocabulary, which they claimed the literature already showed as being after the 9k level, rather than the traditional 10k level.

Frequency has an objective pedagogical usefulness as a guide to vocabulary selection, and it seems straightforward that ensuring knowledge of high- and mid-frequency vocabulary should be a

primary goal for learners and teachers. Much literature holds that learners tend to learn high-frequency vocabulary before low-frequency lexis, due to its pervasiveness in language (Milton, 2009; Read, 1988; Schmitt, Schmitt & Clapham, 2001; Schmitt 2010a; Webb & Chang, 2012). Kremmel (2016, p.980) claims that vocabulary is largely learnt sequentially in terms of frequency bands, if not in terms of individual words.

However, recent research (Brysbaert, Mandera & Keulers, 2018) shows that the strength of these claims may be somewhat overstated, as individual difference needs to be taken into account. Learners seem to be more or less familiar with high-frequency vocabulary depending on the degree of their exposure to the target language. In fact, classroom practitioners the world over can testify to the fact that even after many years of English study, learners often have a poor knowledge of much high-frequency vocabulary (Folse, 2004). Some studies ascribe this situation to the fact that coursebooks often contain an insufficient amount of high-frequency vocabulary and instead dedicate a surprising amount of space to less frequent lexis (Acosta Moncada et al., 2016; Lawley, 2010a). In fact, O'Loughlin (2012) and Demetriou (2017) found that extensively used coursebooks contained little frequent vocabulary and overall approached it unsystematically, often only providing one encounter with the target items. Other authors suggest that their learners' limited knowledge of effectively useful vocabulary may be due to the pervasiveness of grammar-based approaches in many learning contexts today (Folse, 2004), while Schmitt (2019) notes that the different English vocabulary sizes of children from different countries may also depend on the amount of out-of-class, or extramural, exposure to the language that is available in each country. Children from countries with rich opportunities of contact with English via television, internet, gaming and reading have noticeably higher

levels of proficiency in English, and one reason must be that exposure to real-world, native-like language affords continuous opportunities to meet high-frequency vocabulary, as shown by Webb and Rodgers (2009a, 2009b). Thus, it is clear that vocabulary knowledge in terms of frequency bands should not be taken for granted. Effective knowledge of the different frequency bands should be ascertained before starting any vocabulary-learning program, with no assumptions made on the grounds of overall proficiency.

So far in this section, frequency levels have been referred to as consisting of blocks of 1000 word families, in decreasing order of frequency. This construct has met with great success and acceptance in the field, but it is not without its detractors (Kremmel, 2016; McLean, 2021), as is discussed later in this section (and see also Chapter 5). Nation (1983) was among the first to use these blocks of 1000 word families, which he employed in his influential Vocabulary Levels Test. A word family is a relatively large unit of counting vocabulary, and is composed of a base word form, or headword, with all its inflectional and derivational forms up to level 6 of Bauer and Nation's affix criteria (Bauer & Nation, 1993), including words from different word classes (McLean, 2021, p.130; Schmitt, 2010a, p.189-190). Figure 1.2 below shows an example of a word family.


**Figure 1.2:** An example of the word family for USE. Adapted from McLean (2021, p.130).

The word family as a counting unit has enjoyed wide diffusion and acceptance. It has been used as the basis for the development of the highly influential Academic Word List (AWL) (Coxhead, 2000), and is also the counting unit in other pedagogical word lists, such as the BNC – COCA frequency lists, a combination of words from the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA), developed by Nation since 2006, and available on Cobb's Lextutor website (Cobb, 2022a). As mentioned above, word families are also the basis for vocabulary assessment tools such as the Vocabulary Size Test (VST - Nation & Beglar, 2007). Some psycholinguistic research suggests that the mind may tend to process words in word families (Schmitt, 2010, p.190), and

furthermore, as a counting unit the word family holds many pedagogical advantages. Schmitt (2010, p.191-92) argues that word families are similar to dictionary headwords, and are thus a familiar concept to learners. He also suggests that this unit of counting decreases the amount of redundancies that are inevitable if the counting unit is smaller, e.g. the lemma or the lexeme. Nation (2006, 2016) contends that word families are the best counting unit for receptive vocabulary knowledge. As discussed above, this form of vocabulary knowledge tends to be larger than productive knowledge and Nation (2016) therefore argues that it is more efficiently categorized using a broad classification system such as that afforded by word families. Nation (2016) also suggests that word families may be more appropriate for more proficient speakers of English, both in terms of assessing their vocabulary knowledge and size and in terms of providing them with a useful pedagogical tool, as such learners are equipped with a greater morphological awareness. Finally, the word family as a counting unit holds many advantages for vocabulary assessment. Tests such as the VST (Nation & Beglar, 2007) measure knowledge of word family headwords, on the assumption that knowledge of one word from a word family indicates receptive knowledge of the other members of the word family, thanks to knowledge of the main patterns of word formation in English (affixation, derivation, inflection and compounding) (Nation, 2006, p.67). In this way, word families allow the testing of large numbers of words using only a relatively small number of headwords as test items (Kremmel, 2016, p.977).

The word family as a counting unit has come under increasing criticism over the years. The main issue is of a methodological nature. The criteria used for including words in word families vary greatly in the field, and as a result there is no real shared understanding of what a word family is or should be (Schmitt, 2010a,

p.192-193). Furthermore, the lack of shared criteria implies that comparison between studies is flawed or impossible (McLean, 2021, p.132). Another important issue raised by the word family regards its construct, which is based on the notion that learners possess well-developed derivational knowledge. However, the assumption that the different members of a word family can be dealt with receptively even if only the base word is known has been found faulty. On the one hand, Schmitt and Zimmerman (2002) pointed out that derivational knowledge is incremental, i.e. it develops as knowledge of and about vocabulary increases. Thus, it can be inferred that word families are only useful for quite proficient learners, and even then different learners would know or recognize different amounts of word family members depending on their stage of vocabulary development. In fact, Gardner and Davies (2014) criticize the use of word families as the basis for pedagogical word lists, as the users most in need of such word lists are less proficient learners, and thus less likely to be able to make efficient use of such word lists. Nation (2016) acknowledges that research still needs to ascertain the level of proficiency at which learners are familiar with most affixes with a view to reading. On the other hand, the research provides little support for the idea that knowledge of affixation aids the recognition of derived word forms (McLean, 2021, p.130-132). Kremmel and Schmitt (2016) found that their students were only able to connect derivatives to known headwords in about 73% of cases, while Schmitt and Zimmerman (2002) found that learners were only able to produce derived forms for 19% of the headwords they were tested on. Ward and Chuenjundaeng (2009) suggested that learners of non-latinate first languages may have greater difficulty learning and recognizing Latin-based affixation. At the same time, some research suggests that second language processing of vocabulary may be less based on morphological decomposition than has been assumed so far and as a result the connections between headword and derived

forms may be quite weak in average L2 mental lexicons (Silva & Clahsen, 2008).

A further argument against the use of word families as a word counting unit is the fact that words included in the larger word families often do not share the same core meaning. Gardner and Davies (2014, p.3) use the case of the family for *react* in the AWL as an example, expressing their skepticism at grouping together in the same word family words with such distant semantic relations as *reactionary, reactor* and *reactivation*. This problem is added to by the fact that grammatical form is not specified in word families, which can again give rise to the inclusion of words with very different meanings. An example of this might be *proceed*, where the word *proceeds* clearly means something quite different depending on whether it acts as a verb or a noun (Gardner & Davies, 2014, p.3-4).

Finally, a major flaw identified in the word family construct is that it groups individual words, when research has by now shown that particularly the most frequent words are often just "tips of the iceberg" of formulaic units (Martinez & Schmitt, 2012, p.302). Formulaic units are pervasive in language and especially in English, and are often a major cause of difficulty for L2 learners both productively and receptively. In fact, research shows that knowledge of the individual members of a word family does not guarantee comprehension or even recognition of a formulaic unit when encountered in text (Martinez & Murphy, 2011). Nation (2006, p.66), however, argues that there is only a small number of opaque formulaic units, i.e. that cannot be understood by knowledge of each individual word that they are made up of. He contends that the majority of formulaic units are largely transparent and can thus be decoded without difficulty if each individual word is known, which

justifies the fact that word families are composed of individual words only. This view has by now been challenged by research, which has shown that opaque phrasal expression are more frequent than has previously been thought. In fact, the most frequent individual words counted in word families probably owe their frequency to the fact that they are actually components of these very frequent, opaque formulaic units (Martinez & Schmitt, 2012).

Many critics of the word family prefer the lemma as a more appropriate counting unit. A lemma is a base word and its closely related grammatical forms or inflections (McLean, 2021, p.130; Schmitt, 2010a, p.189). As can be seen from the example lemma in Figure 1.2 (highlighted in grey), the lemma is a considerably smaller counting unit. Schmitt (2010a, p.193) lists four main reasons for preferring the lemma: (1) the concept is easier to understand than the word family; (2) its simplicity facilitates replication and comparison of studies; (3) lemmas can more easily account for both receptive and productive vocabulary knowledge, and (4) lemmas may more realistically represent the large number of words needed to effectively function in a language, as a lemma count will bring up larger figures than a word family count. Kremmel (2016) argues that the lemma may be the best compromise as it allows some grouping of words, thus affording a degree of manageability, while still offering a minimal guarantee that all the members of a lemma will effectively be known and recognized. He is also confident that formulaic language in the shape of formulaic sequences (Martinez & Schmitt, 2012) can easily be incorporated into any lemma count. Gardner and Davies (2014) maintain that what they see as inaccuracies brought about by word families (e.g. counting *proceeds* (n) and *proceeds* (verb) as members of the same group) could be eliminated if lemmas were used instead.

Whatever the word counting unit used, frequency remains a highly valuable criteria for vocabulary pedagogy, and as such should also be taken into account in relation to learning vocabulary for IELTS. As is discussed in Chapters 2 and 3, little is known about the frequency levels typical in the vocabulary present in IELTS AR texts. Chapter 4 of this thesis attempts to shed light on the frequency levels that are relevant to IELTS AR, with the aim of aiding vocabulary learning for this high stakes examination.

### 1.2.2. Formulaic language

Another feature of vocabulary knowledge with important bearings on reading is formulaic language, that is, the tendency of vocabulary to form phraseological units of two or more words, rather than to consist in individual words with syntactic connections (Schmitt, 2013). Over the last 30 years of research, the formulaic nature of language has become increasingly clear (Erman & Warren, 2000; Conklin & Schmitt, 2012; Kremmel, Brunfaut & Alderson, 2017; Laufer, 2022; Martinez & Schmitt, 2012; Nattinger & De Carrico, 1992; Schmitt, 2004; Siyanova-Chanturia & Pellicer-Sánchez, 2019; Vilkaite, 2016; Wood, 2020, Wray, 2002), to an extent not previously acknowledged. In fact, it would appear that many individual words that are listed as being high-frequency due to their recurring presence in large corpora are in reality only the tips of "formulaic icebergs" (Martinez & Schmitt, 2012, p.302), that is, they are part of highly frequent formulaic units, and this is what accounts for their individual high frequency in corpora. However, vocabulary pedagogy is still often approached in terms of individual words (Martinez & Schmitt, 2012). Moreover, although textbooks increasingly include a variety of items and aspects of formulaic language, such as phrasal verbs and collocation, research of learner production shows that students struggle to incorporate formulaic

language in their speech and written texts (Garnier & Schmitt, 2016). Research of learner reading ability also reveals difficulty with phrasal language encountered in text (Kremmel, Brunfaut & Alderson, 2017; Martinez, 2013; Martinez & Murphy, 2011). This has important bearings on IELTS preparation in general, and on preparation for the AR test in particular.

Formulaic units effectively function in the same way as individual words, in that such units have a single meaning. This meaning can be more or less transparent, i.e. the meaning of the unit can be more or less literal, depending on whether it is conveyed by the individual meanings of the words that make up the unit, or whether the component words acquire a more figurative meaning when used together as a unit. The differing degree of literalness is called *compositionality* in the literature (Martinez & Schmitt, 2012, p.303), with more literal units being highly compositional (i.e. the meaning can be deduced from the individual components) and more figurative units being increasingly non-compositional (the individual components do not aid comprehension). Clearly, it is the non-compositional formulaic units that are the most problematic for language learners. However, even highly compositional formulaic units can pose problems to learners, particularly when the unit is not recognized as such. This impacts significantly on productive but also on receptive fluency, as is discussed in Section 1.3 with regard to reading.

Non-recognition of formulaic units is problematic when reading among other reasons because it slows down fluency. Formulaic units seem to offer processing benefits, both in terms of comprehension and of production (Boers & Lindstromberg, 2012; Kuiper, 2004; Martinez & Murphy, 2011; Martinez & Schmitt, 2012; Pawley & Syder, 1983). However, this may be the case mainly for L1 English

speakers, and less so for learners of English (Conklin & Schmitt, 2012; Wray, 2019), essentially due to the fact that the formulaic units are unknown or not recognized by L2 readers. One reason for this lack of knowledge may be the unsystematic approach to formulaic language used by many textbooks (Demetriou, 2017; Martinez & Schmitt, 2012). An important aspect of formulaic language that tends to be overlooked in commercial pedagogical materials is their prosody (Serrano van der Laan, 2020). Research suggests that the specific prosodic features of formulaic sequences are a determining factor in their identification as linguistic units: in fact, Lin (2019, p.90) suggests that it would be more appropriate to treat formulaic units as "strings of sounds rather than strings of words". Further, Eyckmans and Lindstromberg (2016), and Lindstromberg and Eyckmans (2017) noted that non-literal formulaic units are often characterized by the use alliteration or assonance. Examples of opaque formulaic units based on alliteration might be ***p****roof of the* ***p****udding* or ***t****it for* ***t****at*, while some examples of units using assonance could be *j****u****mp the g****u****n* or *r****u****n for c****o****ver*. A factor that may intervene in neglecting to address these prosodic features of formulaic language may be that prosody tends to be associated with speaking and listening, but not with reading. However, Walter (2008) has pointed out the relevance of pronunciation on reading processing and fluency: it seems that the written word resonates in the mind during reading, and if the prosody of the formulaic unit were known, "hearing" it while reading it would help trigger recognition and support reading fluency.

### 1.2.3. Academic vs general-usage vocabulary

One important criticism levelled at the AWL is the concept that underlies it, namely that academic vocabulary is a distinct body of low-frequency lexis, separate from high-frequency general-usage

vocabulary. Gardner and Davies (2014) and Schmitt and Schmitt (2014, 2020) have argued that academic vocabulary is not separate but overlaps with general vocabulary outside of highly technical, subject-specific vocabulary. Furthermore, vocabulary profiling of the AWL has shown that it is actually largely made up of high- to mid-frequency general lexis (Neufeld & Billuroğlu, 2006).

Nonetheless, there is currently no consensus in the literature regarding the concept of academic vocabulary. The notion that there exists an identifiable, distinct lexis that is characteristic of academic discourse has been embraced by a significant part of the research and teaching community, and refuted by an equally relevant body of scholarship. Coxhead's (2000) influential AWL is based on the idea that academic vocabulary is a distinct body of vocabulary, different from general-usage, high-frequency lexis, and is made up of general academic or subtechnical lexis – collected in the AWL - and specialist, subject-specific vocabulary (Baumann & Graves, 2010; Lea, 2014). However, an important body of research is critical of this construct, with positions extending from denial of its very existence, to a critical acceptance.

In their critical review of the AWL and the General Service List (GSL - West, 1953a), Neufeld and Billuroğlu (2006) question the possibility of identifying an exclusively academic body of lexis. They put forward the idea that the words contained in the AWL may simply provide an extension of the GSL, covering a range of more formal or educated English that can be found across a range of registers, of which academic is only one. Hyland and Tse (2007) contend that there is no useful body of general, cross-subject academic English, as so-called academic vocabulary is not evenly distributed across all disciplines, thus not making it equally useful for all subjects. Perhaps more importantly, the main problem they observe in the notion of a

general academic vocabulary is that although the same words can occur in different disciplines, the way they are used and the frequency with which they occur tends to vary greatly between the different fields. Thus, they defend what Hyland (2002) calls specificity, i.e. that the language and discourse of each academic discipline is specific to it and is not generalizable to all academic discourse. Durrant (2014) further supports this position with his study of the vocabulary in students' writing. He found little homogeneity across disciplines and even within clusters of similar areas of study, and concluded that discipline-based vocabulary learning was more appropriate than a generic approach.

A variety of views can be identified in the middle ground between literature that denies the existence of academic vocabulary and that which embraces it wholeheartedly. Dunworth (2006) recognizes the existence of some fundamental ways of communicating that overlap between academic disciplines, although she considers the idea of an 'academic culture' open to debate. She regards it as unclear what sort of language non-native speaker students should be advised to study with a view to entering tertiary education in Australia, as the various disciplinary contexts are, in her view, "extremely diverse" (Dunworth, 2006, p.2). Eldridge (2008) acknowledges the specificity identified by Hyland & Tse (2007), but points out that the academic environment is increasingly interdisciplinary, which suggests that there should be a body of more widely used language that could be identified as 'academic'. His pedagogical perspective leads him to underline that research has an important role in identifying what is similar and general, and not only to note the particularities of the different disciplines, in its role of making easier the task of learners and instructors of language that is useful for the university context. Granger and Paquot (2009) also hold that there is a teachable common core of academic lexis, although they agree with Hyland

and Tse that discipline-specific vocabulary can be identified and is fundamental for communication within a given academic field.

At the other end of the spectrum, Worthington and Nation (1996), Coxhead (2000) and Nation (2001) clearly identify a specific body of academic vocabulary, which is distinct from vocabulary which they label general, and technical or specialized. They sustain the notion of academic English on the grounds that there is an area of vocabulary that is not specific enough to belong to the terminology of any particular discipline, but at the same time is too formal and low-frequency to be categorized as 'general' English, and is often found across academic disciplines. Nation (2001) proposed a categorization of vocabulary into four distinct parts, based on decreasing frequency, where academic vocabulary was positioned as a separate body between high-frequency lexis and specialist or technical vocabulary, which in turn was followed by low-frequency lexis. The AWL was developed on the basis of this four-part categorization and was promoted as filling the gap between high- and low-frequency vocabulary. Nation seems to have subsequently abandoned this distinct categorization (Nation, 2006), but the AWL has enjoyed widespread success in teaching contexts around the world, as Banister (2016) and even a superficial perusal of the Internet show. An important reason for this may be the usefulness for the "hard-pressed instructor" (Hyland, 2008, p.114) of a list currently supported by an extensive body of ready-to-use pedagogical materials and tools, as opposed to the more time-consuming, specialized stance proposed by Hyland and Tse (2007).

However, Schmitt and Schmitt (2014) showed that the vocabulary situated between the high- and the low-frequency level cannot exclusively be identified as academic. Furthermore, they claimed that although it is possible to identify vocabulary that is frequently

used in academic contexts, this lexis does not conform a distinct, separate set of language that is apart from general English. Rather, the same words exist in both subsets, although often with different frequencies in the two realms. What is to be found between high- and low-frequency vocabulary is what Schmitt and Schmitt (2014) label mid-frequency lexis, and their article stresses the importance of this vocabulary for higher proficiency levels of English and, consequently, for the academic context.

In line with Schmitt and Schmitt, Gardner and Davies (2013) hold that academic vocabulary is a real but not an exclusive body of lexis to be learnt after high-frequency general vocabulary; it is rather a category that replicates a large number of words also found elsewhere but which can nonetheless be identified as frequently used, and therefore useful, in academic contexts. As Lea (2014) puts it, academic vocabulary "includes […] a lot of ordinary general vocabulary – but transposed to an academic context". Finally, D. Schmitt (2013) underlines the key role of context in classifying vocabulary. She stresses that the various categories of lexis, including academic lexis, are not mutually exclusive, as the same words appear in different contexts, although with differing frequency and often also with different meanings.

IELTS does not promote the AWL or any other vocabulary list for exam study, and makes no claim that any such list underpins exam materials. Official exam information and material makes no mention of academic vocabulary (or of any other category of vocabulary) as being appropriate for study towards the exam. Nonetheless, even a superficial perusal of the Internet will show that the association of IELTS Academic with academic vocabulary is quite extended. A search in January 2023 for "IELTS academic AWL" returned as many as 461.000 hits on Google, some of which can be seen in Figure 1.3.

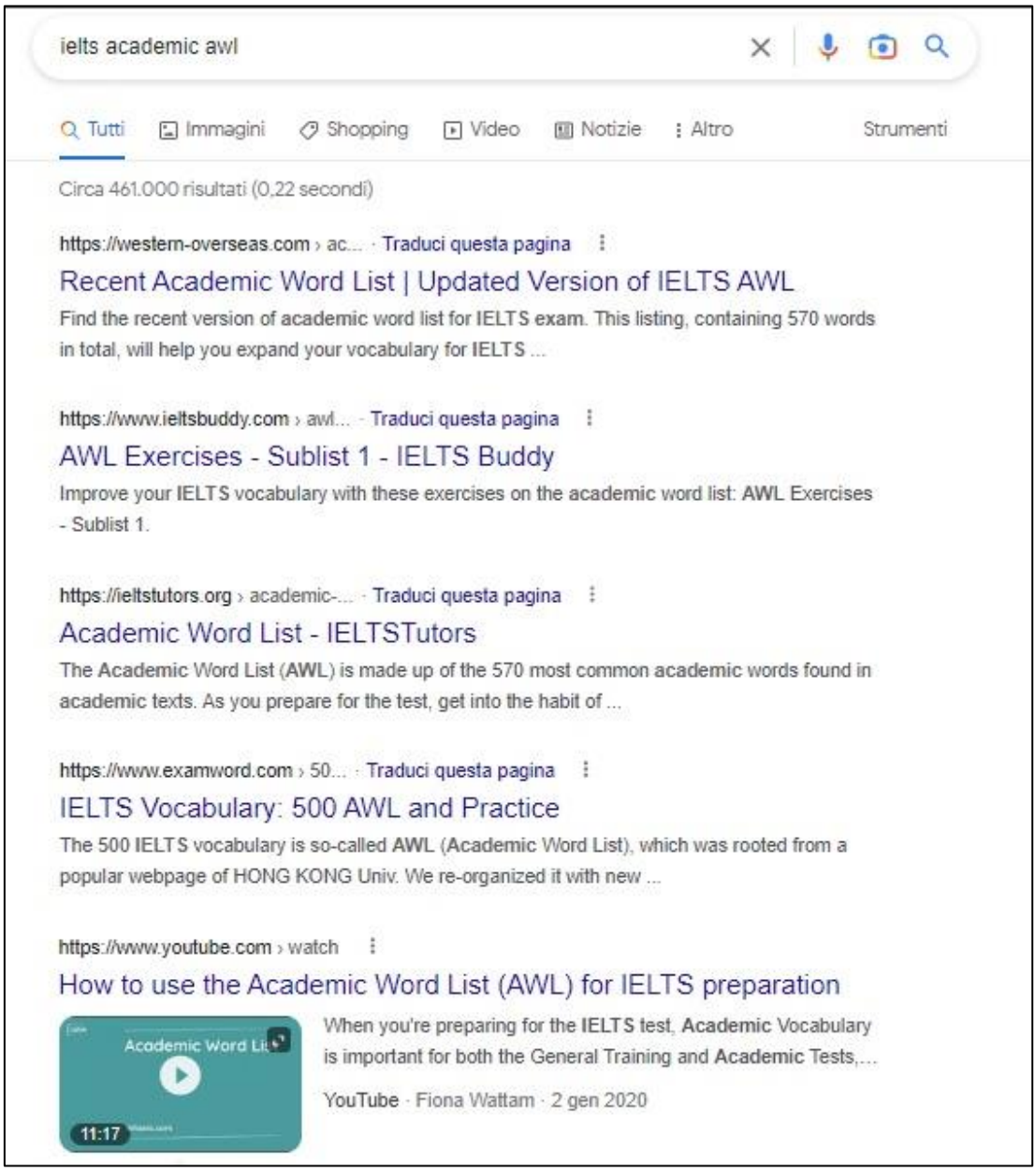



**Figure 1.3:** A screenshot of the first of 461.000 hits from the search for "IELTS academic AWL", January 2023.

Although none of these websites are official or endorsed by IELTS, and therefore cannot be considered reliable sources, their reference to the AWL reveals an extended 'vox populi' that views the exam as 'academic'. This ungrounded notion stretches to practitioner-orientated publications such as the TESOL Encyclopedia of English Language Teaching, which seems to take for granted an academic nature of IELTS by advising teachers and students to use the AWL

as a useful source for language building towards the exam (Colovic-Markovic, 2018, p.4). By contrast, the present thesis sets out from the idea that the vocabulary to learn for IELTS AR is unlikely to be specifically academic, given the largely non-academic nature of the texts in the exam, as experience of published practice tests (e.g the CIPT volumes) will testify and as can be gleaned from Green and Hawkey (2012). A more general concept that underpins this thesis is that academic and general vocabulary overlap outside of subject-specific language, as outlined by Gardner and Davies (2013) and Schmitt and Schmitt (2014, 2020). This view of vocabulary in IELTS AR is supported by the discussion and the findings in Chapters 3 – 5.

## 1.3. Vocabulary and reading

It seems straightforward that vocabulary should be crucial for reading, and this intuition is confirmed by research, according to Schmitt, Jiang and Grabe (2011), who claim that "one of the primary factors consistently shown to affect reading is knowledge of the words in the text" (p.27). Stahl (1983, p.33) contended that the relationship between reading comprehension and vocabulary knowledge "is one of the best documented […] in reading research". Some examples from the literature that substantiate these claims are Laufer (1992), who found close correlations between vocabulary size and reading, and Hu and Nation (2000), who observed that greater vocabulary coverage meant greater text comprehension.

As Milton (2009, p.48) points out, vocabulary coverage and reading comprehension are not interchangeable concepts, i.e. it is possible to understand a large proportion of words in a text but still not be able to understand the passage. However, it is clear that without a minimal knowledge of vocabulary, making sense of a text is

impossible. What exactly the threshold of 'minimal' vocabulary is for the purpose of reading comprehension is a much discussed matter, and is reviewed in the second part of this section.

### 1.3.1. The role of vocabulary in reading

There are of course many more variables involved in reading comprehension than knowledge of vocabulary. Alderson (2000, Chapter 2) provides an extensive overview of the factors involved in reading, which very broadly include reader characteristics such as background knowledge, overall language proficiency, knowledge of genre and topic, reader skills, motivation and other affective factors, and text characteristics including text length, difficulty and topic. Nonetheless, reading comprehension seems to be dependent on high percentages of vocabulary knowledge (Milton, 2009), to the point that Alderson (2000, p.35) asserts that vocabulary knowledge is "the single best predictor of text comprehension".

Whether depth or size of knowledge is more relevant is a matter of discussion in the literature. Qian (2002, p.518) found that vocabulary depth interacted interdependently with vocabulary size, and he underlined the importance of taking both dimensions into account when assessing the impact of vocabulary knowledge on reading comprehension. This view is supported by investigations in psycholinguistics, which further stress the complexity of the relationship between vocabulary knowledge and reading comprehension and underline the relevance of depth of knowledge in this association (Stahl, 2003). Schmitt (2014), on the other hand, suggests that in the context of reading receptive knowledge largely consists in form-meaning knowledge, since aspects of deeper word knowledge such as morphology (inflection, derivation, affixation, compounding), phonology and collocation are provided by the

context. "Knowing these other aspects would undoubtedly aid comprehension, but the form–meaning link by itself would probably be enough to extract meaning in most cases" (Schmitt, 2014, p.919).

Thus, for part of the field, receptive vocabulary size is seen as being more relevant for the purpose of reading than depth of vocabulary knowledge. However, Weir and Khalifa (2008, p.3) point out that level of proficiency may play a determining role in the influence of receptive vocabulary size on reading. From the point of view of the cognitive processes deployed in reading comprehension, they explain, reading involves applying bottom-up and top-down processes simultaneously, that is, combining word recognition with word prediction processes. They note that less skilled readers may not rely as much on individual word recognition (bottom-up processing) as on prediction and guessing strategies, while more proficient readers typically possess very rapid word recognition skills. At the same time, Masrai (2019) investigated the influence of knowledge of different levels of frequency on reading comprehension. His findings corroborated Schmitt and Schmitt's (2014) claims regarding the importance of mid-frequency vocabulary, which Masrai (2019, p.11) found to have "a notable impact on the speed of lexical access when reading".

Within the context of receptive vocabulary knowledge, the role played by recognition of formulaic language is increasingly seen as having great importance in reading comprehension (Boers & Lindstromberg, 2012; Kremmel, Brunfaut & Alderson, 2017; Martinez & Murphy, 2011). Boers and Lindstromberg (2012, p.86-87) reviewed the findings on the advantages afforded to learners by the recognition of formulaic units. These consist largely in fluency and speed of reading and processing advantages. Martinez and

Murphy (2011) found that formulaic units were a major stumbling block for English language learners with regard to text comprehension. The participants in their investigation found great difficulty in understanding multiword units (MWUs), and also misunderstood or failed to recognize much formulaic language, which led to their overrating their understanding of the passages. These findings lead the authors to conclude that much text coverage research "fall[s] short of a full representation of comprehension difficulties, particularly in FL [foreign language] contexts" (Kremmel, Brunfaut & Alderson, 2017, p.850-851), as it tends to focus on individual words, thus overlooking the fact that these words in reality often form part of formulaic units.

A further aspect of the relationship of vocabulary and reading is the way in which the reader interacts with the text, i.e. how the reader reads. Reading can be careful or expeditious, and can occur at a global or a local level (Weir & Khalifa, 2008, p.4). In the context of reading in IELTS, all four types of reading are required, as is discussed in Chapter 3. Weir and Khalifa (2008, p.4-5) explain that global comprehension of a text, i.e. understanding the main ideas, can be arrived at both through careful reading and by expeditious reading. In the first case, the reader strives to "determine how the ideas in the whole text relate to each other and to the author's purpose", while more expeditious reading involves skimming the text in order to identify its overall structure and topic. Local-level reading, on the other hand, regards the sentence and clause level, and it is here that specific, individual word recognition becomes crucial.

### 1.3.2. Vocabulary size and text coverage

Over the last 30 years, research has shown a great interest in ascertaining how much vocabulary knowledge is necessary for

reading comprehension and a variety of answers have been provided. Carver (1994) found that native-speaker elementary school children typically worked with a 99% text coverage, and suggested that these percentages could be extended to university students. According to Carver's findings, 99% text coverage means zero to three unknown words every 100 words of text, with zero to one unknown words resulting in easy reading, and two to three unknown words equaling difficult reading. With regard to the non-native adult reader, 98% text coverage is the figure that has gained most consensus in the literature through the work of Nation and colleagues, who put forward this percentage as the point from which "pleasurable" reading (Hirsch & Nation, 1992) and "adequate" comprehension (Hu & Nation, 2000, p.422; Nation, 2001, p.147) are likely to occur. A vocabulary that covers 98% of the running words in a text means the reader encounters around one unknown word in every 50 to 100 words in the text (Nation, 2001). As a lower, minimum border, Nation advanced 95% coverage as necessary for "minimally acceptable comprehension" (Nation, 2001, p.147). Nation's seminal paper of 2006 established that 98% coverage of a non-specialist text could be achieved with knowledge of the 8 – 9000 most frequent words in English (Nation, 2006).

Although influential and widely cited, Nation's conclusions have been the subject of criticism by relevant exponents of the literature. Hsu (2011) and Dang and Webb (2014) questioned the degree of applicability of Nation's study of 2006 to fields outside of general English, and found that the same coverage level required highly varying vocabulary sizes depending on the field the text belonged to. In fact, Schmitt, Cobb, Horst and Schmitt (2017) suggested that it may be necessary to identify different coverage percentages to meet the specific demands of different genres, disciplines and contexts. Schmitt and Schmitt (2014) furthermore criticized the

British English bias of Nation's study of 2006, which is based on word lists compiled exclusively from the BNC. It should be noted that Nation had acknowledged the influence of this factor on the distribution of the words in the list (Nation, 2006, p.63). Finally, Schmitt, Jiang and Grabe (2011, p.26) distance themselves from Nation's figures by claiming that "there is probably no single coverage figure, for example 98%, over which good comprehension occurs and short of which one understands little".

How many words are effectively involved in adequate text comprehension is thus an area in which the research reveals a wide degree of discrepancy. Figures range from the 3000 word families posited by Laufer (1992) as minimally necessary for text comprehension, through the 5000 individual words advanced by Hirsch and Nation (1992) and the 8 – 9000 most frequent word families put forward by Nation in his seminal article of 2006 as granting 98% text comprehension. Other figures that have been proposed are 9000+ words for 95% coverage (O'Keefe, McCarthy & Carter, 2007), although it is not clear whether these are lemmatized words or individual words. As their reference corpus is CANCODE, which uses individual words as its basic unit, it would seem safe to guess that the authors' numbers refer to individual words and not to word families. Adolphs and Schmitt (2003, p.433) proposed 3000 word families as a reasonable goal in order to move beyond basic communication, while Neufeld and Billeroğlu (2006) put forward a "critical mass" of 2709 word families that they consider provide between 90 and 95% coverage of academic corpora. O'Keefe et al. (2007) establish the vocabulary knowledge of upper-intermediate to advanced learners at 6 - 10,000 words – and 98% coverage must surely characterize the upper-intermediate to advanced level, if 99% coverage characterizes the native speaker.

Researchers have also proposed different figures at different stages of their research output. For instance, in 2001, Nation posited that 95% text coverage of an academic text involved knowing the first 2000 most frequent words in English collected in West's (1953) General Service List (GSL), followed by the AWL and "…about 1000 or more technical words, proper nouns and low-frequency words." (Nation, 2001, p.147). This way, he was effectively suggesting a necessary vocabulary size of around 4000 word families. Nation clearly reviewed this figure in his 2006 paper, which made no further mention of the GSL or the AWL and presented research that supported 8- to 9000 word families as the necessary target vocabulary size. On the other hand, in 2000 Schmitt put forward the figure 10,000 word families as the necessary vocabulary size in order to tackle university textbook (Schmitt, 2000, p.143). He derived this figure from the work by Hazenberg and Hulstijn (1996), although omitting the possibly relevant fact that Hazenberg and Hulstijn's paper regarded Dutch. It should be noted that subsequently, Hulstijn (2001, p.263) corroborated his position by claiming that the 10,000 word-family figure is likely to be similar for most other Indo-European languages. In 2014, however, Schmitt deemed the vocabulary necessary to provide 98% text coverage might be closer to 8-9000 word families (Schmitt & Schmitt, 2014), thus effectively reducing his original total word count. More recently, together with Professors Mark Davies and Dee Gardner, Schmitt suggested that beyond 80% coverage each genre can be expected to have its own specific vocabulary, which will determine the exact amount of vocabulary knowledge that will grant 98% coverage, and provided figures ranging from 11,000 lemmas for adult fiction, to 8800 lemmas for academic text (Schmitt, Gardner & Davies, 2017).

All in all, it is clear that adequate text coverage involves the knowledge of quite a large number of lexical items. This wisdom

should inform the work of teachers and materials writers, and should be passed on to learners, supplying them with an indication of possible learning goals. It would be particularly useful for IELTS candidates to be aware of the threshold to reach with a view to the AR test, and to be guided in acquiring the vocabulary not yet known.

## 1.4. Learning vocabulary

An appropriate and efficient approach is crucial when learning vocabulary. Interestingly, a different methodology is often used to teach vocabulary for the receptive and the productive skills: vocabulary for speaking and writing is typically taught explicitly or directly, while vocabulary for the receptive skills tends to be treated incidentally. In other words, vocabulary is taught *for* speaking and writing, but *from* listening and reading. Yet most learners would benefit greatly from learning vocabulary that might prepare them to manage the vast amounts of text, written and aural, that they are confronted with when approaching a foreign language. This applies particularly to learners training for IELTS, who need to tackle long listening and reading passages, regardless of their level of proficiency. The two approaches to vocabulary learning are the object of a protracted and so far unresolved academic discussion as to their relative benefits, as shown by the exchange of opinions between Cobb (2016) and McQuillan (2016), as well as in more recent contributions (McQuillan, 2019a, 2019b).

Whichever approach is chosen for vocabulary learning, direct or implicit or a combination of both, self-study plays an important role in the learning process. Classroom time is limited, particularly in the case of IELTS training classes, and if significant progress is to be made in the development of vocabulary knowledge, study outside class becomes unavoidable. However, this chapter will argue that, in

spite of claims of learner-centeredness and of the large literature on learner autonomy, the classroom still seems to be viewed as the main venue for vocabulary learning, with the teacher playing a central role. Textbooks may have an important responsibility in maintaining this state of affairs, as they tend to promote a teacher-dependent approach.

Learning vocabulary very often involves the use of textbooks, and they exert a strong influence on the type of lexis that is learnt and the ways in which it is learnt, given the intrinsic authority typically recognized in published classroom materials (Brown, 2014; Guerretaz & Johnston, 2013). Thankfully, textbooks and other language learning materials today, including IELTS-training materials, reflect something of the massive production of research and literature on vocabulary knowledge and acquisition that exploded between the 1980's and 90's (Schmitt & McCarthy, 1997). In contrast to earlier textbooks, vocabulary development has become a standard feature of contemporary language learning materials. However, scrutiny of this vocabulary work shows that it is often unsystematic, haphazard and insufficient for effective and fluent use of language (Acosta Moncada et al., 2016; Demetriou, 2017; Lawley, 2010a; O'Loughlin, 2012; Serrano van der Laan, 2020), revealing an unfortunate disconnection between research and the writing of pedagogical materials (Schmitt, 2019). The importance of textbooks for language instruction and learning, and an overview of some of the failings of textbooks with regard to vocabulary, together with a discussion of the possible causes and remedies, are developed in this chapter.

Pedagogical word lists are often used by learners and teachers, either as a direct source of learning or as a guide to a course curriculum. A vocabulary list allows goals to be set, and progress to

be measured, fostering and supporting motivation, all of which play an important part in the language learning process (Dörnyei, 2001). Vocabulary lists can be used in a number of ways, and this chapter reviews some of the literature on list- and vocabulary card learning (Ballance & Cobb, 2020; Cobb, n.d.A; Elgort, 2011; Gardner, 2013; Hulstijn, 2001; Laufer & Shmueli, 1997; Sökmen, 1997). Many lists are publicly available today and can be used by teachers, materials writers and students. However, while some have met with great popularity, as is the case of the AWL (Coxhead, 2000), others struggle to make their way out of the purely scholarly realm. Yet, as this chapter will argue, research-based pedagogical word lists structured in order of frequency have great value for vocabulary learning, and would be of great utility for IELTS preparation.

Learning vocabulary for IELTS AR is a key topic of this thesis. However, as this chapter will show, literature on the general matter of learning vocabulary for language exams is scant, and support materials for teachers also seems to be unsatisfactory. A brief critical review of some available materials is provided in this chapter.

### 1.4.1. Incidental vs direct instruction

Nation (2001, p.144) stated that "vocabulary knowledge can help reading, and reading can contribute to vocabulary growth". Vocabulary acquisition through reading has a long tradition in language learning, and a vast body of literature is available on the matter; some relevant work of the last thirty years is Coady, (1997), Grabe and Stoller (1997); Hunt and Beglar (2005); Krashen (1989, 2012); McQuillan (2019a); Nagy, Herman and Anderson (1985); Paribakht and Wesche (1999); Waring (2009); Waring and Takaki (2003), and Wesche and Paribakht (1997). The literature supplies data that reflects important vocabulary gains through learning

programs that heavily include or are based exclusively on reading. The thrust of the theory underlying this view is that reading facilitates vocabulary uptake as it ensures exposure to lexis in meaningful contexts and allows repeated encounters with key vocabulary. The inverse approach, however, i.e. learning vocabulary with the aim of improving reading, has received far less attention, and little literature is to be found on the matter (Masrai, 2019; Wright & Cervetti, 2017).

Although there is a wide agreement on the benefits of extensive reading for vocabulary acquisition, and therefore on the benefits of implicit vocabulary learning, the field of principled vocabulary acquisition today largely upholds approaches to learning lexis based on a good balance of implicit and explicit learning (Cobb, 2007; Gardner, 2013; Hulstijn, 2001; Hunt & Beglar, 1998; Laufer, 2003; Nation, 2001, 2007, 2008; Schmitt, 2000, 2007, 2008; Sökmen, 1997; Webb, 2020; Webb & Nation, 2017). This dual approach is grounded in research that shows that incidental learning alone is too slow and inefficient, while explicit instruction of L2 vocabulary on its own cannot guarantee learners sufficient occasions to re-encounter target lexis (Nation, 2007; Schmitt, 2008; Webb & Nation, 2017).

It is apparent from the literature that there has been no smooth path to this balanced view. On the one hand research has continued to appear that supports incidental learning over explicit instruction (Mason & Krashen, 2004; McQuillan, 2016, 2019a, 2019b, 2020; McQuillan & Krashen, 2008; Waring, 2009). On the other hand, supporters of direct instruction of vocabulary seem to take quite varied stances as to the degree of explicitness that is desirable. Positions range from rather un-explicit approaches such as Focus on Form (Chacón-Beltrán, 2005; Doughty, 2001; Doughty & Williams, 1998; Long, 1991; Long & Robinson, 1998), Task Based Learning

(Pica, 2008; Robinson, 2003; Skehan, 1996; Willis, J. 1996) and reading enhancement (Paribakht & Wesche, 1997; Wesche & Paribakht, 1997), to completely explicit approaches including those propounding the use of word lists or corpora as a basis for the acquisition of vocabulary (Cobb, 1998, n.d.A; Coxhead, 2000; Gardner, 2013; Laufer, 2005; Laufer & Shmueli, 1997; Nation, 2001; Neufeld & Billuroğlu, 2006; O'Keefe et al, 2007; Schmitt, 2008, 2019; Waring, 2000). Some authors advocate explicit instruction mainly or even exclusively for lower levels of proficiency, and consider incidental acquisition the most appropriate source of vocabulary learning for more advanced levels (Coady, 1997; Hunt & Beglar, 1998; Meara, 1995; Waring, 2000). Others disagree with this division between levels and consider it important to balance both approaches at any level of proficiency (Nation, 2007).

The idea that implicit vocabulary learning is superior to explicit instruction has a twofold origin. On one hand, it sets out from the assumption that what happens in L1 language acquisition must be quite similar, if not the same, in L2 (Stern, 1970; Krashen, 1982; see Brown (2000) for an overview). On the other hand, from the late 1070s, Communicative Language Teaching (CLT) gradually consolidated the near-dogma that any learning must occur in a communicative context (Prabhu, 1987; Sternberg, 1987). This brought about a partially successful banishment of direct language instruction from many classrooms across the world, as such instruction suddenly reeked of superseded language teaching approaches. The long-lasting effects of this view of CLT infused much second language acquisition (SLA) theory, as can be seen in Brown (2000), Doughty and Williams (1998) or Spada (2007). Although it has been largely accepted that some degree of explicitness is desirable in L2 instruction, the notion that inductive approaches to language learning are always better lingers on. One of the

staunchest and most productive defenders of incidental vocabulary learning is Professor McQuillan, who firmly upholds the view that vocabulary instruction is in itself inefficient and that the learning occurs naturally and successfully through massive, extensive reading (McQuillan, 2019a, 2019b, 2020).

Nonetheless, a very wide and solid body of research shows that direct instruction of vocabulary is far more effective than relying exclusively on incidental learning, both in terms of speed and of amount of vocabulary acquired (Cobb & Horst, 2004; File & Adams, 2010; Laufer, 2003; Laufer & Shmueli, 1997; Meara, 1995; Nation, 2001; Nation & Waring, 1997; Sonbul & Schmitt, 2010). However, as noted above, there does not seem to be a consensus in the literature as to how direct this instruction should be. The Focus on Form approach simply draws the learners' attention to language points "… as they arise incidentally in lessons whose overriding focus is on meaning or communication." (Long, 1991, p.45-46). Task Based Learning also focuses on language form only as a byproduct of meaningful, interactive tasks, since it is based on the principle that language learning occurs through meaningful use of the language and not through controlled practice of individual forms (D. Willis, 1996). By contrast, a consistent group of experts in second language vocabulary pedagogy firmly defend a far more explicit and structured approach to form, which may disregard the communicative element during language focus time (Coxhead, 2000; Nation, 2001; Nation & Waring, 1997; Neufeld & Billuroğlu, 2006; O'Keefe et al, 2007; Schmitt, 2000, 2008). This part of the field holds that contextual, meaning-based learning may well be the most appropriate path to language learning in general, but not for the specific case of vocabulary learning, where direct instruction is needed in order to allow learners to acquire the large amount of

lexical items they need to communicate in English (Schmitt, 2008, pp.340-41).

Beyond the debate around the optimal approach to vocabulary acquisition, overall the strategy identified by the field involves large amounts of reading combined with direct instruction of vocabulary. In the context of studying for a reading test such as IELTS AR, however, approaches based around extensive reading are clearly not practical, as they require an amount of time that exam candidates typically do not have. Other paths are needed, and there is a gap in the literature on this matter, as is discussed in Section 1.4.5 below. The present thesis aspires to contribute to filling this gap by identifying ways in which IELTS candidates can acquire useful receptive vocabulary relatively quickly.

### 1.4.2. Self-study and vocabulary learning

Whether as part of an incidental or direct learning program, self-study, or outside-of-class study, plays an important role in language learning, and very prominently, in vocabulary learning. To quote Schmitt (2000),

> […] teaching new words in class may not be the most efficient way of handling vocabulary. It is probably more productive to assign students homework that introduces them to new words, such as word lists or reading, and then elaborate, expand and consolidate these words in the classroom. (Schmitt, 2000, p.145).

Other experts in vocabulary teaching and learning express similar viewpoints, e.g. O'Keefe, McCarthy and Carter (2007, p.56), "[…] the classroom […] will only be able to traverse the surface of the vast iceberg of low frequency vocabulary and the onus will be on the learner him/herself to achieve the goals", or Nation (in Laufer, Meara & Nation, 2005, p.6): "Encourage learner autonomy. Encourage students to take informed responsibility for their own vocabulary learning".

In the context of study for IELTS, a lack of vocabulary means this missing vocabulary must be learnt quickly and efficiently, while the IELTS-training class is typically concerned with exam technique, skills development and exam practice. Self-study of vocabulary seems the only solution. It should also be considered that every candidate will be at different stages in their vocabulary development, and therefore a lock-step classroom approach cannot be suitable. The vocabulary gap with which many students face IELTS calls for important amounts of self-study. However, although teacher development materials often encourage teachers to set homework (Burgess & Head, 2005; Schmitt, 2000), they rarely suggest designing courses which incorporate a strong self-study element running parallel to the class meeting times. Many such materials include suggestions for independent study, such as references to workbooks and websites (see Burgess & Head, 2005), but this work comes across as a valuable 'extra', rather than a key component of the vocabulary learning process.

ELT textbooks and teacher-training materials seem to attribute to the teacher and the classroom a disproportionate weight in the vocabulary learning process (Lawley, 2010b). Figures 2.14 – 2.15 reveal the tendency of IELTS training textbooks to present sets of lexical items to be learnt in class, often with no annex word lists.

This suggests that the materials writers consider the classroom as the place to meet and learn new vocabulary, and that the teacher's role is central in this phase. Teacher development materials also seem to sustain the primacy of teacher-in-classroom as the source of vocabulary learning (Schmitt & Schmitt, 2020; Webb & Nation, 2017). In answer to a teacher's query on how best to teach the 2000 most common words in English, Thornbury (n.d.) replies:

> "[…] even if you use a lot of texts in class, there is no way that you can guarantee coverage of all [the most common words] in the limited time you are likely to have. Students who read a lot will get a lot of these words 'for free' […], but I mean read a LOT. To up the ante, you might want to choose words from the list to teach in class." (Thornbury, n.d.)

Clearly, the classroom is assumed to be the place where most vocabulary learning necessarily takes place, assigning the teacher a central role.

Overall, teacher development materials offer explicit guidance for how to plan the classroom part of a course but do not seriously contemplate an independent study component as an inherent part of the learning process. A course is overwhelmingly seen as a classroom matter, with a teacher as dispenser of learning, and many students seem to share this view. Most teachers of adult learners can attest to the fact that homework is quite often only completed regularly by a small percentage of their students. This implies that significant proportions of learners rely on their classroom lesson with their teacher for learning to take place.

Learner autonomy and autonomous learning have become a major subfield of language learning literature (see Benson & Reinders,

2011, the SISAL Journal[16] or Reinders' extensive online list of references on the matter[17]). However, the focus is often on autonomy as a value per se. Thus, studies in learner autonomy are not in principle concerned with the issue discussed here, namely considering self-study an integral part of any vocabulary learning process, with or without a formal language course. Autonomy studies do, nonetheless, offer a number of relevant insights and practical suggestions that could be applied to the context of vocabulary learning. Perhaps the most relevant idea advocated by the literature on autonomy is that independent learning requires support and guidance (Lamb & Reinders, 2006; Mozzon-McPherson, 2003; Reinders, 2010). This assigns language teachers a different role from their traditional one of sources and dispensers of knowledge. The teacher of autonomous learners supports and guides them in their learning, inside but especially outside the classroom by providing scaffolding, guidance, support and feedback (Benson, 2017). If it is inconceivable that classroom meeting time can ever be sufficient for enough vocabulary to be learnt, students must learn it outside of the classroom, and it is the teacher's responsibility to structure and guide this process, in the role of the "guide on the side" (Wright, 2006). Learner engagement with the target vocabulary has been identified by Schmitt (2008) as crucial for its acquisition. In fact, he claims that vocabulary learning can only happen through the combined contribution of four "vocabulary learning partners" (Schmitt, 2008, p.333): learners, teachers, materials writers and researchers. Little (2006) considers involving learners in sharing the responsibility for the learning process to be one of three principles underpinning learner autonomy in formal language learning.

[16] Homepage of the SISAL journal: https://sisaljournal.org/

[17] H. Reinders' list of references on learner autonomy: http://innovationinteaching.org/autonomy/autonomy-bibiliography/bibliography/

### 1.4.3. Textbooks

Language teachers the world over rely on published textbooks for their teaching, and language learners also frequently turn to textbooks to guide and instruct their learning path (Guerretaz & Johnston, 2013). In fact, some data suggests that textbooks may configure as much as 90 per cent of school classroom work in the USA (Harwood, 2013). The influence of textbooks is such that Thornbury (2015) claims that the work of language teachers is often mediated or even determined by the textbooks they use. This assertion can probably be extended to include language learners, given the authority generally recognized in published pedagogical materials (Brown, 2014) and learners' need for guidance. However, language learning textbooks have been the object of heavy criticism in the literature for a long time - see, for instance, West (1953b) – on a wide variety of grounds. One of the most recurring themes of criticism is textbook content. Although it is doubtlessly true that textbooks "are far easier to criticize than they are to write" (Harwood, 2013, p.3), there is an extensive body of literature that points to important failings in a wide range of language textbooks, and this critical research production continues today (e.g. Jakupčević & Ćavar Portolan, 2021; Milton & Hopwood, 2021; Guerra Álvarez, & Jiménez Catalán, 2022)

With regard to the vocabulary content of ELT textbooks, and to ELT textbooks devoted entirely to vocabulary, the problems revealed by the literature seem to be largely connected to a lack of underlying principle and systematicity. Studies such as Acosta Moncada et al. (2016), Demetriou (2017), Folse (2004), Jakupčević and Ćavar Portolan (2021), Jiménez-Catalán & Francisco (2008), Lawley (2010a), López-Jiménez (2010), Milton (2009), O'Loughlin (2012) or Schmitt, (2019) point to an overarching approach to vocabulary

teaching and learning that is haphazard and tenuously based on solid pedagogical principle. This state of the art underlies the research agenda for vocabulary acquisition, instruction, and assessment proposed by Schimtt (2019) and is addressed specifically in point no.3, "Getting lexical teaching/learning principles into vocabulary and language textbooks" (Schmitt, 2019, p.265). Schmitt (2019, p.265) notes the fact that key aspects of current research knowledge on vocabulary learning and teaching cannot easily be identified in the way vocabulary learning is handled in published pedagogical materials. Borg (2009) found that research findings do not easily filter through to the field of classroom practice. His study confirmed that many teachers tend not to keep up with research adducing reasons of time, insufficient background knowledge, lack of practical relevance, as well as of access to material" (Borg, 2009, p.370). Schmitt (2019) holds that textbook writers, on the other hand, are "best positioned to organize [the] thoughtful development of vocabulary" that is needed in pedagogically sound learning materials. He argues that hard-pressed teachers lack time to keep up with developments in the research, and may even lack the expertise and/or the resources necessary to put good pedagogical principles into practice. Therefore, the responsibility goes to the materials (writers). Along similar lines, Paran (2017) identifies teacher-trainer-writers as crucial mediators between the two fields of knowledge, practical and theoretical, and underlines the responsibility of materials writers for linking research and classroom practice.

However, Thornbury (2015) points out that writers of textbooks today typically do not have the autonomy once granted them by publishers, and are more likely to be part of anonymous item-writer teams with little freedom to infuse their work with any knowledge of the vocabulary acquisition and development process. Thornbury

(2015, p.101) sees this as part of a process of "increasing digitalization and commodification of educational publishing", while Ur (2017) points out that the choices made by mainstream publishers are not necessarily guided by pedagogical interests, as they are often wary of breaking away from the traditions of the field. From a different perspective, Timmis (2013, p.241) suggests that a balance needs to be struck between research principles and the "traditions, expectations, wishes, and constraints of a particular educational context", which publishers strive to meet. To reach such a balance, Timmis claims it is necessary to develop a set of principles that can help mediate between pedagogical theory and practice in textbook writing.

With regard to textbooks and vocabulary learning for IELTS, and for the IELTS AR test in particular, Chapters 2 and 3 of this thesis show that the balance seems to be strongly weighted towards the commercial interests of publishers, in combination with the narrowly skills-based approach – i.e. not language-based - promoted by the IELTS organization. In fact, Serrano van der Laan (2020) showed that vocabulary learning materials for IELTS often do not overall reflect current findings in research on vocabulary learning, nor do they seem to be able to support much efficient vocabulary acquisition with a view to success in the exam. The implications of this state of the art on learning vocabulary for IELTS AR are discussed in Chapters 3, 5 and 6.

### 1.4.4. Pedagogical word lists

A direct approach to teaching and learning vocabulary that has found favor in the literature and has a strong tradition among practitioners and students consists in using word lists (Balance & Cobb, 2020). Students often refer to word lists or create more or less organized

lists of words they encounter in reading and other contact with their L2 (Chacón-Beltrán, 2018; Kitano & Chiba, 2019; Yamamoto, 2014). Teachers create lists for their students or as the basis for a class or a course. They choose words to include because of their effective or assumed relevance to a topic, on the basis of the teachers' experience of their difficulty for their students, using the teachers' intuition and knowledge of what is useful for their students, or based on a test syllabus. Many coursebooks include a word list of some sort, containing key words from the units in the book.

At the same time, a wide range of principled, pedagogical word lists have been developed over the past 100 years. Work on identifying and ranking the words that might be the most useful for learners to know at various stages of their development was constant throughout most of the 20th century, and has continued into the present century. Michael West's General Service List (GSL) of 1953 was the first major effort to codify the 2000 words considered to be of the greatest "general service" to native and non-native learners of English. Grounded in and summing up the pioneering studies in vocabulary selection of the British 'vocabulary control movement' of the 1930s (Ogden, 1930; Palmer, West & Faucett, 1936), the GSL was an attempt to provide a scientific answer to the questions of how many words are needed to build a working vocabulary in English and what the best words are to learn first. With a vast influence on vocabulary teaching and learning over the years, the GSL has served as a basis for graded readers for native speaker children as well as for ELT materials to this day. Work on word lists continued after the GSL, producing improvements on the original list (Browne, Culligan & Phillips, 2013; Nation & Hwang, 1995; Neufeld & Billuroğlu, 2006) as well as a number of further lists that went beyond the 2000-word, high-frequency level set by West (Campion & Elley, 1971; Carroll, Davies & Richman, 1971; Praninskas, 1972; Xue & Nation, 1984).

The revolutionary improvements in corpora, brought about by the technological innovations of the last forty years, had an enormous impact on this process. Currently, some of the most influential and extensive general service word lists are the 25 lists of the 25,000 most frequent word families in the English language identified by Nation in the BNC and the COCA. These lists first appeared in the early 2000s and have continued to be developed since then (Nation, 2016b). Each list consists of 1000 word families, listed in order of frequency, with each subsequent list being of decreasing frequency with respect to the one preceding it. These lists are freely available on the online vocabulary analysis tool *Lextutor* (Cobb, 2022a). Other influential lists that have appeared in recent years are the AWL (Coxhead, 2000), the PHRASE list (Martinez & Schmitt, 2012), the Academic Vocabulary List (AVL – Gardner & Davies, 2014), the Oxford Phrasal Academic Lexicon (OPAL[18]), or the New GSL (NGSL – Browne, Culligan & Phillips, 2013). All these lists are corpus-based, pedagogically orientated, and developed by vocabulary researchers according to measures of word frequency, range and dispersion, rather than using intuition, experience and tradition. Such lists have been developed for a variety of purposes. Course- and syllabus design are leading aims. Other frequent purposes include using them to develop L2 reading materials and to create language tests. Usefulness is another important consideration in the development of a principled word list, and many specialist word lists have appeared that aim to cover vocabulary characteristic of and useful to specific disciplines and language registers. A very prolific field for this sort of word list is the academic context, which has seen the development of influential academic English lists such as the University Word List (UWL - Xue & Nation, 1984), Coxhead's AWL (2000), the Academic

[18] The Oxford Phrasal Academic Lexicon: https://www.oxfordlearnersdictionaries.com/wordlists/opal

Formulas List (AFL - Simpson-Vlach & Ellis, 2010) and more recently, Gardner & Davies' AVL (2014). More specialized academic word lists of recent years are the Medical Academic Word List (MAWL - Wang, Liang & Ge, 2008), the Basic Engineering List (BEL – Ward, 2009), the Engineering English Word List (EEWL - Hsu, 2013), or the Wikipedia-Based Medical Corpus (Panocová, 2017).

The variety of lists described above can thus consist in inventories of individual words as well as of formulaic units, or include collocations, depending on the purposes of the lists. Thus, the term *word list* is clearly used broadly, and *vocabulary list* might be more adequate. However, *word list* is extensively used in the literature, often interchangeably with *vocabulary list* (Coxhead, 2000; Dang & Webb, 2017; Durrant, 2009; Nation, 2016; Schmitt, 2010). As the term is also extensively used by textbooks and other pedagogical materials, it is therefore used in this thesis, in the broad sense indicated above.

Schmitt (2014) contends that form-meaning association is "particularly amenable to intentional study" (p.916) and can result in high levels of uptake as well as in an effective ability to access the new vocabulary explicitly. Moreover, he asserts that mastering words in this way is "relatively easy" (Schmitt, 2019, p.264). Learning word lists can be a highly efficient tool for acquiring this form-meaning, i.e. receptive, knowledge of vocabulary (Balance & Cobb, 2020; Hulstijn, 2001; Schmitt, 2000). Nation (2013, p.438) claims that decontextualized words can be learnt in large amounts, quickly and retained over time. He propounds direct learning of words from word lists as part of a well-balanced vocabulary learning program (Nation 2008, 2013), and Webb and Nation (2017) underline the importance of outside-the-classroom study time of

these lists, given the dimensions of the task at hand and the limited classroom time typically available.

Word lists provide quantifiable proof of progress (Lawley, 2010a) and constitute a finite, achievable learning task. The pedagogical soundness of using word lists to teach or acquire vocabulary is confirmed in a large body of research. A study by Laufer and Shmueli (1997) showed that deliberate learning of form-meaning pairs can lead to a significant increase in receptive vocabulary size, and that words presented in lists or sentences were remembered better than words introduced through text. Elgort (2011) found that learning vocabulary using word cards and word lists can generate long-term knowledge that can be accessed in a way so quick as to be considered automatic in the psycholinguistic sense. Sökmen (1997) notes that bilingual list-learning has proven to be a successful way to learn a large number of words in a short period of time and even to retain them over time. Van Benthuysen (2002) and Griffee (1997) found noticeable increases in their students' vocabulary learning thanks to the use of word lists. More recently, Sonbul and Macis (2022) confirmed the existing research on the ease and speed of learning vocabulary using word lists, through their study of the use of L2 to L1 lists.

Objections to word lists have also been raised, largely in connection with the decontextualized nature of learning that they entail. Typically, these objections come from the field of those not in favor of direct vocabulary instruction, i.e. from the field that promotes incidental vocabulary learning, but not only. For example, Wright and Cervetti (2017) contend that there is a lack of solid research results on the connection between vocabulary knowledge and reading comprehension. This situation would invalidate decontextualized vocabulary learning, and with it, the use of word

lists for vocabulary learning. Van Zeeland (2013) shows that although direct learning of lexis may apparently yield good results in terms of vocabulary size, decontextualized vocabulary knowledge is not a reliable indication of its contextualized knowledge – i.e. how much vocabulary learners understand when reading or listening.

Learning from lists may be opposed due to the lingering distrust of rote learning that has pervaded a substantial part of second language acquisition (SLA) research as well as English language teaching after Chomsky's (1959) discrediting of behaviorism and the advent of Communicative Language Teaching (CLT). This language teaching approach replaced earlier teaching and language learning methodologies that were more or less heavily dependent on decontextualized memorization. The reappraisal of the value of memory in language learning (Bilborough, 2011; Ding, 2007; Dörnyei, 2009; Ellis, 2001; Skehan, 1998; Stevick, 1998) led to a new shift in paradigms regarding learning strategies and tools. Word lists seem to be one of a number of instruments rehabilitated from earlier approaches to language learning. For instance, Hulstijn (2001) states:

> [The] unqualified rejection of rote learning information kept in a list format, however, may be unwarranted… Although it would not make sense to learn the entire list (… in the listed order), it would make sense to learn each individual item on the list. (Hulstijn, 2001, p.281)

Opposition to using word lists has also been grounded in the view that any learning must occur within a meaningful context and that a syllabus should not be set and imposed from the outset. One

argument has been that a syllabus or a teacher cannot establish the order in which a learner will acquire new language (D. Willis, 1996). In fact, Task Based Learning propounds that students should be supported in expressing their linguistic needs as they become individually ready to acquire them (Robinson, 2001). Thus, a vocabulary syllabus should be developed by the specific learners as and when they need its individual components. As Meara noted, however,

> [t]he main argument against the use of word lists is that they are an unnatural way of acquiring vocabulary items. This, of course, is true. Word lists ARE unnatural, but so are many of the other things that we do to teach foreign languages, and it seems unfair to single out word lists in this way. (Meara, 1995, p.1)

Along these lines, although much earlier, Widdowson observed that

> […] the whole point of pedagogy is that it is a way of short-circuiting the slow process of natural discovery and can make arrangements for learning to happen more easily and more efficiently than it does in 'natural surroundings'. This is what schools are for, whatever subject we are dealing with. Pedagogy is bound to be a contrivance: that is precisely its purpose. (Widdowson, 1990, p.162)

One element that may have played a part in clearing the way for learning from word lists is the reassessment of learner culture and learner expectations, which tend to be seen today as a determining factor in the learning process. Tinkham (1989) pointed out that rote learning is a learning style common in many non-English-speaking academic cultures. In fact, Yamamoto (2014) found that memorizing words in word lists is common practice among Japanese students, and Kitano & Chiba (2019) found that these students even prefer this method to learning from word cards. Chacón-Beltrán (2018) found that learning from word lists and keeping records of new words encountered in text were a favorite learning strategy among the Spanish students of English in his study. Tinkham (1989) argued that it is more productive to make use of such learning styles as a resource rather than struggle to impose new ones that clash with learner expectations. This attitude fits well with what Nation (2001, p.383) calls "environmental analysis", that is, discovering features of teachers, learners and the teaching/learning situation which may help or hinder learning. Hyland (1993) notes that an important area of intersection between education and culture is that of learning styles. Widdowson (1990, p.128) already noted that "One cannot expect that learners will take readily to modes of behaviour in the language class which are at variance with those which are promoted in their other lessons." Meara (1995, p.4) also discusses learner expectations with regard to vocabulary learning. He contends that students expect to have to learn large amounts of vocabulary, from a vague but not ungrounded intuition that learning a new language must per force involve learning a lot of words: "… most learners expect to have to learn vocabulary, and it therefore makes a lot of sense to capitalise on these expectations."

From the point of view of direct vocabulary instruction, it can be argued that pedagogical vocabulary lists structured in order of

frequency or usefulness are principled, research-informed guides to what vocabulary to learn first, particularly if used in combination with vocabulary knowledge tests that allow learners and teachers to understand where to start from. Overall, the leading idea may be that "[l]earning a foreign language is difficult, complicated and time-consuming. Any procedure that might make it a little easier, faster or more successful therefore needs to be taken seriously." (Swan, 2008, p.262).

Interestingly, many existing principled, pedagogical word lists seem to have been conceived mainly as tools for teachers, materials writers and researchers, but not as tools for learners. In fact, only few of the list developers explicitly suggest that learners directly use word lists for study. Some notable exceptions are the AWL developers, who advise learners to "directly study words from the list using word cards"[19], and Prof. T. Cobb, who has made Nation's 25 BNC-COCA lists freely available on his web tool Compleat Lextutor (Cobb, 2022b). Over the years, Professor Cobb has consistently supported building a large sight vocabulary by deliberate, massive learning of form-meaning pairs using pedagogical vocabulary lists organized in levels of frequency (Cobb, 1998; n.d.A).

The reluctance to placing these large word lists in the hands of students may be connected, with a particular understanding of what learning from a list means. Nation (2001, p.297), Hulstijn (2001, p.281) and Nation and Webb (2011) oppose "list learning", that is, learning the words in list order, because items in a list cannot be rearranged and would be learnt serially. Hulstijn (2001, p.281) remarks that learning words in this way makes little sense, while

[19] Instructions on how to use the AWL, by the developers: https://www.wgtn.ac.nz/lals/resources/academicwordlist/information/howto

Nation and Webb (2011) term this approach *serial learning* and observe that it is undesirable because the list format provides prompts that foil retrieval work. Word- or flashcards are promoted as a more suitable approach for the direct learning of vocabulary by these and many other relevant experts (e.g. Ballance & Cobb, 2020; Cobb, n.d.A; Gardner, 2013), and this technique is discussed in Section 1.4.5 below.

In the context of training for language exams, making word lists directly accessible to learners has obvious benefits. It means that students can see the full extent of the task ahead of them (Lawley, 2010a) and furnishes them with a vocabulary syllabus. This connects with Dörnyei's principle that learners need clear and achievable goals to drive their motivation and plan their learning (Dörnyei 2001, p.81). At the same time, word lists allow learners to implement their intention to learn specific vocabulary items and to manipulate them, thus developing what Schmitt (2008, pp.338-340) has termed *engagement*. Using word lists implies developing useful independent learning strategies (Sökmen, 1997, p.255-257), and afford learners independence from the teacher (Lawley, 2010a) and responsibility for their learning, facilitating learner autonomy (Benson, 2011; Benson & Voller, 1997; Little, 2003). The present thesis argues that principled word lists might be of great utility to IELTS candidates preparing for the AR test, where an increase in vocabulary size could lead to a substantial improvement in reading comprehension. Hyland (2008) acknowledged that

> […] teachers working in the prespecialisation IELTS contexts […] might find some value in the kinds of 'similarities and generalities that will facilitate instruction in an imperfect world'. Here a kind of revamped GSL, perhaps based around

> multiword clusters, could provide blessed relief for hard-pressed teachers. (Hyland, 2008, p.114)

Which word lists might be specifically useful to IELTS AR preparation is discussed in Chapters 5 and 6.

### 1.4.5. Word cards

A relevant body of research suggests that learning from word cards is a highly effective way of learning vocabulary, particularly for receptive purposes, and has important advantages over learning directly from lists (Ballance & Cobb, 2020; Cobb, n.d.A; Elgort, 2011; Gardner, 2013; Hulstijn, 2001; Komachali & Khodareza, 2012; McLean, Hogg & Rush, 2013; Mondria & Mondria-de Vries, 1994; Nakata, 2020; Nakata & Webb, 2016; Laufer, 2003; Laufer and Shmueli, 1997; Sökmen, 1997; Webb & Nation, 2017). It seems that using word cards is particularly effective if the cards are bilingual (Webb & Nation, 2017), as bilingual L1 – L2 word pairs have been found to be conducive to learning (Schmitt, 2008).

The word- or flashcard technique consists in copying the words in a word list onto word cards, which can be paper-based or digital flashcards using an online flashcard app. Sets of digital vocabulary cards are easy to produce and use thanks to readily available web applications, and their use finds favor in many students, who can easily access them through mobile applications (Nikoopour & Kazemi, 2014; Tran, 2016). The target vocabulary item appears on one side of the card, and a definition, translation, or other meaning-retrieval trigger (e.g. a picture) is added on the other side.

The source of the items on such word cards could be a principled word list, and thus this approach to learning lexis could still

conceivably be considered 'learning from a list', although with the advantage that such learning is no longer in list order. Word cards make it possible to re-arrange, group and variously manipulate words from a list (Schmitt, 1997), with major learning advantages. The words can be studied in any order, maintaining the contents of the list while removing the inflexibility and the unhelpful prompts of the list, i.e. the word immediately before and immediately after the focus word. Word cards can be used to commit vocabulary to memory and to review vocabulary previously learnt through spaced repetition activities. They seem particularly suited to developing receptive vocabulary size, as they facilitate retrieval by prompting the learner to recall the target item or its definition or translation, depending on which side of the card they look at (Webb & Nation, 2017, p.114).

Online flashcards are the digital evolution of paper word cards. Webb and Nation (2017) identified a number of advantages of digital flashcards over their predecessor the paper word card. One is the frequent presence of audio support, which adds the possibility of learning the pronunciation of the vocabulary item and recognizing its spoken form, as well as its written form. Another advantage is the inclusion of adaptive recycling features, which facilitate spaced repetition by allowing learners to timetable revision moments. A further improvement over paper cards is that flashcard apps often provide the possibility of tracking learning, which can act as a motivational factor and affords autonomy in that the learner can be in control of their learning. Ballance and Cobb (2020) add to these advantages the fact that flashcards afford a more perfect randomization or re-shuffling. Furthermore, they point out, most flashcard programs include a quiz feature that not only facilitates progress-checking, but also allows the software to track mistakes and adapt its retrieval activities. More sophisticated programs can

even provide instructional activities focused on the words not known in the quiz. It is curious that IELTS exam training materials or teacher reference books for language exam training do not propose the use of word cards, given the obvious benefits to exam candidates.

At the same time, the literature advises some caution with regard to the use of word cards. Wilkinson (2017) notes that most of the existing research is quantitative and performed under experimental conditions, and notes the lack of qualitative investigations carried out in natural learning contexts (Wilkinson, 2017, p.3) Nakata (2008) found some advantages of word cards or flashcards over list learning but highlighted the fact that other empirical research on the matter is scarce.

### 1.4.6. Learning vocabulary for language exams

There is not much teacher-support literature available on the issue of teaching and learning vocabulary in the context of language exam study, in spite of the relevance of the matter for learners and practitioners. Burgess and Head's (2005) teacher reference handbook may be one of the few materials published in recent years. However, the focus of the book is on teaching for language exams in general, and it only briefly deals with teaching vocabulary - together with grammar - in chapter 5, for a total of 14 pages out of the 154 that make up the book. Much of the chapter is taken up with examples of vocabulary and grammar tasks common in English language examinations (p.65-69). The chapter also quickly reviews some areas of vocabulary knowledge typically assessed in language exams, namely accuracy and appropriacy, knowledge of collocations (p.69), knowledge of formulaic language, awareness of style, register and connotation (p.70). However, little space is dedicated

to how to teach or learn these aspects of vocabulary knowledge. More relevantly to the purpose of this thesis, not much space is dedicated to ways of increasing vocabulary size, particularly receptive vocabulary size, which can make an important difference in candidates' performance, especially in the case of IELTS. The authors seem to overlook this aspect of vocabulary development because they set out from the point of view that "a period of exam preparation is not be time to start presenting large amounts of new language; rather, it is a time for reviewing and consolidating what has already been learned" (Burgess & Head, 2005, p.64). Thus, the rest of the chapter is dedicated to developing students' vocabulary depth (p.71-72), training them in learner autonomy by teaching them to learn from error and context (p.73-75) and encouraging self-study, as well as training students to apply efficient exam techniques (p.75-76). This approach to vocabulary study is doubtlessly sound for exam candidates who are already at a level of language proficiency that is appropriate for passing their target examination, and need at this point to fine tune their knowledge and familiarize themselves with the exam. However, in the context of IELTS study, such an approach disregards those large numbers of candidates who need, within a short span of time, to attain a given score that may be beyond their current level of proficiency.

Perhaps the biggest problem posed by Burgess and Head (2005) is that no mention is made of outlining specific vocabulary targets for the learner. This is a shortcoming that also burdens much of the published pedagogical materials for IELTS, as is discussed in Chapter 5 of this thesis. Yet Dörnyei (2001, p.81) and Nation (2001, p.218) identify goal-setting as key towards developing and maintaining motivation in a learning program, and Schmitt (2008, p.330) suggests that "a good starting point is to outline reasonable vocabulary learning goals" in order to determine the scope of the

"vocabulary learning challenge". Not establishing clearly what the learning goals are also partially defeats the purpose of training students in autonomy, as students cannot develop a learning plan, assess their progress along this plan nor gauge their distance from its completion, thus overlooking some of the key stages in the development of autonomous learning (Little, 2003; Reinders, 2010, p.46).

Burgess and Head's (2005) approach to vocabulary is symptomatic of a widespread attitude towards vocabulary teaching in course books and teacher reference materials, which tend to place the focus on developing depth of knowledge. In textbooks, this often results in a relatively small syllabus of apparently randomly selected lexical items. When materials do address increasing vocabulary size the proposals usually involve long-term study. This is also the case of highly principled teacher reference handbooks such as Webb and Nation's (2017) *How Vocabulary is Learned*, or Gardner's (2013) guide to vocabulary knowledge and teaching, or Schmitt's (2008) review of instructed second language vocabulary learning. Webb and Nation list vocabulary learning activities such as extensive reading and listening, developing autonomous learning skills or ensuring language classes that apply Nation's (2007) "four strands", all of which require a time investment that the average IELTS candidate does not have. Gardner argues for developing a "vocabulary-centered curriculum" (Gardner, 2013, p.109-117) and propounds training learners in using concordancing programs, understanding dictionary definitions and raising their awareness of collocation and morphology - again, all highly useful but highly time-consuming endeavors. Schmitt (2008, p.354) explicitly propounds developing long-term vocabulary learning programs based on solid pedagogical principles.

Interestingly, Webb and Nation (2017, p.147) include a brief paragraph on "teaching vocabulary when time is limited", but the focus is on selecting the aspects of vocabulary study to prioritize, rather than on ways of quickly increasing (receptive) vocabulary size. The exam context, typically characterized by short-term objectives, is not taken into consideration. Again, this is curious, considering the wide diffusion of language exams across education levels in the world today and the amount of teacher time dedicated to preparing students for them on a global scale.

Reticence towards massive, deliberate learning to increase receptive vocabulary size may be based, among other reasons, on the fact that research has questioned this approach to vocabulary acquisition as it risks being weak in the long term and poor as regards depth and solidity of knowledge (Elgort, 2011; Schmitt, 2014). It is argued that such an approach to learning does not encompass the repeated encounters in context that will allow a solid anchoring of the vocabulary in the learners' mental lexicon nor permit the development of important aspects of vocabulary knowledge such as grammar or collocation, nor association with other lexical items in the lexicon (Webb & Nation, 2017, p.49). Schmitt (2008, p.331) holds that vocabulary learning must happen through programs which are "principled, long-term, and which recognize the richness and scope of the lexical knowledge that needs to be mastered". This view, however, does not take account of the real needs of large numbers of learners worldwide, such as IELTS candidates, that have little time at their disposal and who can benefit greatly from short-term results. This thesis will argue that effective, short-term vocabulary learning programs are necessary, as they can make an important contribution towards success in the IELTS AR test, and are a glaring absence in published vocabulary learning materials today.

# 2. IELTS ACADEMIC: AN OVERVIEW

This chapter provides a brief overview of IELTS in terms of the test's construct, format, purpose, administration and impact, in order to supply some background to the specific study of this thesis, i.e. vocabulary and the IELTS AR test. The test is described in detail, and its theoretical construct is outlined together with its intended purpose. The ownership and management of the test is also looked into. Finally, some voices that are critical of IELTS are overviewed, regarding issues ranging from the test's validity as a predictor of academic performance, to its fairness from a socioeconomic point of view, and its impact on society.

## 2.1. General overview of IELTS Academic

The International English Language Testing System (IELTS) test is a high-stakes exam taken annually by over 3.5 million candidates (IELTS.org, 2023)[20]. It has become the international benchmark for assessing proficiency in English (Michell, 2021) and is accepted by over 11,000 educational organizations in the world (IELTS.org, 2023)[21]. Its definition as "the most broadly recognized English-language test globally" (O'Sullivan, 2018) is very likely still accurate today. The test can be taken in two different versions, IELTS Academic and IELTS GT, and assesses a candidate's ability to communicate in English with a view to study (IELTS Academic) or to work and immigration (IELTS GT).

Of the two versions of IELTS, the number of test takers for the Academic test widely surpass those of the GT test, with a 77 vs 23% split between the two versions according to the most recent data supplied by IELTS.org (2023)[22]. IELTS Academic, the focus of the present thesis, is used to meet the English language proficiency requirements that are part of most university courses in the English-speaking world, and is also increasingly accepted for admission to university courses in non-English speaking countries (IELTS.org, 2023 – see footnote 22).

Originally appearing in 1989 as a test of English for academic purposes, with subject-specific reading and writing tests, IELTS became the current four-paper examination after its revision in 1995, in which the four language skills of speaking, reading, writing

[20] The most recent data published about numbers of IELTS-takers: https://www.ielts.org/news/2019/ielts-grows-to-three-and-a-half-million-a-year
[21] Who accepts IELTS: https://www.ielts.org/about-ielts/ielts-for-study
[22] The most recent statistics on IELTS test-taker performance: https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

and listening are assessed separately and without a domain-specific component (O'Sullivan, 2012). The only options in the current format are the choice between the Academic or the GT test. The Listening and the Speaking tests are the same for both versions of IELTS, while the Reading and Writing tests are different, as is illustrated in Figure 2.1. The exam content covers topics and situations which are aimed at a broad public, that do not require specific background knowledge, although the different purposes of GT (immigration and work) and Academic candidature (study) are reflected in the different topics and tasks of the two versions.

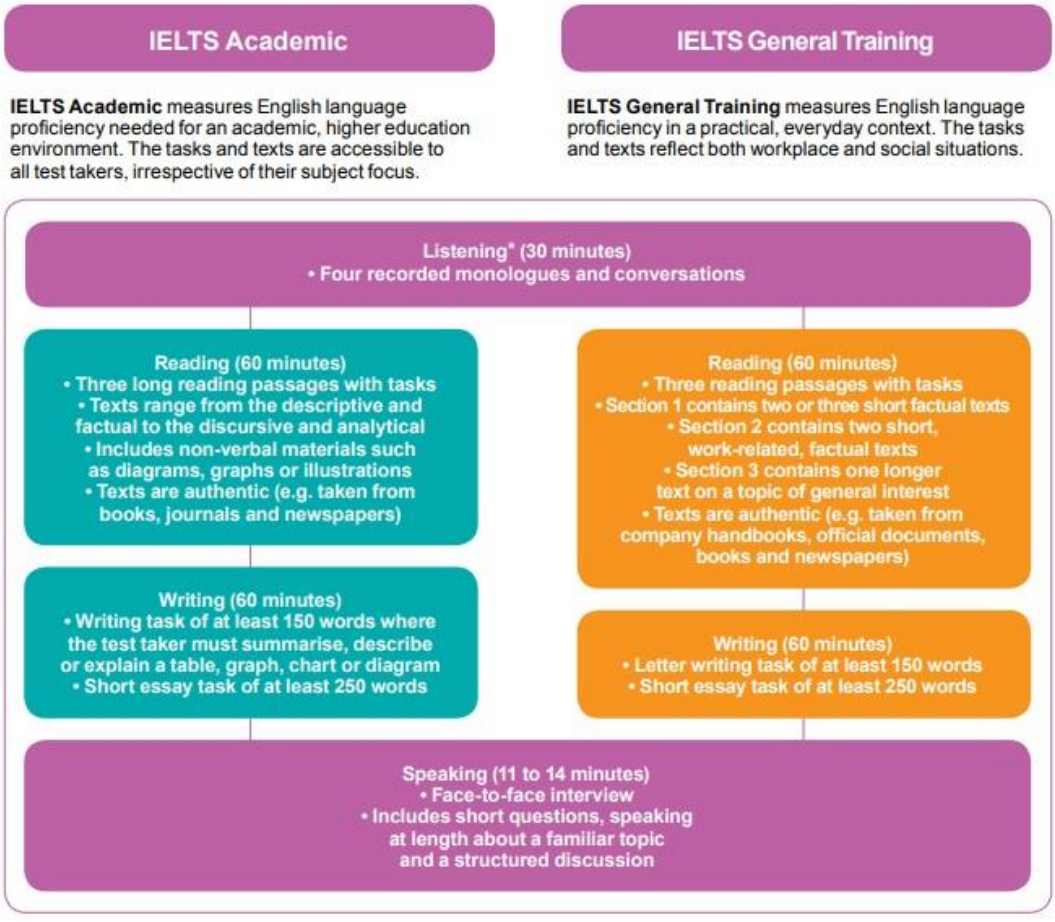



**Figure 2.1:** IELTS Academic and GT compared. Source: Guide for Teachers (2021), p.4. https://www.ielts.org/-/media/publications/guide-for-teachers/ielts-guide-for-teachers-uk.ashx

Similarly to its main competitors, the American TOEFL and the Australian Pearson Test of English (PTE) Academic, IELTS Academic

is a screening test (Green, 2007). This means that the aim of the test is to ascertain language ability for a given purpose, i.e. for admission into university study in English. The degree of acceptance of this exam on a global scale today implies that IELTS Academic has become a major gate-keeping tool, as results in the test are used to make decisions regarding university admission. A corollary of this use of IELTS implies that the test also determines who is excluded, and Ahern (2009) notes the great societal impact of IELTS and its major effects on HE. This impact is not without its critics, among which Ahern can be counted, as is discussed in Section 2.1.3 below.

The IELTS organization is well aware of the "complex educational, social and economic infrastructure [that] has … built up around the test" (Taylor, 2011, p.8). In fact, a consequence of the consolidation of IELTS as a gatekeeper is that the exam fuels a thriving industry of preparation courses on a worldwide level (Trenkic & Hu, 2019, 2021). Regulating university entry on the basis of admission tests seems to have this effect generally, to the point that a "shadow education industry" has developed around the world (Yu & Green, 2021). Already in 2010 Lynda Taylor stated "IELTS test preparation courses, teaching materials and other resources – once quite limited in nature – have mushroomed beyond all expectations" (Taylor, 2011, p.8). A perusal of language course offers online and in any larger city in the world reveals a vast array of exam training courses. Parallel to this, IELTS generates an important production of textbooks and other exam training material by leading publishers internationally, specifically Cambridge University Press, Oxford University Press, Pearson, Macmillan, Collins and Barrons. The range of materials offered can be seen in the publishers' catalogs and are normally available at any major bookshop around the world.

The test is jointly owned, developed and administrated by Cambridge Assessment English, the British Council and IDP Education, with each partner fulfilling different roles (Clark, Spiby & Tasviri, 2021). All three of these powerful bodies in the field of English language teaching and assessment grant the exam academic and logistic foundations, as well as a level of prestige, that are difficult to rival. Cambridge Assessment English boasts 100 years of experience in language teaching and learning and assessment (Hawkey & Milanovic, 2013), and benefits from the authoritative reputation of its well-known general English examinations, such as B2 First, C1 Advanced and C2 Proficiency. Their professional and academic status is largely based on Cambridge's solid expertise in language assessment, which relies on a large staff of highly qualified test developers and rigorous systems of validation and quality. They can also count on the support and reputation of Cambridge University Press for the development and dissemination of exam training materials. Cambridge Assessment English regularly carries out in-depth academic research on all aspects of language assessment, sharing many of their findings through their range of publications, as well as in top-level journals, symposia and conferences. Their research on IELTS is regularly circulated in the open-access publications IELTS Research Reports, Studies in English Language Testing (SiLT) and Cambridge Assessment English Research Notes (IELTS.org, 2023)[23]. The British Council, with over 80 years' history of language teaching and testing, and a presence in over 100 countries across the world (British Council.org, 2023)[24], provides an international network of IELTS agencies and test centers that also offer exam preparation. As the official UK organization for cultural relations and educational opportunities, the British Council holds a

[23] Published research funded by IELTS can be accessed here: https://www.ielts.org/for-researchers/research-reports
[24] About the British Council: https://www.britishcouncil.org/about-us

prestige, a financial background and an international presence that is difficult to match. Finally, IDP Education furnishes the IELTS consortium with a consolidated experience and an extensive network in the field of student recruitment and placement in the Australian sphere of influence. A partner in the IELTS consortium since 1989, it has strong connections to universities in 30 countries and extensive experience in English language teaching.

IELTS is widely available around the world, and can be taken at authorized test-centers in most main cities in both a paper and a computer version. Many test dates are available every month, although calendars can vary greatly from one test center to another (IELTS.org, 2023)[25]. All the tests are assessed by certified IELTS examiners, specifically trained and supervised by the organization (IELTS.org, 2023)[26].

IELTS consists of four tests, one for each skill of reading, listening, writing and speaking, that must be taken in a single sitting and cannot be taken separately. This is because the overall score aims to provide a "composite assessment of a candidate's overall language proficiency at a given point in time" (Cambridge Assessment English Research Notes 18, p.14). The exam is not pitched at a specific level and there is no pass mark: the same exam assesses candidates at any level of proficiency, identifying their position on a scale from 1 to 9, where Band 1 reflects a "non-user" and Band 9 an "expert user" (IELTS.org, 2023)[27]. Each candidate obtains an overall score that is the average of the total scores

[25] IELTS sessions at test centers around the world: https://www.ielts.org/for-test-takers/book-a-test
[26] IELTS examiner recruitment and training: https://www.ielts.org/for-teachers/examiner-recruitment-and-training
[27] The IELTS scoring system and how scores are calculated: https://www.ielts.org/for-test-takers/how-ielts-is-scored

attained in each of the four tests. A detailed description of the format and the assessment aims of each component of IELTS is provided in Section 2.2., and an explanation of IELTS scores and their relation to the CEFR is provided in Section 2.3.

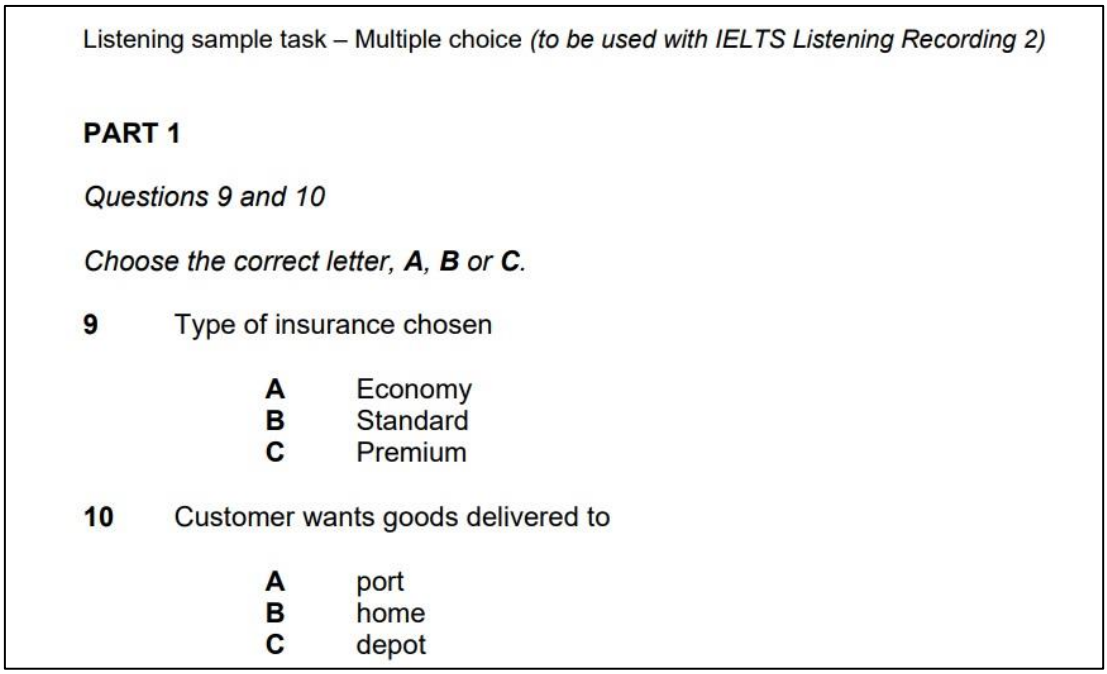
## 2.2. Format and construct

IELTS Academic is a four-paper test taken in one sitting. It is not currently possible to take individual parts of the test at different sittings, although there are plans for introducing this option in the near future (IELTS.org, 2023)[28]. Each paper tests one individual language skill, that is, speaking, listening, reading and writing. As outlined above, the reading and writing papers are specific to the Academic test, while the listening and speaking tests are the same in IELTS Academic and IELTS GT.

IELTS thus tests each language skill discretely, that is, separately as opposed to integrated with other language skills and subskills (Hidri, 2018). A variety of assessment techniques are used to test reading and listening, including objective methods such as multiple choice questions (see Figs. 2.2 and 2.3), and subjective methods, such as short-answer questions and summary completions (see Figs. 2.5 and 2.6). A more apt denomination for these last testing methods is probably "non-objective" methods, as coined by Alderson, 2000 (p.205), since the way they are used in IELTS does not fully qualify them as subjective techniques. Typical subjective test items require the examinee to answer using their own words, while in IELTS AR the short answers and the missing words in some summary completion questions are to be copied verbatim from the reading passages. In a further type of summary completion questions in the AR test, the missing words are to be chosen from a list (see Figure

[28] An article from the "IELTS news" page announcing the introduction of single-paper retakes: https://www.ielts.org/news/2022/announcing-ielts-one-skill-retake

2.5) – again, it is hard to classify this sort of test item as fully "subjective". Sentence completion questions in the Listening test require words taken from the recording, with little or no possibility of free interpretation (see Figure 2.4).



Listening sample task – Multiple choice *(to be used with IELTS Listening Recording 2)*

**PART 1**

*Questions 9 and 10*

*Choose the correct letter, **A**, **B** or **C**.*

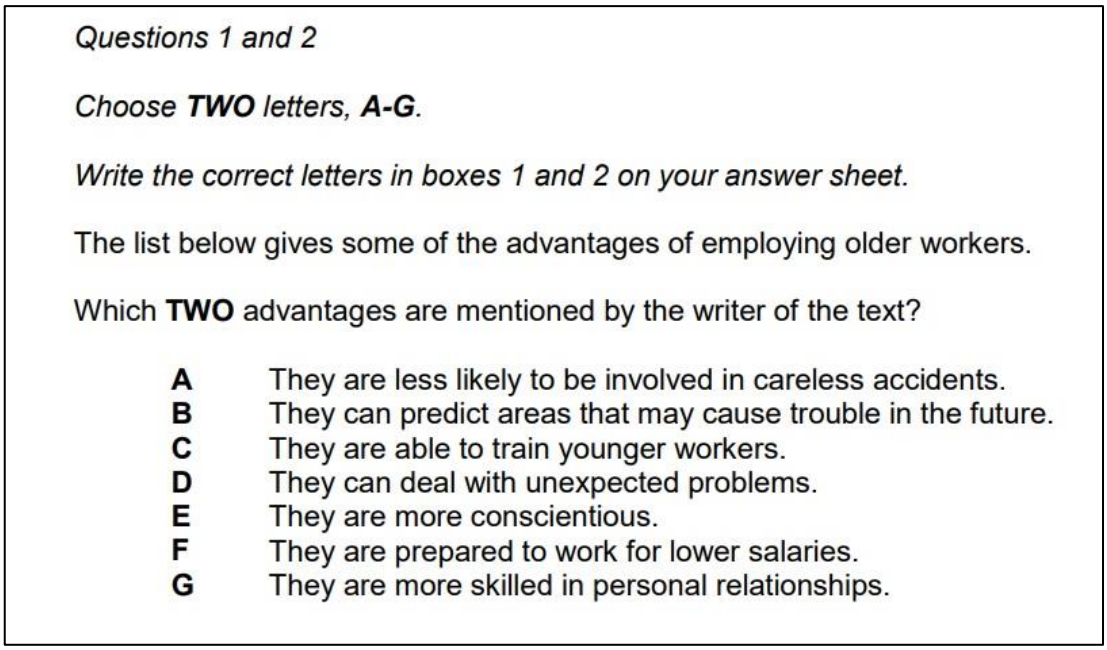
**9** Type of insurance chosen

**A** Economy
**B** Standard
**C** Premium

**10** Customer wants goods delivered to

**A** port
**B** home
**C** depot

**Figure 2.2:** An example of a multiple choice question from the IELTS Listening test. Source: https://www.ielts.org/about-the-test//-/media/pdfs/listening-sample-task---multiple-choice.ashx



*Questions 1 and 2*

*Choose **TWO** letters, **A-G**.*

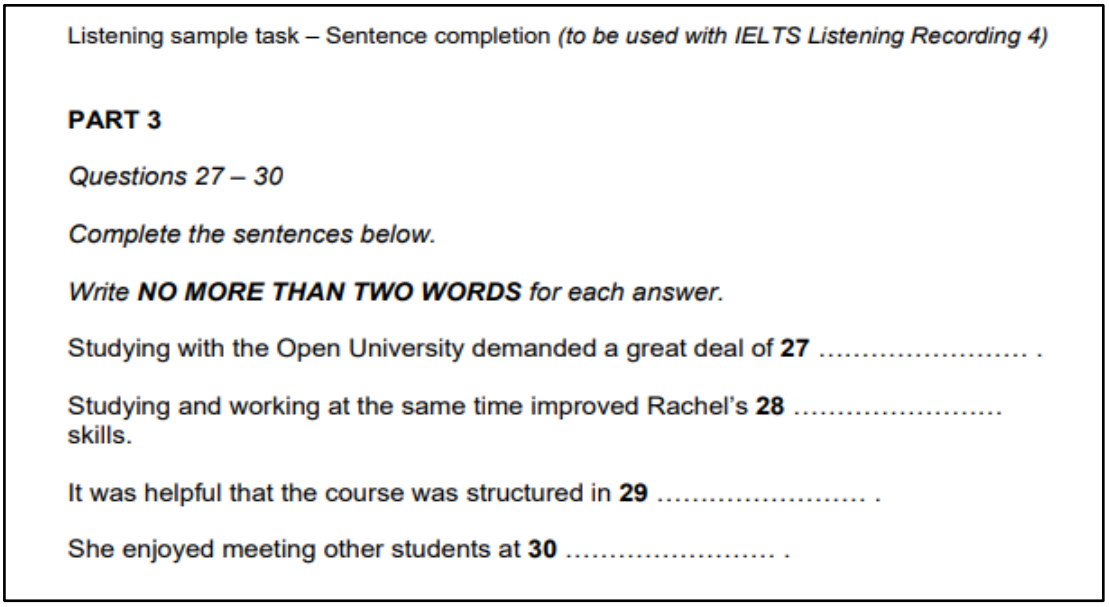
*Write the correct letters in boxes 1 and 2 on your answer sheet.*

The list below gives some of the advantages of employing older workers.

Which **TWO** advantages are mentioned by the writer of the text?

**A** They are less likely to be involved in careless accidents.
**B** They can predict areas that may cause trouble in the future.
**C** They are able to train younger workers.
**D** They can deal with unexpected problems.
**E** They are more conscientious.
**F** They are prepared to work for lower salaries.
**G** They are more skilled in personal relationships.

**Figure 2.3:** An example of a multiple choice question from the IELTS AR test. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-multiple-choice-more-than-one-answer.ashx?la=en



Listening sample task – Sentence completion *(to be used with IELTS Listening Recording 4)*

**PART 3**

*Questions 27 – 30*

*Complete the sentences below.*

*Write **NO MORE THAN TWO WORDS** for each answer.*

Studying with the Open University demanded a great deal of **27** ..... .

Studying and working at the same time improved Rachel's **28** ..... skills.

It was helpful that the course was structured in **29** ..... .

She enjoyed meeting other students at **30** ..... .

**Figure 2.4:** An example of a sentence completion question from the IELTS Listening test. Source: https://www.ielts.org/about-the-test//-/media/pdfs/listening-sample-task---sentence-completion.ashx

*Questions 1 – 4*

*Complete the summary using the list of words, **A-G**, below.*

*Write the correct letter, **A-G**, in boxes 1-4 on your answer sheet.*

**The importance of language**

The wheel is one invention that has had a major impact on **1** ..... aspects of life, but no impact has been as **2** ..... as that of language. Language is very **3** ..... , yet composed of just a small number of sounds. Language appears to be **4** ..... to use. However, its sophistication is often overlooked.

| | | |
|---|---|---|
| **A** difficult | **B** complex | **C** original |
| **D** admired | **E** material | **F** easy |
| **G** fundamental | | |

**Figure 2.5:** An example of a summary completion question selecting from a list, from the IELTS AR test. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-summary-completion-selecting-from-a-list-of-words-or-phrases.ashx?la=en

*Questions 1 – 5*

*Complete the summary below.*

*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*

*Write your answers in boxes 1-5 on your answer sheet.*

Consumers often complain that they experience a feeling of **1** ..... when trying to put together do-it-yourself products which have not been tested by companies on a **2** ..... . In situations where not keeping to the correct procedures could affect safety issues, it is especially important that **3** ..... information is not left out and no assumptions are made about a stage being self-evident or the consumer having a certain amount of **4** ..... .

Lawyers, however, have raised objections to the use of plain English. They feel that it would result in ambiguity in documents and cause people to lose faith in **5** ..... , as it would mean departing from language that has been used in the courts for a very long time.

**Figure 2.6:** An example of a summary completion question using words from the text, from the IELTS AR test. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-summary-completion-selecting-words-from-the-text.ashx?la=en

### 2.2.1. The Academic Writing test

The Academic Writing test requires the candidate to produce two texts in one hour that reflect some characteristics of certain types of undergraduate writing. The Academic Writing tasks are not linked to any texts or recordings, and no reference material may be used during the test.

**WRITING TASK 1**

You should spend about 20 minutes on this task.

***The graph below shows radio and television audiences throughout the day in 1992.***

***Summarise the information by selecting and reporting the main features, and make comparisons where relevant.***

Write at least 150 words.

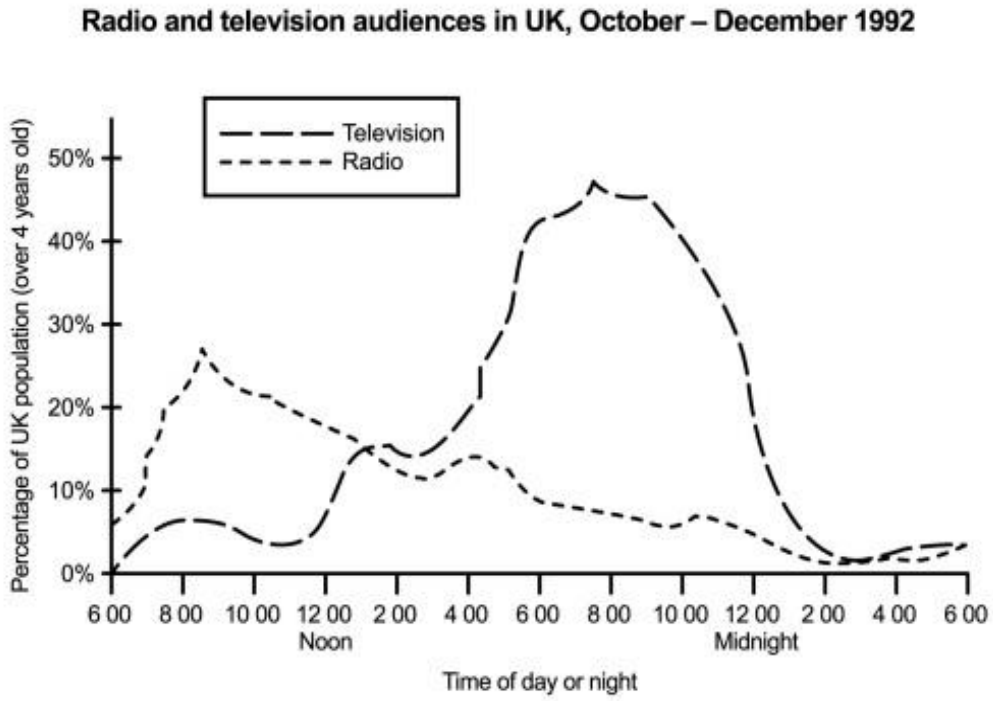
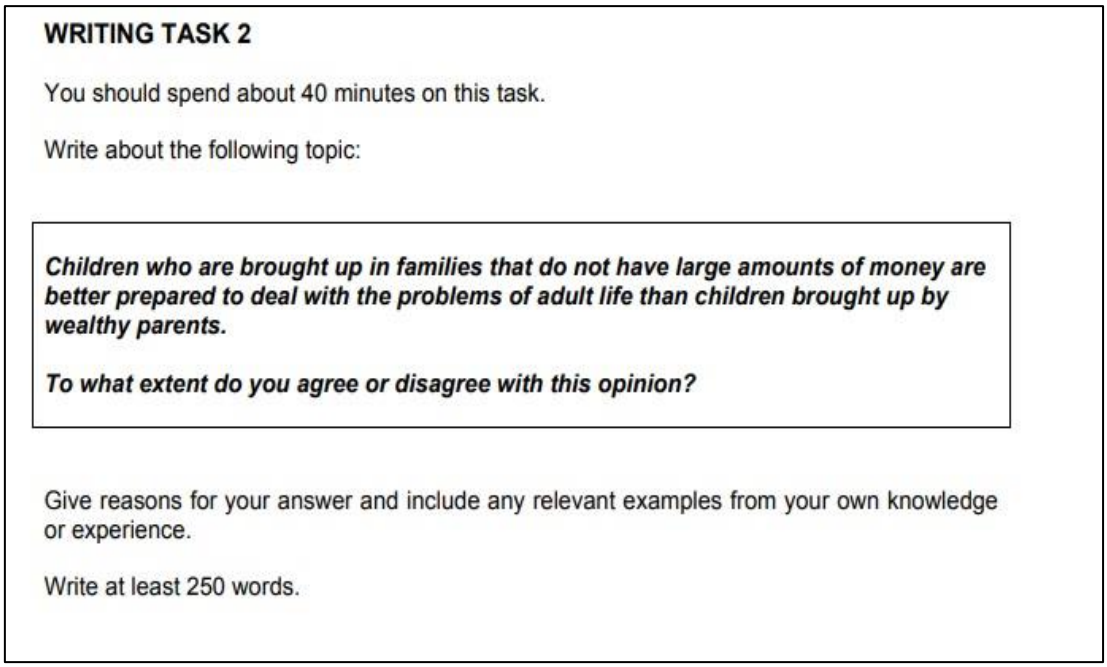



**Figure 2.7:** IELTS Academic Writing test – an example of a Task 1. Source: https://www.ielts.org/-/media/pdfs/writing-sample-tests/academic-writing-sample-task-1b.ashx?la=en



**WRITING TASK 2**

You should spend about 40 minutes on this task.

Write about the following topic:

***Children who are brought up in families that do not have large amounts of money are better prepared to deal with the problems of adult life than children brought up by wealthy parents.***

***To what extent do you agree or disagree with this opinion?***

Give reasons for your answer and include any relevant examples from your own knowledge or experience.

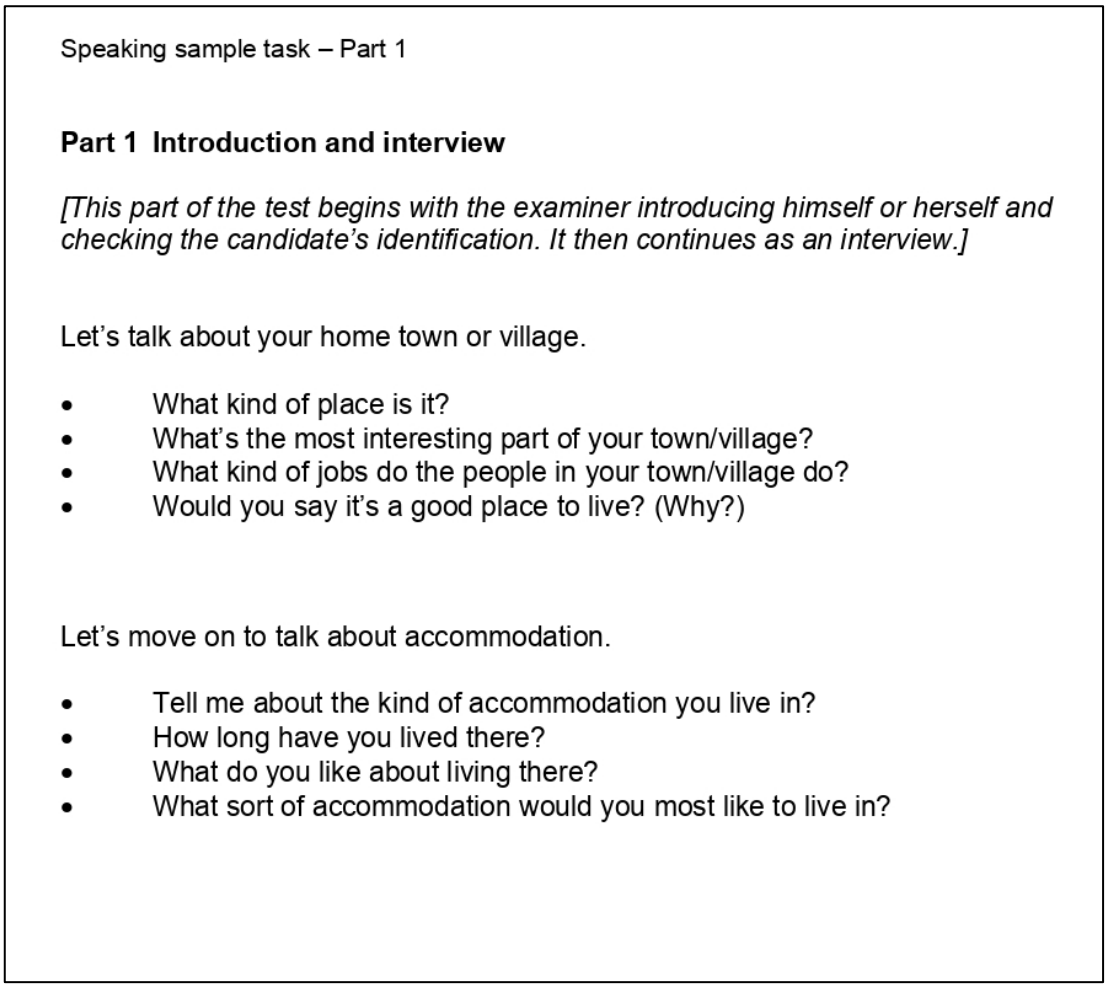
Write at least 250 words.

**Figure 2.8:** IELTS Academic Writing test – an example of a Task 2. Source: https://www.ielts.org/-/media/pdfs/writing-sample-tests/academic-writing-sample-task-2a.ashx?la=en

The first writing task requires the production of a summary of visual information, often of a statistical nature. An example Task 1 can be viewed in Figure 2.7. The text should be at least 150 words long and should identify the most relevant features in the diagram and include an overview. Candidates are advised to spend about 20 minutes on this task. The second task is a discussion essay, where candidates need to present a given issue and argue their point (see Figure 2.8). A minimum of 250 words is required and candidates are advised to dedicate about 40 minutes to this task. A single mark is awarded for the whole Writing paper, with Task 1 accounting for one third of the total, while Task 2 accounts for two thirds of the score. Four criteria are used to assess each task: Task Achievement, Coherence and Cohesion, Lexical Resource and Grammatical Range and Accuracy (see Appendix 1 for details).

### 2.2.2. The Speaking test

The Speaking test is an individual interview carried out in real time, in which the candidate answers questions asked live by a certified examiner. A variety of speaking tasks are required of the candidate, beginning with relatively short answers to questions regarding his or her everyday life and experience (see Figure 2.9), followed by a two-minute "long turn" task in which the candidate speaks about a topic provided on a topic card (see Figure 2.10).



Speaking sample task – Part 1

**Part 1 Introduction and interview**

*[This part of the test begins with the examiner introducing himself or herself and checking the candidate's identification. It then continues as an interview.]*

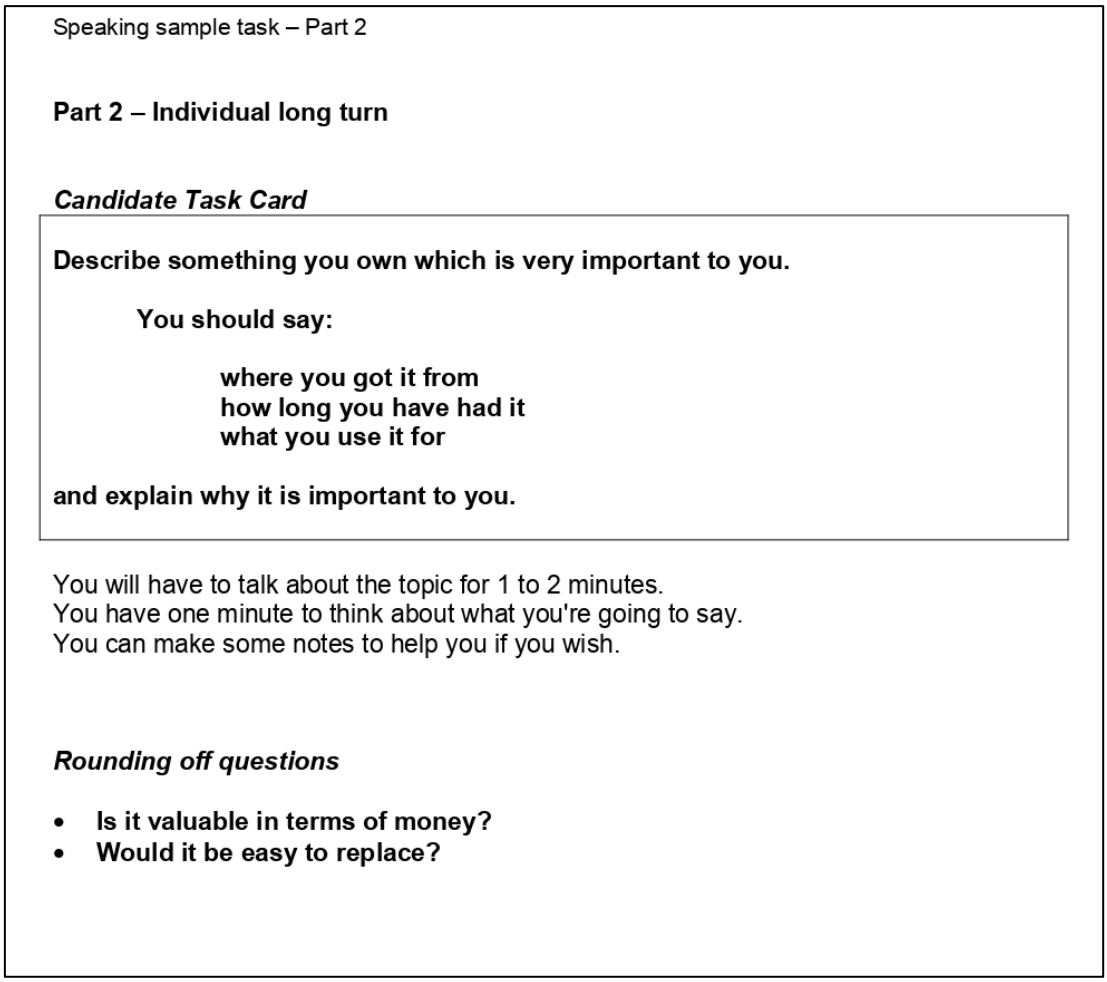
Let's talk about your home town or village.

- What kind of place is it?
- What's the most interesting part of your town/village?
- What kind of jobs do the people in your town/village do?
- Would you say it's a good place to live? (Why?)

Let's move on to talk about accommodation.

- Tell me about the kind of accommodation you live in?
- How long have you lived there?
- What do you like about living there?
- What sort of accommodation would you most like to live in?

**Figure 2.9:** IELTS Speaking test - example questions from Part 1. Source: https://www.ielts.org/-/media/pdfs/115041_speaking_sample_task_-_part_1.ashx?la=en



Speaking sample task – Part 2

**Part 2 – Individual long turn**

***Candidate Task Card***

**Describe something you own which is very important to you.**

**You should say:**

**where you got it from**
**how long you have had it**
**what you use it for**

**and explain why it is important to you.**

You will have to talk about the topic for 1 to 2 minutes.
You have one minute to think about what you're going to say.
You can make some notes to help you if you wish.

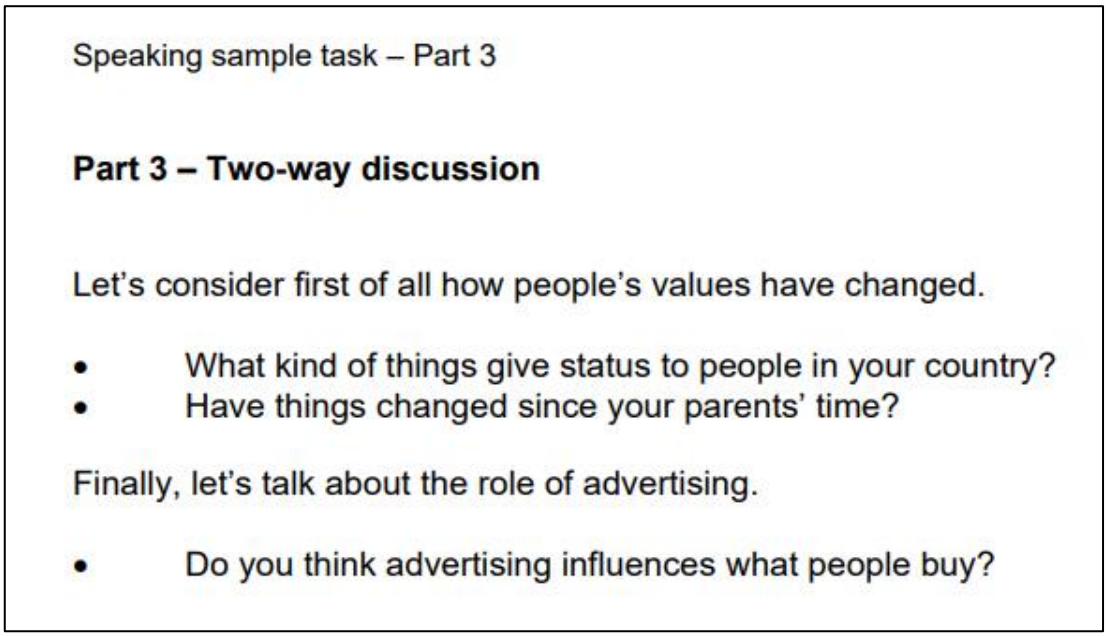
***Rounding off questions***

- **Is it valuable in terms of money?**
- **Would it be easy to replace?**

**Figure 2.10:** IELTS Speaking test - example questions from Part 2. Source: https://www.ielts.org/-/media/pdfs/115047_speaking_sample_task_-_part_2.ashx?la=en

The last part of the interview consists in questions on more abstract issues, which require slightly longer and more complex answers (see Figure 2.11). The test has a duration of 11 to 14 minutes. The examiner chooses the questions and tasks for each part of the test from a set script and adheres to a strict Interlocutor Frame (O'Sullivan and Lu, 2006) that regulates their behavior, the number and type of questions to ask and the timing of each part. An overall score is awarded by the examiner that is the average of scores given for each of four criteria: Fluency and Coherence, Lexical Resource, Grammatical Range and Accuracy, and Pronunciation (See Appendix 2 for details). Each Speaking test is audio recorded and the recording

can be used for re-marking in complaint cases, or for internal standardization purposes.


Speaking sample task – Part 3

**Part 3 – Two-way discussion**

Let's consider first of all how people's values have changed.

- What kind of things give status to people in your country?
- Have things changed since your parents' time?

Finally, let's talk about the role of advertising.

- Do you think advertising influences what people buy?

**Figure 2.11:** IELTS Speaking test - example questions from Part 3. Source: https://www.ielts.org/-/media/pdfs/115053_speaking_sample_task_-_part_3.ashx?la=en

### 2.2.3. The Listening test

Listening is the first test in an IELTS session. Candidates listen to four recordings of different length and format and increasing difficulty, while they answer a total of 40 questions in a question booklet. The recordings are only played once, and the candidates are required to answer the questions as they listen. Ten minutes are allocated at the end of the test for the candidates to transfer their answers from the question booklet to an answer sheet. Complete example Listening tests can be found in the various volumes of past IELTS papers published by Cambridge University Press, e.g. Cambridge IELTS 4 (2005) to Cambridge IELTS 9 (2013). These materials include answers, recordings and transcripts of the recordings. The official IELTS websites provide some sample Listening test questions, recordings and answers (e.g. IELTS.org,

2023)[29]. Appendix 3 provides an example of a form-completion test item, with answers and the transcript of the recording.

The length and difficulty of the listening passages increases from the first to the fourth recording, but the test items are not ranked in terms of difficulty and any of the twenty different question types can appear in any part of the test. However, form-completion questions are frequently found in Listening Section 1, as it consists in a relatively simple information-exchange dialog which lends itself to this sort of task (see Appendix 3 for an example).

The second recording is a monolog on a non-academic topic, often providing information about a place or an event, such as details about a walking tour or the location of the facilities in a public building. Listening Section 3 is a conversation in an academic setting. The recording can involve two or more speakers in two separate though related dialogs. For instance, a student might discuss her work with her tutor, who asks the student questions and gives her advice on how to proceed or improve. The same student might subsequently talk about this discussion with another student, or plan a project together on the basis of input from the conversation with the tutor. The last part of the Listening test consists in a talk on an academic topic. The listening passages in Listening Section 4 are quite long and lexically dense, although they are never technical and do not require detailed subject knowledge. The sample tests in the CIPT volumes (e.g. Cambridge IELTS 4, 2005) mostly contain talks on historical, sociological and scientific topics.

[29] Sample IELTS Listening test questions are available here: https://www.ielts.org/for-test-takers/sample-test-questions

As outlined in Section 2.1.1 above, the Listening test uses a variety of testing techniques and tasks to assess the listening skill, which is evaluated in isolation from other skills. The tasks aim to assess the ability to understand main ideas, details, and speakers' opinions, attitudes and purposes. The ability to follow the development of the ideas in a conversation is also assessed, as is recognizing relationships and connections between facts in the recording, or being able to identify spatial relationships and follow directions.

### 2.2.4. The Academic Reading (AR) test

This subsection supplies a brief outline of the format and administration of the AR test, while Chapters 3 and 4 provide an in-depth description of the reading passages and the test questions, in order to provide the necessary background to the investigation into the vocabulary demands and the lexical characteristics of the test.

The reading component of IELTS Academic lasts 60 minutes and consists of three passages of around 900 words each and a total of 40 questions. Sample tasks can be consulted on the official IELTS websites, although complete sample AR tests are not made available. These can be found in books of IELTS practice tests, of which the only reliable materials are those endorsed by IELTS and published by Cambridge University Press, such as the CIPT volumes. A sample AR passage with one set of questions is provided in Appendix 6.

No dictionaries or other reference materials are allowed during the test. The texts are on a variety of topics that are considered to be of interest to people entering university study. The overall tone is therefore 'serious', although the language is not technical, and no specialist subject knowledge is required to understand the texts. The

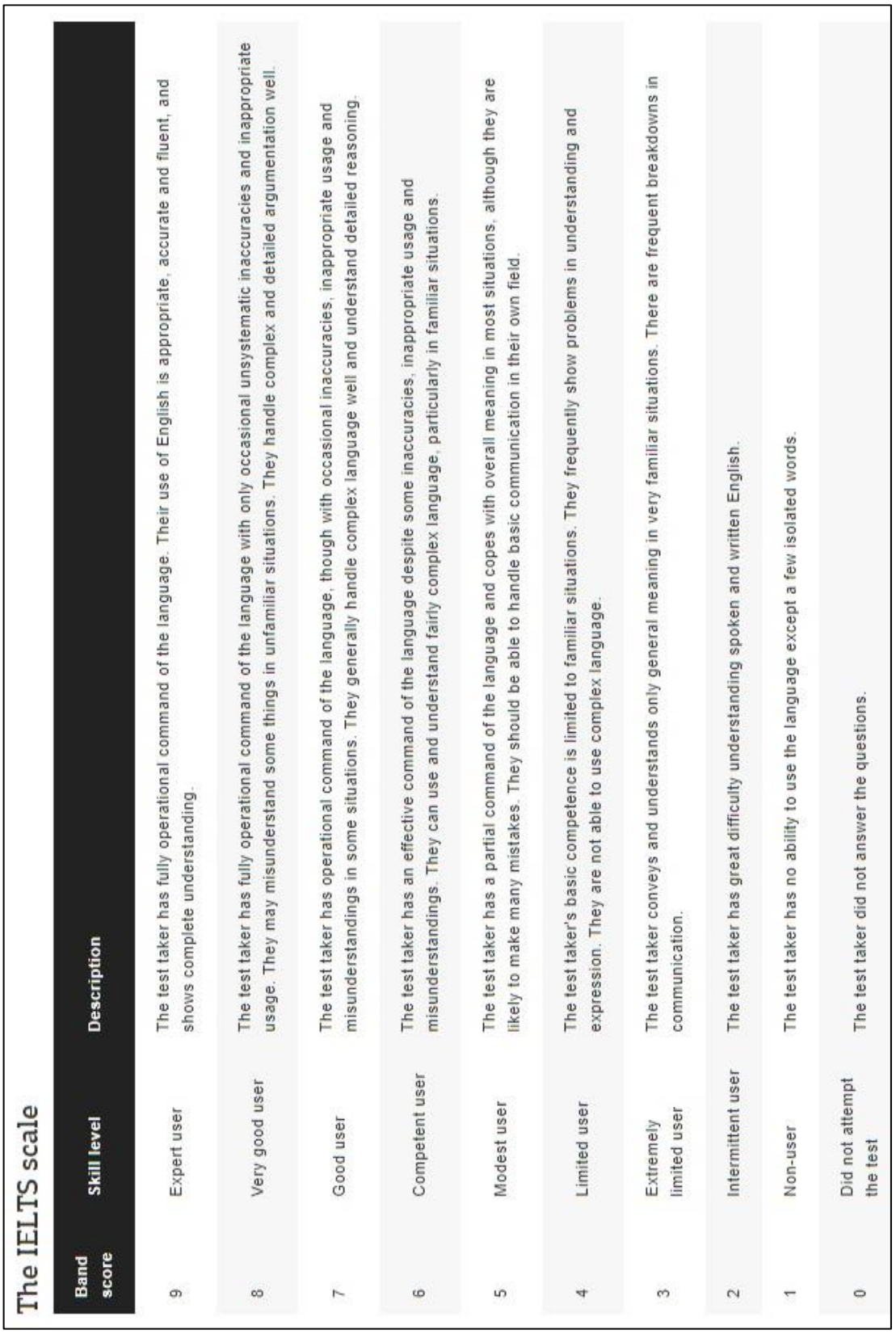
passages are not written especially for the exam but are taken from sources such as textbooks, magazines and newspapers. Therefore they can be said to be more or less 'authentic', as they were originally written for an English-speaking readership (although see Chapter 4 for a discussion of the concept of authenticity in pedagogical materials) and are not abridged to fit any given English learner level.

There are around 20 different question types in IELTS AR. They are described in detail in Chapter 3, and some examples can be seen in Figures 3.1, 3.2, 3.3, 3.7 and 3.8. None of the questions require open answers: for instance, summary completion questions (see Fig.2.6) must be answered using exact words from the reading passage, rather than the candidate's words. In general, the questions in IELTS AR seek to assess a variety of reading abilities, including "reading for gist, reading for main ideas, reading for detail, skimming, understanding logical argument and recognising writers' opinions, attitudes and purpose" (IELTS.org, 2023)[30]. The scores out of 40 are translated into the IELTS nine-band scale to produce a total score for the test.

## 2.3. Scoring and its relationship to HE admission

IELTS uses a scoring scale that consists of 9 bands that range from "non-user", i.e. no ability in English (Band 1) to the "fully operational" ability of the "Expert user" (Band 9). Figure 2.12 below contains the descriptions IELTS provides for each band in their scoring scale.

[30] Descriptions of the 4 tests in IELTS, with sample material: https://www.ielts.org/for-test-takers/test-format



The IELTS scale

| Band score | Skill level | Description |
|---|---|---|
| 9 | Expert user | The test taker has fully operational command of the language. Their use of English is appropriate, accurate and fluent, and shows complete understanding. |
| 8 | Very good user | The test taker has fully operational command of the language with only occasional unsystematic inaccuracies and inappropriate usage. They may misunderstand some things in unfamiliar situations. They handle complex and detailed argumentation well. |
| 7 | Good user | The test taker has operational command of the language, though with occasional inaccuracies, inappropriate usage and misunderstandings in some situations. They generally handle complex language well and understand detailed reasoning. |
| 6 | Competent user | The test taker has an effective command of the language despite some inaccuracies, inappropriate usage and misunderstandings. They can use and understand fairly complex language, particularly in familiar situations. |
| 5 | Modest user | The test taker has a partial command of the language and copes with overall meaning in most situations, although they are likely to make many mistakes. They should be able to handle basic communication in their own field. |
| 4 | Limited user | The test taker's basic competence is limited to familiar situations. They frequently show problems in understanding and expression. They are not able to use complex language. |
| 3 | Extremely limited user | The test taker conveys and understands only general meaning in very familiar situations. There are frequent breakdowns in communication. |
| 2 | Intermittent user | The test taker has great difficulty understanding spoken and written English. |
| 1 | Non-user | The test taker has no ability to use the language except a few isolated words. |
| 0 | Did not attempt the test | The test taker did not answer the questions. |

**Figure 2.12:** The IELTS scoring scale with descriptors. Source: https://www.ielts.org/for-test-takers/how-ielts-is-scored

IELTS have mapped their 9-band scale to the CEFR as shown in the diagram in Figure 2.13, on the basis of extensive research summarized in Taylor (2004). As can be seen, the match with the CEFR begins from Band 4, which IELTS has identified as being at a CEFR A2 level. CEFR level A1 cannot be identified with any IELTS score as scores under 4.0 have not been mapped to the Framework. The IELTS scale does reach the high end of the CEFR, however, with Bands 8.5 – 9.0 equated with level C2.

It should be noted that Taylor (2004) cautions against seeking exact matches between IELTS scores and CEFR levels. The fact that IELTS is not a level-based test, but rather an assessment that covers a continuum of proficiency, makes it particularly difficult to map against a reference framework that describes levels of language ability. Therefore, the mapping illustrated in Figure 2.13 is to be read as a showing relationships "in broad terms within a common frame of reference" (Taylor, 2004, p.3) rather than a precise matching. In fact, about three successive scores on the IELTS scale fall into each of the CEFR levels, with the result that IELTS scores can be interpreted as indicating 'high', 'mid' and 'low' CEFR levels. For instance, IELTS 6.5 can be viewed as a 'high' CEFR B2, while IELTS 7.0 can be understood to reflect a 'low' C1. This possibility of fine tuning CEFR levels is clearly of benefit for HE institutions when considering IELTS for admission purposes, as it allows them to more accurately select the IELTS scores they find appropriate for their courses.

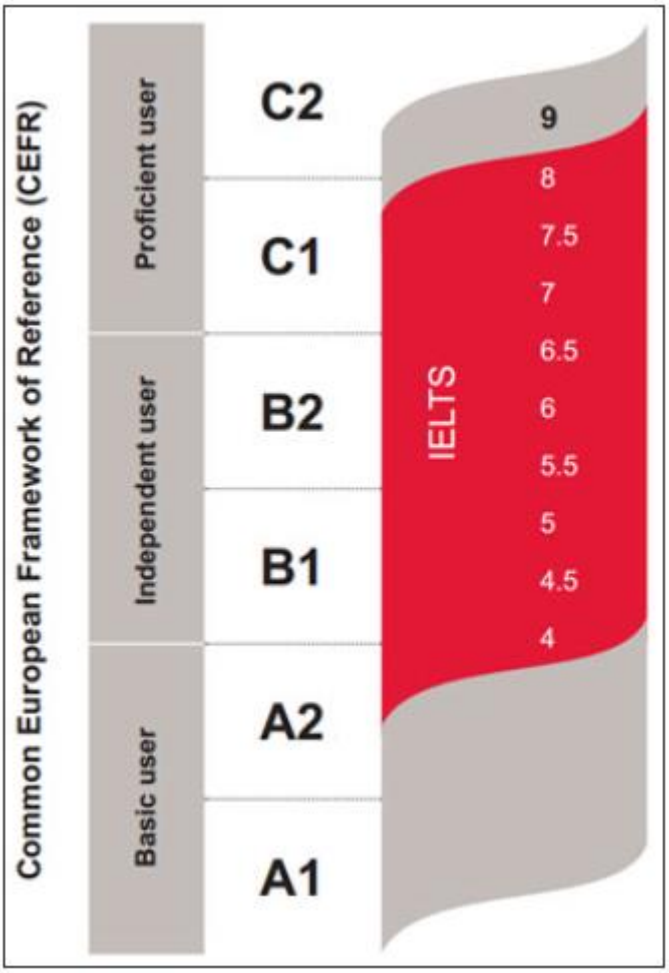



**Figure 2.13:** The IELTS 9-band scale mapped against the CEFR. Source: https://www.ielts.org/for-organisations/comparing-ielts-to-other-tests

Results are communicated to the candidates online or via a physical Test Report Form, which includes an overall score as well as the scores obtained in each of the four papers in the exam. The overall score is the mathematical average of the scores attained in each of the four papers that make up the test, rounded to the nearest whole or half band on the IELTS scale (IELTS.org, 2023)[31]. The scores in the Speaking and the Academic Writing tests are the average of the scores awarded for the four areas assessed in each test (see Appendix 1 and 2), while the scores reported for the Listening and the Speaking tests are the result of the conversion of scores out of

[31] Details on how IELTS is scored: https://www.ielts.org/for-organisations/ielts-scoring-in-detail

40 to the IELTS 9-band scale. Whole bands (e.g. 6.0) as well as half bands (e.g. 6.5) are reported.

Using a mathematical average means that it is possible for there to be even significant variances between the individual scores achieved for each paper, in what is known as a "jagged score profile" (Green, 2004). Communicating results in this way allows admitting institutions to better understand a student's specific level of ability in the different skills. This can be determining for certain courses of study, in which some language skills bear more weight than others.

Many HE institutions require a minimum score in all of the tests for admission onto their programs, as a jagged score profile lays bare inconsistencies in a given candidate's proficiency (Pearson, 2019b) that could be detrimental to the student's success in the courses. Other universities, on the other hand, only require a minimum overall score. In general today, and on a world level, the minimum IELTS score for admission to university is around 6.5, which, as has been pointed out above, can be seen as being at the high end of CEFR B2. However, the minimum score for admission can vary a great deal from one institution to another, or even within one same institution, depending on the level of study or the course. In some cases, the minimum score for university entry is determined on a national level, as in Sweden, where the IELTS score required is lower for Bachelor-level courses and higher for Master's- or PhD- level courses at all universities in the country[32]. Some further examples of scores required at universities in Europe can be seen in Table 2.1.

[32] English requirements for admission into Swedish universities: https://www.universityadmissions.se/en/entry-requirements/english-language-requirements/

| UNIVERSITY | webpage | minimum OVERALL IELTS score | minimum IELTS score IN EACH PAPER | LEVEL or DEGREE COURSE |
|---|---|---|---|---|
| **Imperial College London** (UK) | https://www.imperial.ac.uk/study/pg/apply/requirements/english/ | 6.5 | 6.0 | BSc |
| | | 7.0 | 6.5 | MSc |
| **Cranfield University** (UK) | https://www.cranfield.ac.uk/study/taught-degrees/entry-requirements | 6.5 | 5.5 | all |
| **University of Sheffield** (UK) | https://www.sheffield.ac.uk/international/entry-requirements/english-language-requirements | 6.5 | 6.0 | BSc Aerospace Engineering |
| | | 7.0 | 6.5 | BA History & Sociology |
| **TU Delft** (Netherlands) | https://www.tudelft.nl/en/education/admission-and-application/msc-international-diploma/admission-requirements#c425730 | 6.5 | 6.0 | BSc |
| **Université Jean Moulin Lyon III** (France) | https://llm.univ-lyon3.fr/admission-2/entry-requirements/?lang=en | 6.5 | 6.0 | BA Law |
| **TU Dortmund** (Germany) | https://www.e-technik.tu-dortmund.de/cms1/de/Lehre_Studium/Studienangebot/Master_A_R/Master_A_R_en/ | 7.0 | - | MSc Automation & Robotics |

**Table 2.1:** Minimum IELTS scores required for admission at a sample of European universities for academic year 2021-22.

## 2.4. Preparing for IELTS Academic

In contrast with other well-known, reputable English language tests (e.g. Cambridge B2 First or Cambridge C1 Advanced), which are not primarily designed for HE admission purposes, preparation for IELTS Academic is typically approached with a short time span. This short-term preparation can be explained by a variety of motives. The main reason is doubtlessly the deadlines imposed by university application procedures, as is reflected in studies such as Sinclair, Larsen and

Rajendram (2019). It is not always easy to plan ahead for the English requirements that are part of these procedures, since study needs and opportunities can appear at unexpected moments in people's lives. Another reason is that re-taking IELTS is often a necessity (Hamid, 2016; Pearson, 2019), if an insufficient score is attained or more recent IELTS scores are required. Re-takes often involve an even shorter period of preparation, as deadlines may be closer than at the first or previous attempt at the test. In fact, and probably as a response to candidates' need for quick access to the exam, IELTS has changed its retake policy, waiving the earlier 90-day period between exam sittings during which resits were not allowed (Hamid, 2016). A further element that may influence short-term preparation is that IELTS scores have a recommended validity of two years (IELTS.org, 2023)[33]. This is likely to discourage long-term preparation, as few people would invest in lengthy study programs to obtain scores that may need to be updated after only a short period of time. Finally, the very nature of the test calls for a short time of study: IELTS is a measure of the candidate's ability at a given moment, and not an exam attesting the culmination of an extended period of English learning, as are the Cambridge "Main Suite" examinations B2 First, C1 Advanced or C2 Proficiency.

How long and how intensive IELTS training courses around the world are is also evidence of the short time dedicated to preparing the test. Whereas British Council courses for the Cambridge English Qualifications (e.g. Cambridge B2 First or C1 Advanced) can range from 30 to 120 hours of lessons delivered over several months (see course information from British Council Italy and Greece)[34], IELTS

[33] Validity of IELTS scores: https://www.ielts.org/for-test-takers/how-ielts-is-scored

[34] Cambridge main-suite exam courses at British Council Italy and Greece: https://www.britishcouncil.it/inglese/corsi-adulti/preparazione-esami-cambridge; https://www.britishcouncil.gr/en/english/courses-adults/cambridge-preparation-fce-cae

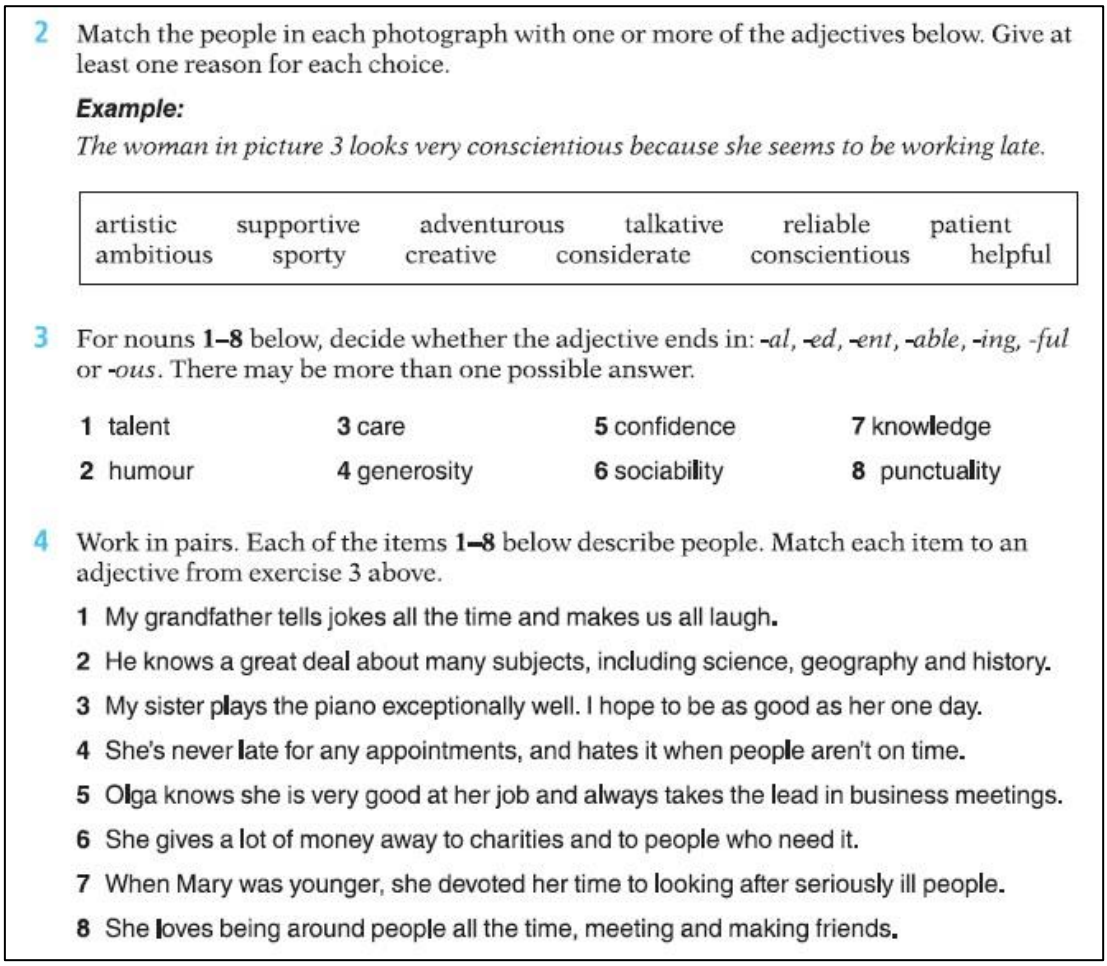
preparation courses are offered with lengths that extend from 10 hours (British Council Spain)[35] to 30 hours (British Council Italy)[36] delivered over four consecutive weeks. The intensive training courses in China described in Trenkic and Hu (2021) also took place over four consecutive weeks and provided 72 hours of high-intensity tuition. IELTS training activities at Politecnico di Torino, where the author of this thesis teaches, are offered in cycles of four weeks, based on a combination of the amount of time students seem to be willing to dedicate to preparing for the test and the minimum amount of time shown through experience to provide enough training with a sufficient guarantee of success.

Published training materials for IELTS could be viewed as both reflecting and encouraging short-term study, as well as a teaching-to-the-exam approach. As has been mentioned above, the focus of most IELTS textbooks is on exam training, rather than on language development. When vocabulary work is included, it tends to be based around the development of common IELTS topics. The relationship of this vocabulary to any particular IELTS test is often not made explicit, and it is usually not made clear how or where in the exam this vocabulary could be useful. Some examples from different IELTS textbooks of this stance towards training for the exam can be seen in Figures 2.14, 2.15 and 2.16.

An approach to preparing for IELTS based on gaining familiarity with the test and developing language skills as assessed in the test makes sense in principle, as IELTS evaluates a candidate's ability in English at a given moment, and does not aim to attest the sum of a candidate's knowledge of the language acquired over time. Such an

[35] IELTS courses at British Council Spain: https://www.britishcouncil.es/en/english-courses/ielts
[36] IELTS courses at British Council Italy: https://www.britishcouncil.it/inglese/corsi-adulti/corso-ielts

approach also fits a framework of short-term preparation, as test skills can be acquired more quickly than language knowledge.



2 Match the people in each photograph with one or more of the adjectives below. Give at least one reason for each choice.

***Example:***

*The woman in picture 3 looks very conscientious because she seems to be working late.*

| | | | | | |
|---|---|---|---|---|---|
| artistic | supportive | adventurous | talkative | reliable | patient |
| ambitious | sporty | creative | considerate | conscientious | helpful |

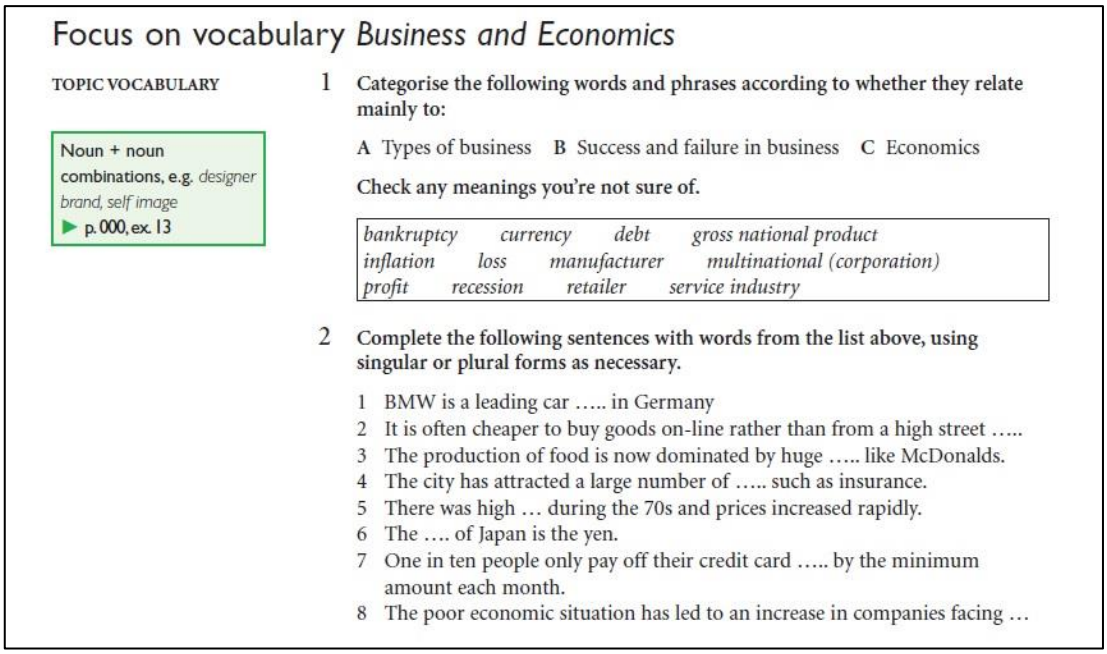
3 For nouns **1–8** below, decide whether the adjective ends in: *-al, -ed, -ent, -able, -ing, -ful* or *-ous*. There may be more than one possible answer.

| | | | |
|---|---|---|---|
| **1** talent | **3** care | **5** confidence | **7** knowledge |
| **2** humour | **4** generosity | **6** sociability | **8** punctuality |

4 Work in pairs. Each of the items **1–8** below describe people. Match each item to an adjective from exercise 3 above.

**1** My grandfather tells jokes all the time and makes us all laugh.
**2** He knows a great deal about many subjects, including science, geography and history.
**3** My sister plays the piano exceptionally well. I hope to be as good as her one day.
**4** She's never late for any appointments, and hates it when people aren't on time.
**5** Olga knows she is very good at her job and always takes the lead in business meetings.
**6** She gives a lot of money away to charities and to people who need it.
**7** When Mary was younger, she devoted her time to looking after seriously ill people.
**8** She loves being around people all the time, meeting and making friends.

**Figure 2.14:** An example of vocabulary work in *Ready for IELTS* (McCarter, 2017). Source: https://api.macmillanenglish.com/fileadmin/user_upload/Catalogue/Samples/Ready_for_IELTS_2nd_ed/Rady_for_IELTS_Student_s_Book_Unit_1.pdf



Focus on vocabulary *Business and Economics*

TOPIC VOCABULARY

Noun + noun combinations, e.g. *designer brand, self image*
▶ p. 000, ex. 13

1 Categorise the following words and phrases according to whether they relate mainly to:

A Types of business B Success and failure in business C Economics

Check any meanings you're not sure of.

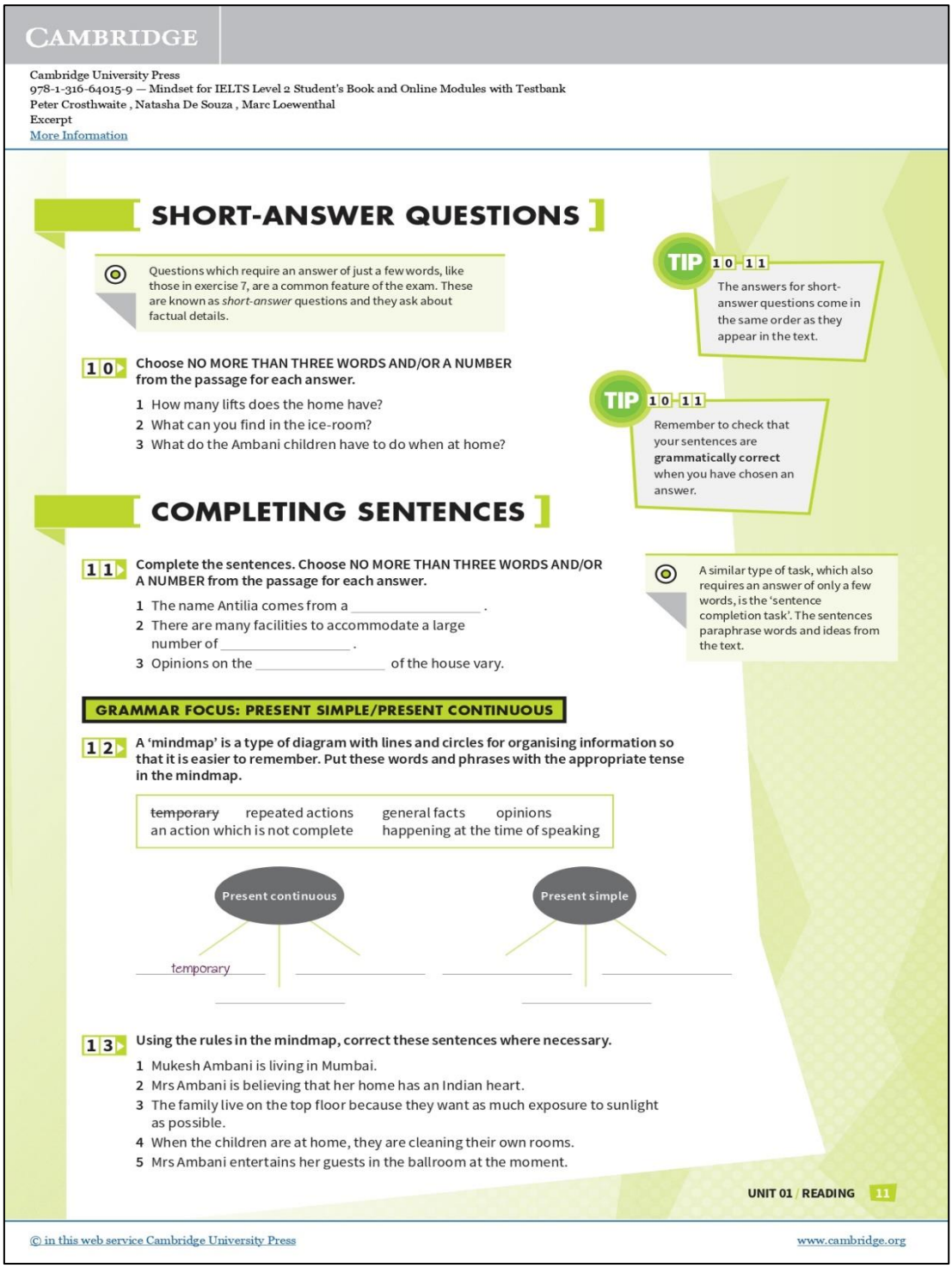
| | | | |
|---|---|---|---|
| *bankruptcy* | *currency* | *debt* | *gross national product* |
| *inflation* | *loss* | *manufacturer* | *multinational (corporation)* |
| *profit* | *recession* | *retailer* | *service industry* |

2 Complete the following sentences with words from the list above, using singular or plural forms as necessary.

1 BMW is a leading car ….. in Germany
2 It is often cheaper to buy goods on-line rather than from a high street …..
3 The production of food is now dominated by huge ….. like McDonalds.
4 The city has attracted a large number of ….. such as insurance.
5 There was high … during the 70s and prices increased rapidly.
6 The …. of Japan is the yen.
7 One in ten people only pay off their credit card ….. by the minimum amount each month.
8 The poor economic situation has led to an increase in companies facing …

**Figure 2.15:** An example of vocabulary work in *Focus on IELTS* (O'Connell, 2010). Source: https://www.pearson.com/content/dam/one-dot-com/one-dot-com/english/SampleMaterials/Adult/Unit_7.pdf

However, the approach used by most IELTS training materials may be suitable for candidates who succeed at their first attempt at the test, but less so for those who need to obtain scores significantly beyond their current level of proficiency. Research shows that intensive training courses can lead to score increments around half a point (Green, 2004; Trenkic & Hu, 2021), which can in many cases be determining. In many other cases, though, such an increment is insufficient, and other preparation strategies seem necessary. However, the research collated by Green (2004) suggests that longer study periods do not typically lead to any major increase in scores. It could be the case that this outcome is the result of applying unsuitable preparation approaches, such as the exam-skills approach used by published materials, which in principle seems more appropriate to short-term study.



CAMBRIDGE

Cambridge University Press
978-1-316-64015-9 — Mindset for IELTS Level 2 Student's Book and Online Modules with Testbank
Peter Crosthwaite , Natasha De Souza , Marc Loewenthal
Excerpt
More Information

## SHORT-ANSWER QUESTIONS

Questions which require an answer of just a few words, like those in exercise 7, are a common feature of the exam. These are known as *short-answer* questions and they ask about factual details.

TIP 10 11 The answers for short-answer questions come in the same order as they appear in the text.

**10** **Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.**

1 How many lifts does the home have?
2 What can you find in the ice-room?
3 What do the Ambani children have to do when at home?

TIP 10 11 Remember to check that your sentences are **grammatically correct** when you have chosen an answer.

## COMPLETING SENTENCES

**11** **Complete the sentences. Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.**

1 The name Antilia comes from a _____ .
2 There are many facilities to accommodate a large number of _____ .
3 Opinions on the _____ of the house vary.

A similar type of task, which also requires an answer of only a few words, is the 'sentence completion task'. The sentences paraphrase words and ideas from the text.

**GRAMMAR FOCUS: PRESENT SIMPLE/PRESENT CONTINUOUS**

**12** **A 'mindmap' is a type of diagram with lines and circles for organising information so that it is easier to remember. Put these words and phrases with the appropriate tense in the mindmap.**

~~temporary~~ repeated actions general facts opinions
an action which is not complete happening at the time of speaking




**13** **Using the rules in the mindmap, correct these sentences where necessary.**

1 Mukesh Ambani is living in Mumbai.
2 Mrs Ambani is believing that her home has an Indian heart.
3 The family live on the top floor because they want as much exposure to sunlight as possible.
4 When the children are at home, they are cleaning their own rooms.
5 Mrs Ambani entertains her guests in the ballroom at the moment.

UNIT 01 / READING 11



**Figure 2.16:** A sample page from *Mindset for IELTS 2* (Crosthwaite, De Souza & Lowenthal, 2017).
Source: https://www.cambridge.org/gb/cambridgeenglish/catalog/cambridge-english-exams-ielts/mindset-ielts/students-edition

Green's (2004) paper also makes reference to "intensive pre-sessional English study", and "English for Academic Purposes (EAP) courses with no specific IELTS focus" (p.9) – although the course

content is not described, the names suggest approaches that may be too general or even irrelevant to success in IELTS. It is not clear how much, if any, language work is included, that might help improve students' overall proficiency in English with useful outcomes in IELTS.

The official IELTS webpages provide a variety of materials to help candidates prepare for the test. These range from webpages and short videos with tips and explanations for how to deal with specific question types in the various papers, to example extracts of Speaking tests with the scores awarded, to suggestions for overall preparation and study approaches, as well as practice test materials complete with audio tracks, transcriptions of recordings and answers. Here too, the general trend is that of short-term preparation largely aimed at familiarization with the test format and test items. Some materials can be found that regard language input. As in the case of published training materials, such language input tends to be very narrowly connected to a specific part of the test or to particular question types, and does not aim to develop overall language proficiency, as shown in Figures 2.17 and 2.18 below.

**How to move from an IELTS band 4 to a band 5**

A band 5 user will attempt to use a wider range of grammatical structures using both simple and complex structures. There are still errors made, but the examiner can generally understand what is said.

Follow these tips to show the examiner you can use a range of structures and can communicate your ideas more clearly.

1. Make sure your simple sentences are correct.
2. Link simple sentences with coordinating conjunctions.
3. Use complex sentences linked with subordinating conjunctions.
4. Attempt a variety of structures (simple tenses, perfect tenses, conditionals, relative clauses.)
5. Be aware of your errors and learn how to correct them.
6. Practise speaking about yourself, where you come from, and what you do.
7. Practise writing sentences using commas and full stops correctly.

**Figure 2.17:** Some advice on improving grammar scores for IELTS Speaking, from the page "How to increase your IELTS grammar score from band 4 to band 5"
https://ielts.idp.com/about/news-and-articles/article-grammar-band-4-band-5

The IELTS.org website makes no explicit mention of language study on its "How to prepare" page and instead recommends candidates to develop familiarity with the exam and improve their test performance through practice tests (IELTS.org, 2023)[37]. The *Guide for Teachers* (IELTS, 2019a) lists some brief pointers for helping candidates prepare in its Appendix. These pointers essentially reproduce the advice given to candidates on the website, but also suggest that the students be advised to develop the four language skills through everyday communication in English: this is the only reference to language development, albeit indirect.

[37] Advice on how to prepare for IELTS: https://www.ielts.org/for-test-takers/how-to-prepare

## Making comparisons and contrasting

You will also be asked to compare people, experiences, places or things throughout the IELTS Speaking test. To do this successfully, you need to know how to use comparative structures appropriately (e.g. taller than, more important than, better than). You can also go one step further by using adverbs, which will allow you to be more accurate in your descriptions (e.g. a bit further than, significantly higher than, far more interesting than). Look at the following expressions that you can use to make comparisons and contrast:

Explaining small differences or no difference

- as + adjective + as

'Studying Engineering is not as difficult as I thought it would be.'

- same + noun + as

'We bought an apartment in the city for the same price as our previous house.'

- similar to

'I'm very similar to my best friend in many aspects.'

- much the same

'All language schools in the area are much the same.'

**Figure 2.18:** An extract from the page "Language to help you speak more fluently in the IELTS Speaking test", https://ielts.idp.com/prepare/article-functional-language-fluency-ielts-speaking#making-comparisons-and-contrasting.

The IDP IELTS website, on the other hand, specifically mentions vocabulary at different points of its "prepare for IELTS" pages (IDP IELTS, 2023). However, vocabulary learning is not systematically approached and only appears as part of overall preparation for the different tests, which is skills- and exam-technique based. Finally, the website of the third IELTS partner, the British Council (TakeIELTS, 2023) does not specifically mention vocabulary or grammar learning among its exam preparation advice.

Some contradictory suggestions are made in some parts of the official webpages. For instance, teachers are surprisingly advised to

encourage students to prepare for IELTS by "speaking English with friends, watching and listening to English language programmes, reading English publications and practising their written skills wherever possible" (IELTS, 2019a, p.29). Although doubtlessly such activities can only be beneficial for a student's English, they seem unsystematic and disconnected from test contents. Specifically, the Speaking test is not a conversation but an interview, so "speaking English with friends" would not adequately prepare a candidate for the test. "Reading English publications" is too general a suggestion: what publications? With what aim? This suggestion also seems to imply reading for comprehension, which is not the main focus of the AR test. The Listening test does not require candidates to "[watch] and [listen] to English language programmes", and again this suggestion implies developing overall comprehension, which is not the main testing aim in the Listening test. Perhaps the suggestion "practising their written skills wherever possible" is the least helpful of all, given the very narrow and very specific range of written discourse patterns required in the Academic Writing test (Task 1: a summary of information presented in a diagram, and Task 2: a discussion essay in answer to a concrete question). Practicing writing any other type of text to prepare for IELTS would essentially be a waste of time. Finally, the *Guide for teachers* brochure advises helping candidates to "work to improve their English" (IELTS, 2019a, p.29) – although it is not explained how. Overall, a myriad of materials and exam tips are provided in the official information in no discernible order, often changing place or being updated, making it difficult to identify and follow a systematic program of language study.

For those cases in which test preparation based on developing exam skills is insufficient, the main flaw of the official materials is the absence of some sort of a language syllabus. Understandably this is

not something easy to provide for an exam such as IELTS, that assesses candidates at all levels of proficiency and aims, purportedly, to provide a snapshot of any candidate's ability in that session. It would seem in fact that IELTS deliberately do not provide any kind of syllabus, given the nature of the test and its purported aims. The present thesis raises two important objections to this stance. On the one hand, attaining the IELTS score needed often requires making major proficiency improvements. As discussed above, the exam-skills approach has been shown to be inappropriate for such endeavors (Green, 2004; Hamid, 2016) and instead a study program seems necessary that can significantly improve language knowledge and skills. The other major objection to the absence of clear indications for language study is that IELTS has no vocabulary syllabus but makes heavy lexical demands on the test taker. In the face of this situation, and with a view to successfully passing the AR test, this thesis contends that candidates in need of an increase in language proficiency should be informed of the vocabulary they will encounter in the exam. Chapters 4 - 6 of this thesis identify this vocabulary and discuss pedagogical tools and materials that can facilitate its acquisition.

## 2.5. Critical views of IELTS

IELTS, then, has solidly established itself on a worldwide level as the test of reference providing proof of proficiency in English for access to HE. However, this widespread use of the test for admission purposes, together with its social, economic and educational impact, is not without its critics. The main lines of criticism regard the test's predictive validity, the way in which scores are interpreted and used, and more broadly, the responsibility of IELTS in fostering the commodification of HE.

The role assumed by and expected of IELTS is to allow a broad prediction of how well prospective students might perform in an English-speaking HE medium, or HE contexts in which a certain level of English is required (Pearson, 2019b). As noted above, most HE institutions around the world seem to consider that IELTS scores from about 6.5 predict the possibility of academic success. Pearson (2021) notes that the ability to provide such a prediction is key to the confidence placed on the test and therefore to its reputation globally. However, a substantial body of studies has developed to date that ranges from the skeptical to the critical with regard to the effective ability of IELTS to make predictions about incoming students' academic performance. These studies include investigations funded and/or commissioned by IELTS as well as much independent research.

The research is largely in agreement that scores below 6.0 in IELTS effectively predict academic failure (Feast, 2002; Ingram & Bayliss, 2007). However, the match between IELTS scores above 6.5 - typically the admission cut-off score - and academic success is much less clear (Craven, 2012). Pearson (2021) points out the difficulties of assessing the predictive ability of IELTS in the first place, as it is questionable whether a linear relationship of causality can be found between language proficiency and academic performance. In his critical review of 32 predictive validity studies of IELTS, he identified this problem as one of the research design issues that to his view partially or terminally invalidate the findings of these studies. In fact, there is agreement in predictive validity studies that many other factors are probably also at play in academic success besides language proficiency (Pearson, 2021), such as cultural adjustment, amount of English language support during the students' period of overseas study, or even motivation (Arrigoni & Clark, 2015; Cotton & Conrow, 1998; Dooey & Oliver, 2002; Ingram & Bayliss, 2007). It

should be noted that IELTS itself reminds test score users that "many diverse variables can affect student performance, of which language ability is but one." (IELTS.org, 2023[38])

An important reason that might explain the uncertainty of IELTS as an effective predictor of academic success could be a mismatch between the texts and tasks in IELTS Academic and the reading matter and assignments typically required at university-level. The judges that evaluated AR texts for the study by Weir, Hawkey, Green, Unaldi and Devi (2009) found that the passages consisted heavily of magazine and newspaper texts. They pointed out that university reading material infrequently involves these sources and is more likely to consist in books, reports and research articles. In a study independent of the IELTS consortium, Moore and Morton (2005) noted that in terms of genre, IELTS tasks are restricted to written argument or case, when university writing tasks typically include reviews, case study reports, research reports, research proposals, summaries, exercises and short answer tasks. University-type writing tends to be framed around analytical rather than the practical rhetorical modes required by IELTS. In another independent study, Banerjee and Wall (2006) pointed out that IELTS writing tasks focus around situations and actions in the real world, when academic writing also involves abstract entities such as ideas, theories and laws. A further issue is that Academic Writing test rubrics instruct candidates to make examples from their own experience to illustrate their ideas. Banerjee and Wall (2006) note that university students are rarely required to refer to personal experience in their writing, but rather to draw on reading sources or primary data to support claims. De Chazal (2012) observes that

[38] Guidelines for determining admission scores: https://www.ielts.org/for-organisations/setting-ielts-entry-scores

tasks and skills that are characteristic during university study are synthesizing texts after reading, writing referenced essays, and critical thinking, none of which are required in IELTS. Turner (2004, p.98) considers that IELTS ultimately "underspecifies the complexity of language issues in the academic context" because it does not address the social purposes that texts, contexts and writer and reader roles have in the academic world, nor the increasing variety and range of vocabulary to be found in current academic disciplines. Further developing this idea, Newbold (2015) criticized the avoidance in IELTS of topics which are of interest to university students, such as sexuality, drugs, mental illness, crime, war and political conflict. If exam candidates are not allowed to engage with university-level topics, he argued, it is difficult to predict much about their future academic performance.

As a result of this mismatch between the skills and texts in IELTS and those typical of university study, a number of investigations have highlighted the need for providing support for students who have nonetheless achieved entry by attaining the required IELTS scores. In their IELTS Research Reports, Ingram and Bayliss (2007) and Paul (2007) suggested that these students subsequently need to acquire subject-specific language, as what they have learnt for IELTS will be inadequate or insufficient for their studies. Recent independent research such as Dang and Dang (2020) also found that a number of skills necessary to academic study were not guaranteed by the cut-off scores, although overall they found a good correlation between IELTS scores and academic achievement. Writing at university level may be one of these skills that need development, as Clark and Yu (2020) found in their case study of East Asian Master's students in the UK. The authors found that these students' IELTS scores seemed to reflect a linguistic proficiency that was sufficient for the initial stages of academic writing. However, more

sophisticated texts were difficult for them, and these case study students would have benefited from support for such tasks.

A second area of criticism surrounding IELTS regards how scores are interpreted and used. It is arguable that irresponsible or unethical use of IELTS results by HE institutions cannot be ascribed to IELTS, given that the IELTS consortium takes great care to explain the meaning of its scores (see the overall band score descriptors in Fig.12, and the Academic Writing and Speaking test band descriptors in Appendix 1 and 2) and provides guidance to support HE institutions in setting entry scores (see "Setting IELTS entry scores" on IELTS.org, 2023). IELTS band score requirements are suggested that might be acceptable for different types of study programs, considering the level of linguistic demands made by the courses. Institutions are also advised to set up a standards-setting committee, and a step-by-step procedure is proposed to help achieve this. However, as Bachman (2005) declared, "it is possible for the results of assessments to be used inappropriately, even though these assessments are valid indicators of the abilities they are intended to measure" (p.16). Nonetheless, given the undeniable role of HE gatekeeper that IELTS has acquired globally, the issue of its use or mis-use by HE administrations is central to any critical discussion of the test today.

O'Loughlin (2011) showed that HE institutions may interpret the meaning of IELTS scores in ways not intended nor recommended by IELTS. O'Loughlin (2011) and Pearson (2019a) point out that this may be the result of a lack of careful standard-setting of entry requirements by HE institutions, which do not always follow IELTS's advice to develop rigorous processes to establish their linguistic admission requirements, and to regularly monitor and update these. In his strongly critical paper, Pearson (2019a) notes that HE

institutions sometimes lower their linguistic requirements in order to admit larger numbers of highly remunerative although linguistically underprepared international students, and considers institutions that adopt such behavior as "accomplices" of IELTS in what he considers "the exploitation of test-takers" (p.199).

Another aspect of misuse of IELTS scores at HE institutions is connected to the way in which they are communicated. As has been described above, results are given in one overall score and four componential scores, one for each of the subtests that make up the test. Pearson (2021) notes that the simple and efficient presentation of results makes IELTS scores highly valued by admission officers, as they are apparently easy to interpret and can be processed smoothly. However, the administrative staff in charge of processing applications for entry may not always have the knowledge of or familiarity with IELTS and its scores necessary to interpret test results appropriately (Pearson, 2019b). That is, some degree of language assessment literacy is necessary when handling high-stakes test scores. Coombe, Vafadar and Mohebbi (2020) review the state of the art of this relatively new literacy and define it as "a repertoire of competences, knowledge of using assessment methods […] that enables an individual to understand, assess, […] and analyze test data" (p.1). The studies by O'Loughlin (2011) and Roemer (2020) reveal that all too frequently HE policymakers as well as staff in charge of admissions seem to lack the background and training necessary to interpret IELTS scores. This leads to serious flaws in the decision-making process and, as a result, in the fairness of the test score use (O'Loughlin, 2011), and opens issues of accountability (Pearson, 2019a).

The negative view of how IELTS scores are used is closely linked with a third area of criticism of the test, which views the test from a

political perspective and regards the social, economic and educational impact of IELTS on a global level. Test impact or washback is an important subject in the field of assessment, and Bachman (1990, p.279) already noted that "tests are not developed and used in a value-free psychometric test-tube; they are virtually always intended to serve the needs of an educational system or society at large". Critical language testing (Shohamy, 1998) takes an interest in issues around assessment such as test ethicality and fairness, and particularly, the use of testing as an instrument of power and control. This current of assessment studies holds that language tests are never neutral, and views them as agents and products of "cultural, political, educational, social, and ideological agendas" (Michell, 2021, p.10). In a paper that is strongly critical of IELTS, Michell (2021) denounces gatekeeper language tests as being "mechanisms for enforcing power and control over people by virtue of being so deeply entrenched in education, government, and business" (p.9). The English language testing business is seen to have enthusiastically joined the process of marketization, commercialization, and industrialization of knowledge and education currently under way (Templer, 2014), in which HE is yet another commodity (Ahern, 2009, p.40). More specifically, IELTS is viewed as taking forward the agenda of this business, of which it is a primary product (Templer, 2014). Ahern (2009) considers IELTS "an enabling mechanism for the smooth running of the trade in education services" (p.42).

The hegemonic position of IELTS has brought about an impact on teaching and learning English that proponents of critical views of the test find deeply problematic. Templer (2014) is strongly critical of what he sees as a global English language teaching industry geared solely at high-stakes exams, with private language schools mushrooming around the world and the development of a "veritable

supermarket" (p.201) of exam training materials. In their study of IELTS preparation in China, Trenkic and Hu (2021) show concern with regard to the proliferation of test-training centers that are focused on raising test scores rather than on learning English. In their pursuit of improving their students' IELTS scores at all costs, these centers effectively promote test-gaming behaviors, with students acquiring high expertise in exam technique but little detectable change in their language knowledge. Hamid (2016) takes issue with the IELTS resit policy, a result of which, he considers, is that of encouraging test gaming and fueling the private test-training industry. In their sometimes desperate need to obtain a given score by a given deadline, candidates can sit and resit IELTS in quick succession, as allowed by the IELTS retake policy, spending enormous amounts of money both on the test and on tuition at exam-training centers.

This chapter has provided a detailed overview of the IELTS Academic test, describing its underlying assessment construct, the format of its four papers and how the test is scored. An outline of how IELTS scores are used for admission into HE courses led on to a discussion of ways in which preparation for the exam typically occurs. Finally, the chapter has reviewed some of the criticisms levied at the exam's gatekeeper role and at its validity as a predictor of academic achievement. The next chapter goes on to describe the IELTS AR test and the role played in it by vocabulary, moving the discussion closer to the object of this investigation, which is the vocabulary present in the AR texts.

# 3. THE IELTS ACADEMIC READING (AR) TEST AND VOCABULARY

IELTS does not discretely test vocabulary or grammar, as illustrated in Chapter 2. In fact, IELTS has no 'use of English' component such as is found in other major English examinations, e.g. Cambridge B2 First or C1 Advanced. There are no discrete vocabulary or grammar assessment items in any of the tests that make up the exam, although vocabulary and grammar assessment is an embedded component of the Speaking and the Academic Writing tests. By contrast, vocabulary is not tested at all in the Listening and AR tests. Nonetheless, research independent of the IELTS organization has found that receptive vocabulary size seems to carry great weight towards success in the AR test (Milton, Wade & Hopkins, 2010). In fact, this chapter shows that the AR passages can be expected to be quite lexically demanding, given the characteristics of the texts used in the test. Furthermore, a close inspection of the sample tests

available in published, official and IELTS-endorsed exam practice materials published on IELTS.org (2023) or in the CIPT volumes (e.g. Cambridge IELTS 4 (2005), Cambridge IELTS 5 (2006), etc.) reveals that the majority of the questions in IELTS AR require the recognition of synonymy and paraphrase.

This thesis investigates the vocabulary that is characteristic of the IELTS AR texts and the means to acquire it. It is not a study of IELTS AR as a test, nor of the strategies that are useful to passing it. However, successful reading is determined to a high degree by the purpose of reading (Macmillan, 2007, p.89), and in IELTS the candidates' purpose when reading AR passages is to correctly answer as many questions as possible. Therefore, this chapter provides an overview of the questions in the AR test, with a focus on the lexical demands they pose. It also identifies some key characteristics of the reading passages in the test, that can begin to shed some light on the vocabulary demands they make, before the vocabulary of the passages is specifically analyzed in Chapter 4.

After this overview of the characteristics of the AR passages and questions, the chapter moves on to review the available sources of knowledge about vocabulary in the test. This thesis has so far made clear that finding explicit and complete information about vocabulary and IELTS is no straightforward matter, and the situation is even less well defined with regard to the AR test. First, findings in the literature about vocabulary and IELTS AR are reviewed, in papers specifically about the AR test as well as in research about vocabulary and IELTS in general. After that, IELTS textbooks are explored. As textbooks guide students and teachers in preparing for IELTS, they could be expected to provide useful insight into the vocabulary demands of the AR test.

The review provided in the present chapter of the role of, and the available sources of insight about vocabulary in the AR test, has the aim of furnishing the background for Chapter 4, which analyzes the characteristics of the vocabulary in the IELTS AR passages.

## 3.1. The AR test: vocabulary, a sine qua non

As outlined in Chapter 1, IELTS AR tests reading skills in English using 40 questions about three long texts, to be answered in 60 minutes. Dictionaries and other reference materials cannot be used. The questions are designed to test subskills such as the ability to understand both specific and main points of a text, to distinguish main ideas from supporting ideas, to recognize opinions and ideas and differentiating them from facts, to recognize "relationships and connections between facts in the text", or to understand "the main ideas within a sentence" (IELTS.org, 2023)[39]. Some examples of questions that test these subskills are shown in Figures 3.1 – 3.3 below. At the same time, the questions test the ability to read in a variety of ways, ranging from careful reading in order to understand specific meaning, to fast, "selective sampling of text" (Weir & Khalifa, 2008, p.2), for the purpose of locating particular information. Thus, IELTS AR is ostensibly a test of reading ability, and does not include vocabulary assessment.

[39] Information about the format of the test: https://www.ielts.org/for-test-takers/test-format

*Questions 1 and 2*

*Choose **TWO** letters, **A-G**.*

*Write the correct letters in boxes 1 and 2 on your answer sheet.*

The list below gives some of the advantages of employing older workers.

Which **TWO** advantages are mentioned by the writer of the text?

**A** They are less likely to be involved in careless accidents.
**B** They can predict areas that may cause trouble in the future.
**C** They are able to train younger workers.
**D** They can deal with unexpected problems.
**E** They are more conscientious.
**F** They are prepared to work for lower salaries.
**G** They are more skilled in personal relationships.

*Questions 3 and 4*

*Choose **TWO** letters, **A-F**.*

*Write the correct letters in boxes 3 and 4 on your answer sheet.*

The list below gives some of the disadvantages of employing younger workers.

Which **TWO** disadvantages are mentioned by the writer of the text?

**A** They are too confident of their own skills.
**B** They may injure themselves.
**C** They do not stay with the same company for very long.
**D** Their training has been too theoretical.
**E** They are not as well educated as older workers.
**F** They demand higher salaries.

**Figure 3.1:** A Multiple Choice question. This IELTS AR test item aims to assess detailed understanding of the passage. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-multiple-choice-more-than-one-answer.ashx?la=en

Academic Reading sample task – Matching features

*Questions 7 – 10*

*Look at the following items (Questions 7-10) and the list of groups below.*

*Match each item with the group which first invented or used them.*

*Write the correct letter **A-E** in boxes 7-10 on your answer sheet.*
***NB*** *You may use any letter more than once.*

**7** black powder

**8** rocket-propelled arrows for fighting

**9** rockets as war weapons

**10** the rocket launcher

| **First invented or used by** | |
|---|---|
| **A** | the Chinese |
| **B** | the Indians |
| **C** | the British |
| **D** | the Arabs |
| **E** | the Americans |

**Figure 3.2:** A Matching Features question. This IELTS AR test item assesses recognition of relationships and connections between facts in the text, as well as of opinions and theories. Source: https://www.ielts.org/-/media/pdfs/115015_academic_reading_sample_task_-_matching_features__2_.ashx?la=en

**Sample Academic Reading *Matching Headings***

***[Note: This is an extract from a Part 2 text about the physics of traffic behaviour.]***



*Questions 1 – 4*

Reading Passage 1 has five sections, **A-E**.

*Choose the correct heading for each section from the list of headings below.*

*Write the correct number, **i-viii**, in boxes 1-4 on your answer sheet.*

**List of Headings**

| | |
|---|---|
| **i** | Dramatic effects can result from small changes in traffic just as in nature |
| **ii** | How a maths experiment actually reduced traffic congestion |
| **iii** | How a concept from one field of study was applied in another |
| **iv** | A lack of investment in driver training |
| **v** | Areas of doubt and disagreement between experts |
| **vi** | How different countries have dealt with traffic congestion |
| **vii** | The impact of driver behaviour on traffic speed |
| **viii** | A proposal to take control away from the driver |

**1** Section **A**

***Example***

Section **B** **i**

**2** Section **C**

**3** Section **D**

**4** Section **E**

**Figure 3.3:** A Matching Headings question. This test item assesses the ability of the candidate to recognize the main idea of a paragraph or a section, and to distinguish the main idea from supporting ideas. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-matching-headings.ashx?la=en

However, the characteristics of the reading passages as described on the official IELTS websites immediately suggest that vocabulary knowledge plays a crucial, unacknowledged role in this test:

> [the test involves] **three long texts** which range from the descriptive and factual to the discursive and analytical. These are **taken from books, journals, magazines and newspapers**. They have been selected for a non-specialist audience but are **appropriate for people entering university courses** […]. (IELTS.org, 2023[40], author's bolding)

The bolded phrases in the citation imply that the vocabulary in the passages is likely to be beyond an elementary level in terms of quality and quantity, due to their length ("three long texts") and style ("descriptive and factual … discursive and analytical"). The fact that they are sourced from published material not originally intended for language learning or testing evokes potentially difficult vocabulary.

The impression that knowledge of vocabulary plays an important role in IELTS AR is soon confirmed in the sample test material available on the official IELTS websites. The extracts of AR passages provided there read like parts of articles from science magazines or excerpts from post-school-level textbooks, although no sources are mentioned. An example can be seen in Figure 3.4.

[40] Information about the format of the test: https://www.ielts.org/for-test-takers/test-format

The invention of rockets is linked inextricably with the invention of 'black powder'. Most historians of technology credit the Chinese with its discovery. They base their belief on studies of Chinese writings or on the notebooks of early Europeans who settled in or made long visits to China to study its history and civilisation. It is probable that, some time in the tenth century, black powder was first compounded from its basic ingredients of saltpetre, charcoal and sulphur. But this does not mean that it was immediately used to propel rockets. By the thirteenth century, powder-propelled fire arrows had become rather common. The Chinese relied on this type of technological development to produce incendiary projectiles of many sorts, explosive grenades and possibly cannons to repel their enemies. One such weapon was the 'basket of fire' or, as directly translated from Chinese, the 'arrows like flying leopards'. The 0.7 metre-long arrows, each with a long tube of gunpowder attached near the point of each arrow, could be fired from a long, octagonal-shaped basket at the same time and had a range of 400 paces. Another weapon was the 'arrow as a flying sabre', which could be fired from crossbows. The rocket, placed in a similar position to other rocket-propelled arrows, was designed to increase the range. A small iron weight was attached to the 1.5m bamboo shaft, just below the feathers, to increase the arrow's stability by moving the centre of gravity to a position below the rocket. At a similar time, the Arabs had developed the 'egg which moves and burns'. This 'egg' was apparently full of gunpowder and stabilised by a 1.5m tail. It was fired using two rockets attached to either side of this tail.

It was not until the eighteenth century that Europe became seriously interested in the possibilities of using the rocket itself as a weapon of war and not just to propel other weapons. Prior to this, rockets were used only in pyrotechnic displays. The incentive for the more aggressive use of rockets came not from within the European continent but from far-away India, whose leaders had built up a corps of rocketeers and used rockets successfully against the British in the late eighteenth century. The Indian rockets used against the British were described by a British Captain serving in India as ‘an iron envelope about 200 millimetres long and 40 millimetres in diameter with sharp points at the top and a 3m-long bamboo guiding stick’. In the early nineteenth century the British began to experiment with incendiary barrage rockets. The British rocket differed from the Indian version in that it was completely encased in a stout, iron cylinder, terminating in a conical head, measuring one metre in diameter and having a stick almost five metres long and constructed in such a way that it could be firmly attached to the body of the rocket. The Americans developed a rocket, complete with its own launcher, to use against the Mexicans in the mid-nineteenth century. A long cylindrical tube was propped up by two sticks and fastened to the top of the launcher, thereby allowing the rockets to be inserted and lit from the other end. However, the results were sometimes not that impressive as the behaviour of the rockets in flight was less than predictable.

**Figure 3.4:** An extract from an AR passage on the development of rockets. Source: https://www.ielts.org/-/media/pdfs/115015_academic_reading_sample_task_-_matching_features__2_.ashx

Thus, these texts come across as “serious”, unabridged reading material. An analysis of the sample text in Figure 3.4 with the online vocabulary profiling tool *Compleat Web VP* (Cobb, 2022b) reveals that vocabulary in the mid-frequency band levels 6k to 10k supplies 98% text coverage (see Figure 3.5). As discussed in Section 1.3.2, 98% text coverage is generally held to be the threshold for

"adequate" comprehension (Hu & Nation, 2000; Nation, 2001, 2006). The fact that mid-frequency vocabulary plays this key role in an AR passage is in line with Schmitt and Schmitt's (2014) claim that mid-frequency lexis is characteristic of university-level text, thus apparently confirming that AR passages are likely to be "appropriate for people entering university courses" (see quote from IELTS.org above).

| Freq. Level | Families (%) | Types (%) | Tokens (%) | Cumul. token (%) |
|---|---|---|---|---|
| K-1 : | 131 (59.3) | 152 (60.56) | 413 (73.4) | 73.4 |
| K-2 : | 33 (14.9) | 38 (15.14) | 56 (9.9) | 83.3 |
| K-3 : | 25 (11.3) | 25 (9.96) | 32 (5.7) | 89.0 |
| K-4 : | 8 (3.6) | 10 (3.98) | 31 (5.5) | 94.5 |
| K-5 : | 5 (2.3) | 6 (2.39) | 8 (1.4) | 95.9 |
| **Coverage 95** [?] | | | | |
| K-6 : | 3 (1.4) | 3 (1.20) | 3 (0.5) | 96.4 |
| K-7 : | 4 (1.8) | 4 (1.59) | 6 (1.1) | 97.5 |
| K-8 : | 3 (1.4) | 3 (1.20) | 3 (0.5) | 98.0 |
| **Coverage 98** | | | | |
| K-9 : | 1 (0.5) | 1 (0.40) | 1 (0.2) | 98.2 |
| K-10 : | 2 (0.9) | 2 (0.80) | 2 (0.4) | 98.6 |
| K-11 : | 4 (1.8) | 4 (1.59) | 5 (0.9) | 99.5 |
| K-12 : | | | | |
| K-13 : | 1 (0.5) | 1 (0.40) | 1 (0.2) | 99.7 |
| K-14 : | | | | |
| K-15 : | | | | |
| K-16 : | | | | |
| K-17 : | | | | |
| K-18 : | | | | |
| K-19 : | | | | |
| K-20 : | 1 (0.5) | 1 (0.40) | 1 (0.2) | 99.9 |

**Figure 3.5:** The vocabulary profile of the IELTS AR sample passage in Fig.3.4, showing how many word families, word types and individual tokens are present in the text for each decreasing frequency k-band. The two cut-off coverage thresholds of 95% and 98% are indicated after frequency band 5k and 8k, respectively. Output generated using the BNC-COCA 1-25 framework on *VPCompleat* (https://www.lextutor.ca/vp/comp/).

A further indication that vocabulary knowledge is key in IELTS AR is that the passages seem to involve quite high levels of lexical density. Lexical density indicates the number of content words in a text; the greater the number of content words with regard to function words, the greater the lexical density and, presumably, the difficulty of the

text. The vocabulary profile of the sample text in Figure 3.4 reveals that the text contains 308 content words over a total word count of 559 (see data in Figure 3.6). This means that content words account for more than 50% of the text, as may be expected of a university-level text.

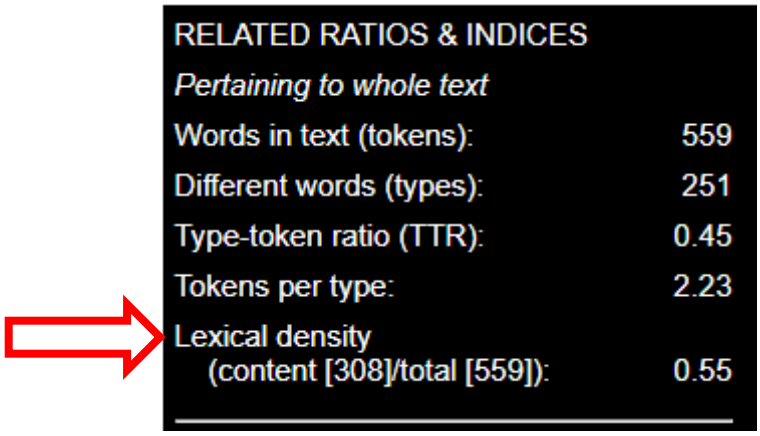



**Figure 3.6:** The lexical density of the passage in Fig. 3.4. Output generated using the BNC-COCA 1-25 framework on *VPCompleat* (https://www.lextutor.ca/vp/comp/).

Closer inspection of sample AR test material reveals that vocabulary knowledge is not only key to text comprehension, but also appears to be a fundamental component of the assessment scheme. This can be observed through close scrutiny of the sample test items, which lay bare that successful answers very often – if not always - require knowledge of synonymy or antonymy, as well as the ability to recognize paraphrase. This unacknowledged aspect of the IELTS test is discussed in detail in Section 3.1.2 below.

To sum up, the vocabulary demands made by the passages and the questions in IELTS AR make vocabulary knowledge a much greater requirement than might initially be suggested by a test apparently aimed at assessing reading skills. The next two subsections seek to support this claim through a description and a discussion of the characteristics of the AR passages and questions.

### 3.1.1. Characteristics of the IELTS AR passages

A major difference with reading tests in other high-stakes exams is that the texts in the IELTS AR test are not specifically written for the examination, but are instead sourced from published material not originally conceived for language teaching or assessment, such as magazines, newspapers and books. This material is subsequently modified to fit the IELTS AR parameters.

Not many details are divulged as to the principles underlying the choice and construction of the passages in IELTS AR, since test development occurs through a process that is kept confidential. However, some general information about the test development process is available in a dedicated area of the IELTS website[41]. It is clear that the test materials are produced following strict protocols and rigorous, principled procedures, although hardly any detail is provided with regard to the type of texts chosen and how they are reworked for the test. Greater detail can be gleaned from the IELTS-funded investigation carried out by Green and Hawkey (2012), in which the authors studied and compared how experienced and non-experienced item writers selected and developed AR test materials. The report explains that freelance item writers are commissioned by Cambridge Assessment to find and adapt suitable texts from a broad range of sources according to confidential IELTS item-writer guidelines and test specifications. The item writers are trained in IELTS text development and item writing, and must attend test-editing meetings throughout the process. The material the writers submit is edited and trialled by Cambridge and can be sent back to the item writers for further re-working. A Cambridge Assessment panel performs the final editing of the texts, before piloting them in

[41]Information about how IELTS is developed: https://www.ielts.org/about-the-test/how-we-develop-the-test

mock exam sessions. After trialling with volunteer test-takers, the passages can undergo ulterior adjustments to ensure that all the Reading tests effectively assess the same degree of reading ability, in the Standards Fixing process described on the IELTS webpage (see footnote 41).

The item writers in Green and Hawkey's (2012) study mostly selected their texts from websites, journals, magazines, newspapers, books, and academic papers. The type of texts normally chosen regarded topics of popular interest in a report-like format, and although the overall tone was academic and the texts could be "propositionally dense", the texts were deemed comprehensible to a non-specialist readership (pp.291-92). The report explains that original texts selected by the item writers can be adapted and shortened according to (confidential) Cambridge Assessment guidelines for item writing, in order to ensure they meet IELTS requirements for length and topic, as well as to eliminate cultural bias or content that could be considered offensive (p.278). Texts can also be shortened or amended to avoid the possibility of candidates finding correct answers without the need to understand the text. References to other parts of the source text are deleted, and any part that requires specialist knowledge of a topic is rewritten or removed (p.279).

The Green and Hawkey study is enlightening with regard to how and when the language in the selected texts is adapted to fit IELTS. The item writers investigated in the study reported introducing changes in source texts to make them more formal and academic, by for instance including more passive constructions, nominalizations and complex sentences, and eliminating contracted verb forms (Green & Hawkey, 2011, pp.301-309). However, they also removed vocabulary they considered excessively technical or "too infrequent

and so difficult for IELTS candidates" (p.324). They also made efforts to make texts taken from the press less obviously journalistic (p.303-304), reducing sensationalist language and the writer's personal engagement (p.324). As a result of this type of modifications, the researchers found that the resulting passages contained slightly more high-frequency vocabulary than the original texts, however maintaining the original prevalence of words at the 2k and 3k levels of frequency over words at the 1k level. The report also found that the altered texts tended to employ slightly more AWL words (p.302). This suggests that knowledge of mid-frequency vocabulary should be relevant to test-takers, given that a significant percentage of the AWL involves 4-5k vocabulary, as found by Cobb (2010) and further evidenced by Schmitt and Schmitt (2014). The IELTS versions of the texts also contained slightly less low-frequency vocabulary compared to the source texts (Green and Hawkey, 2012, p.302), which proves that technical and infrequent vocabulary was effectively removed or substituted by higher frequency words.

The insights provided by Green and Hawkey's (2012) report into the characteristics of IELTS passages have important implications for IELTS candidates. On one hand, the report nuances the IELTS claim that the AR texts are "authentic" (IDP IELTS, 2023)[42], as it shows that the source texts are altered to some extent, in order to make them conform to IELTS criteria. As a result, AR passages may be simpler than real-world texts in that the AR versions do not contain specialist or technical vocabulary. By contrast, some AR passages may be more difficult than the source texts because they have been made more academic. On the other hand, Green and Hawkey make it clear that the AR passages are not engineered for any specific level of proficiency. They are instead tailored to the IELTS objectives of

[42] A description of the IELTS test format: https://www.idp.com/global/ielts/testformat/

using test material that is suitable for the university environment, without, however, requiring specialist knowledge for comprehension. As a result, candidates should expect to encounter relatively complex and lexically dense texts, with an academic tone if not a fully academic style. Dealing with texts such as these clearly requires a good receptive knowledge of vocabulary, in addition to well-developed reading skills.

### 3.1.2. Characteristics of the IELTS AR questions

The IELTS.org website reports that the test uses a variety of question types, including multiple choice; identifying information choosing between True/False/Not given; identifying writer's views choosing from Yes/No/Not given; matching information, headings, features and sentence endings; sentence, summary, note, table, flow-chart or diagram completion, and short answer questions (IELTS.org, 2023). None of these questions are open, for example correct answers to summary completion and short answer questions are words taken directly from the text or from a provided selection of words, and not freely formulated by the test-taker. The website claims that these test items assess a variety of reading skills, covering "reading for gist, reading for main ideas, reading for detail, skimming, understanding logical argument and recognising writers' opinions, attitudes and purpose" (IELTS.org, 2023)[43]. The only reference made to vocabulary knowledge appears with regard to summary, note, table, flow-chart completion questions (see example in Fig. 3.7), where it is specified that candidates need to be able to identify the word form required to fill the gap in terms of verb, noun, adjective, etc. Overall, as discussed in the introduction to this

[43] Details about the IELTS AR test can be found here: https://www.ielts.org/for-test-takers/test-format

chapter, the official description of the test items does not mention vocabulary as a factor in successfully answering AR questions.

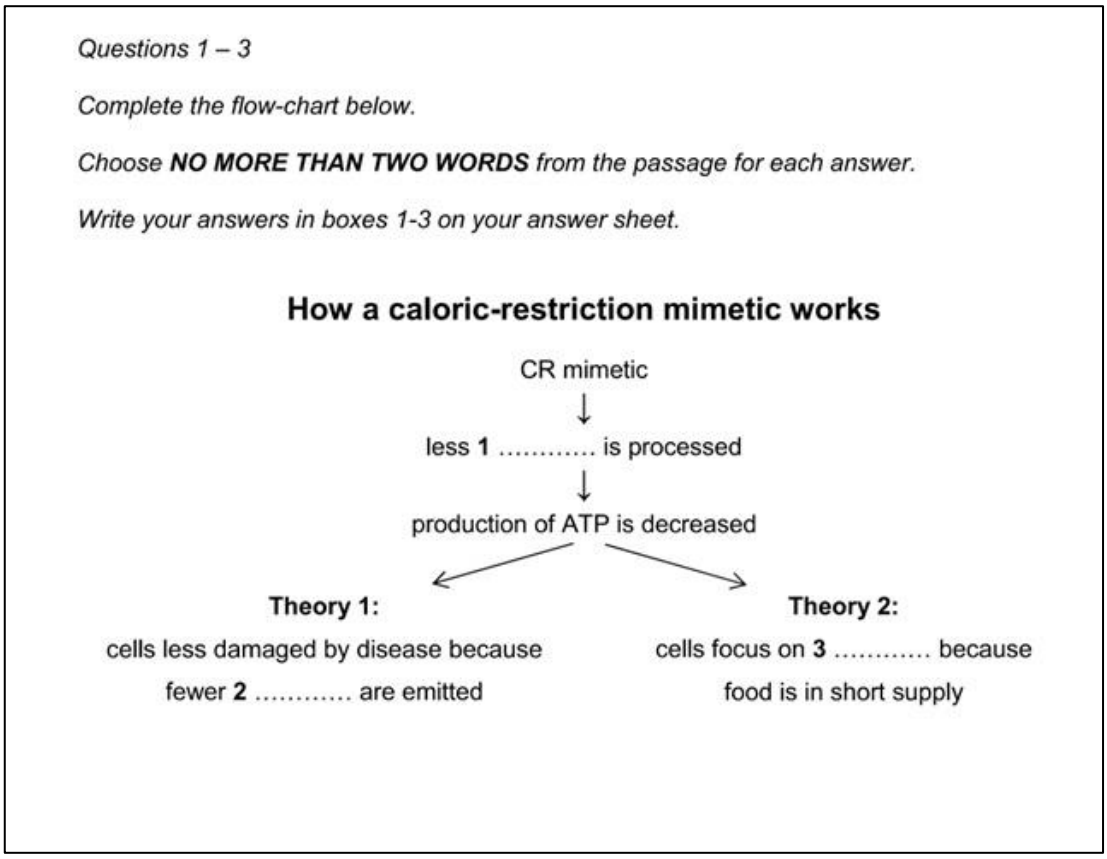
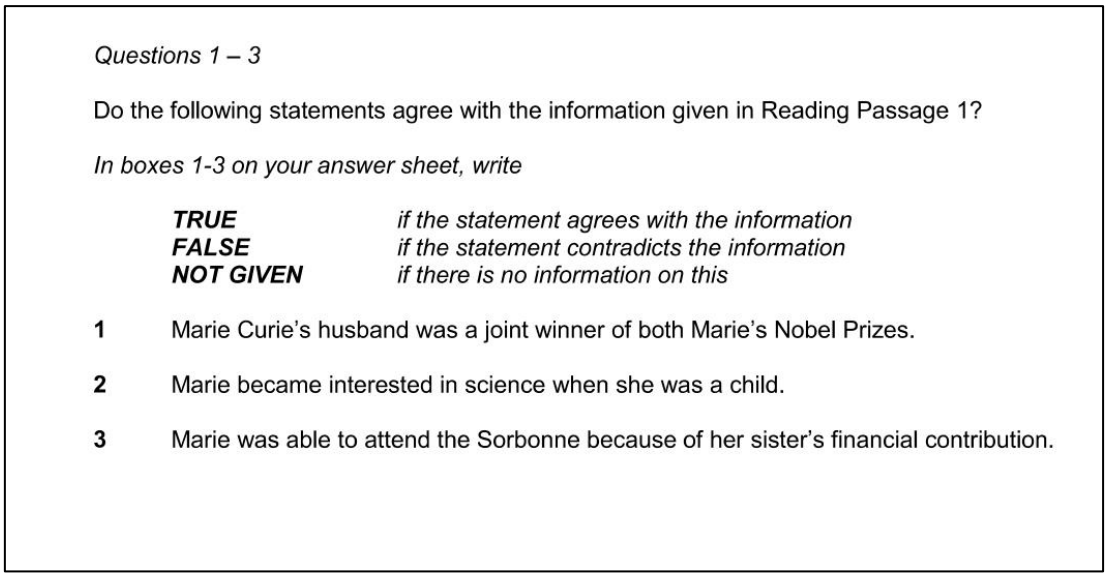



**Figure 3.7:** IELTS AR - a Flow-chart completion question. Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-flowchart-completion-selecting-words-from-the-text.ashx?la=en



*Questions 1 – 3*

Do the following statements agree with the information given in Reading Passage 1?

*In boxes 1-3 on your answer sheet, write*

| | |
|---|---|
| ***TRUE*** | *if the statement agrees with the information* |
| ***FALSE*** | *if the statement contradicts the information* |
| ***NOT GIVEN*** | *if there is no information on this* |

**1** Marie Curie's husband was a joint winner of both Marie's Nobel Prizes.

**2** Marie became interested in science when she was a child.

**3** Marie was able to attend the Sorbonne because of her sister's financial contribution.

**Figure 3.8:** An example of a True/False/Not Given question. IELTS.org (2023) classifies this question type as an "identifying information" test item, and claims that it "assesses the test takers' ability to recognise particular points of information conveyed in the text. It can thus be used with more factual texts."
Source: https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-identifying-information-true-false-not-given.ashx?la=en

However, as noted in the introduction to the present chapter, close inspection of available sample AR questions evidences that vocabulary is actually a key component of the assessment. Figure 3.9 shows how a Summary Completion question relies on knowledge and recognition of synonymy and paraphrase. In order to ascertain that *material* is the correct missing word for question 1, the test-taker needs to recognize the synonymy of *existence* and *life*, as well as of *impact* and *transformed*. To answer question 2, the segments "Other inventions…may have… but… language is what made us humans" allow the inference to be made that language is "*fundamental*" through grammatical cues ("may have" vs "is") and the ability to recognize and follow the sentence cues "other inventions … but language is what". However, the MWU *pale in significance* is crucial to choosing the correct answer, thus proving that knowledge of vocabulary is a fundamental component of the assessment construct in IELTS AR.

*Questions 1 – 4*

*Complete the summary using the list of words, **A-G**, below.*

*Write the correct letter, **A-G**, in boxes 1-4 on your answer sheet.*

**The importance of language**

The wheel is one invention that has had a major impact on **1** .. **E** ... aspects of life, but no impact has been as **2** .. **G** ... as that of language. Language is very **3** ..... , yet composed of just a small number of sounds. Language appears to be **4** ..... to use. However, its sophistication is often overlooked.

| | | |
|---|---|---|
| **A** difficult | **B** complex | **C** original |
| **D** admired | **E** material | **F** easy |
| **G** fundamental | | |

**'This Marvellous Invention'**

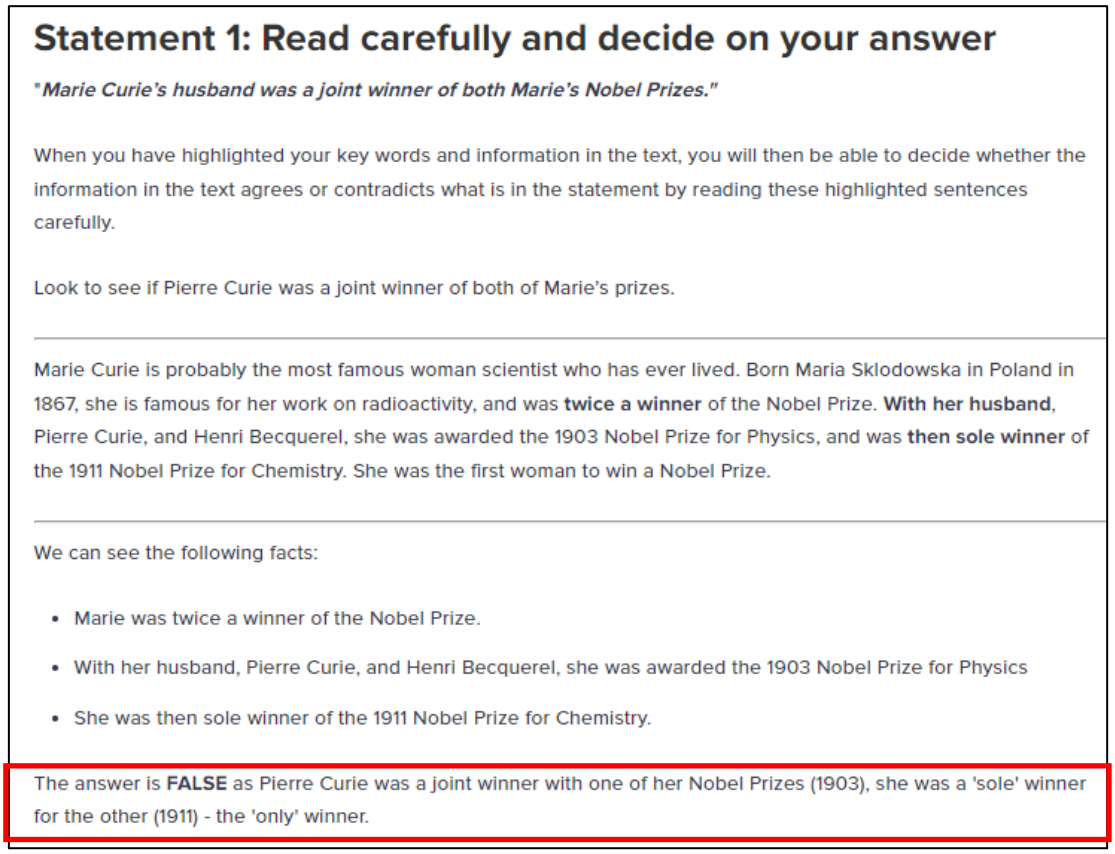
Of all mankind's manifold creations, language must take pride of place. Other inventions – the wheel, agriculture, sliced bread – may have transformed our material existence, but the advent of language is what made us human. Compared to language, all other inventions pale in significance, since everything we have ever achieved depends on language and originates from it. Without language, we could never have embarked on our ascent to unparalleled power over all other animals, and even over nature itself.

**Figure 3.9:** IELTS AR – an extract of a Summary Completion question. The answers for questions 1 and 2 are provided, and the parts of the passage that provide the two answers are underlined. The underlining is color-coded to match the answers for questions 1 and 2.
Source:https://www.ielts.org/-/media/pdfs/pb-sample-test-materials/academic-reading-sample-task-summary-completion-selecting-from-a-list-of-words-or-phrases.ashx

The exam training materials published by IELTS on their websites also make it evident that the questions in AR are strongly built around vocabulary knowledge. The IELTS blog page "IELTS Reading test: True, False and Not Given explained"[44] describes a step-by-step strategy for dealing with these test items. Although the blog sets out by stating that it will help candidates "make the correct

[44] A blog page from the IDP IELTS website that outlines an approach to dealing with True, False and Not Given test items: https://ielts.idp.com/prepare/article-a-closer-look-at-true-false-not-given?prep=true#step-2-scan-the-text-for-key-words-

choice, highlighting the reading skills needed to help you find factual information", the final step in the process ("Read carefully and decide on your answer") reveals that only knowledge of specific words will allow them to identify the correct answer. This can be seen clearly in Figure 3.10, as it reveals that identifying the correct answer narrowly depends on knowledge of the adjective *sole*. If this word is unknown to test-takers, they are reduced to guessing its meaning, using the wider context it is inserted in. Candidates with a Latin-based L1 might be advantaged by awareness of the cognate relationship of *sole* with words in their own languages (e.g. *seul* in French, or *sola/o* in Spanish, Catalan and Italian), but as IELTS is aimed at an international candidature such an advantage would only benefit a portion of the test-takers on a global scale.



## Statement 1: Read carefully and decide on your answer

***"Marie Curie's husband was a joint winner of both Marie's Nobel Prizes."***

When you have highlighted your key words and information in the text, you will then be able to decide whether the information in the text agrees or contradicts what is in the statement by reading these highlighted sentences carefully.

Look to see if Pierre Curie was a joint winner of both of Marie's prizes.

---

Marie Curie is probably the most famous woman scientist who has ever lived. Born Maria Sklodowska in Poland in 1867, she is famous for her work on radioactivity, and was **twice a winner** of the Nobel Prize. **With her husband**, Pierre Curie, and Henri Becquerel, she was awarded the 1903 Nobel Prize for Physics, and was **then sole winner** of the 1911 Nobel Prize for Chemistry. She was the first woman to win a Nobel Prize.

---

We can see the following facts:

- Marie was twice a winner of the Nobel Prize.
- With her husband, Pierre Curie, and Henri Becquerel, she was awarded the 1903 Nobel Prize for Physics
- She was then sole winner of the 1911 Nobel Prize for Chemistry.

The answer is **FALSE** as Pierre Curie was a joint winner with one of her Nobel Prizes (1903), she was a 'sole' winner for the other (1911) - the 'only' winner.

**Figure 3.10:** An extract from the IELTS blog entry about dealing with True/False/Not Given questions. The part highlighted in the red box shows how the entire question depends on knowledge of the adjective *sole*. Source: https://ielts.idp.com/prepare/article-a-closer-look-at-true-false-not-given?prep=true#step-2-scan-the-text-for-key-words-

It seems, then, that the claim that AR True/False/Not Given questions "assesses the test takers' ability to recognise particular points of information conveyed in the text" (IELTS.org, 2023)[45] might more accurately be reformulated to "… test takers' ability to recognize particular **words** in the text". In fact, the IELTS-commissioned report by Green and Hawkey (2012, p.320-322) shows how item-writers deliberately developed True/False/Not Given questions that required knowledge and recognition of synonymy, antonymy, lexical repetition, derivation and paraphrase. For example, in test-writer Anne's questions,

> …[e]ach question consists of a paraphrase of information given in the text. Identifying whether the [paraphrase] is correct rests on the ability to identify co-reference and hence to map words or phrases in the question onto words in the text. (Green & Hawkey, 2011, p.321)

Some test items developed by test-writer Anne (Green & Hawkey, 2011, p.361-363) are displayed in Figures 3.11 and 3.12. In Question 5 (Fig.11), the correct answer (TRUE) can be arrived at if the candidate is able to recognize that "*its playmate would often produce the same expression*" is a paraphrase of "*copying the other person's gestures or behaviour*" (Fig. 12). Knowledge of the word *mimicry* would be a great advantage. Once this paragraph has been identified, it would be necessary to notice the phrase "*helps us […] form social bonds*" in the question (Fig.11), and realize that it is synonymous with "*assist in the creation of communal attachments*" in the passage (Fig.12). This of course requires knowledge of the

[45] A description of the format of the AR test and details about the question types is available on this page: https://www.ielts.org/for-test-takers/test-format

words *assist*, *bonds* and *attachments*, as well as the synonyms *social* and *communal*. No amount of reading skills are of any use to answer this question if these words are not known.

An even more demanding example regards Question 7 in Figures 3.11 and 3.12. After the relevant part of the text has been identified thanks to the presence of the words *tickling* and *research*, and possibly also the recognition of the synonyms *research into – studies of – look at [this very question]* (Fig.12), the candidate needs to know the MWU in the passage *thin on the ground* (Fig.12) and recognize that it is antonymous with the phrase *a considerable amount* in the question (Fig.11) in order to identify the correct answer FALSE. Lack of knowledge of that MWU implies the impossibility of correctly answering the question.

*Questions 1-8*

Do the following statements agree with the information given in Reading Passage X?

*In boxes 1-8 on your answer sheet, write*

| | | |
|---|---|---|
| | ***TRUE*** | *if the statement agrees with the information* |
| | ***FALSE*** | *if the statement contradicts the information* |
| | ***NOT GIVEN*** | *if there is no information on this* |
| 1 | Provine wrote down more than a thousand examples of what made some of his students laugh. | |
| 2 | Provine classified his research material into male and female subjects. | |
| 3 | Provine considered dividing the laugh episodes into the kind of laughter generated. | |
| 4 | Provine observed that laughter is mostly stimulated by remarks that are without humour. | |
| 5 | Copying another person's gestures or behaviour is believed to assist in the creation of communal attachments. | |
| 6 | It is clear that laughter developed in man nearly six million years ago. | |
| 7 | There has been a considerable amount of research into tickling. | |
| 8 | The tickling machine is to be tried out on a range of different mammals. | |

**Figure 3.11:** True/False/Not Given questions from Green and Hawkey (2012), pp.361-363.

**[part of passage relevant to Question 5:]**

The team discovered that when one orangutan displayed this expression, its playmate would often produce the same expression less than half a second later. The speed with which this mimicry occurred indicated that the orangutan had not had time to decide on the response – in other words the laughter was contagious. 'In humans, mimicking is a mechanism that enables us to understand our social partner better, and this helps us to cooperate and form social bonds. It is clear now that it evolved prior to humankind,' says Davila-Ross.

**[part of passage relevant to Question 7:]**

Studies of tickling, although thin on the ground, should therefore be able to tell us a lot more about laughter. For example, we all know that we cannot make ourselves laugh by tickling ourselves. But could a machine tickle us? One team of researchers at the University of California at San Diego built a mechanical tickling machine to look at this very question. They discovered that their subjects laughed just as much in response to the machine as to the experimenter. This tells us that a successful tickle does not depend on another person, but merely on another entity, something that's not you.

**Figure 3.12:** The parts of the passage relevant to Questions 5 and 7 in Fig. 3.11 (Green & Hawkey, 2011, pp.361-363).

It should be noted that the Green and Hawkey (2012) report is a case study of the process of IELTS AR item-writing performed by more and less experienced item-writers, and not all the items developed were finally accepted by IELTS. Thus, the example questions and passages discussed above (Figs. 3.11 and 3.12) may not actually exemplify real IELTS AR test material. However, the fact that also the experienced item writers in the report were producing questions almost exclusively based around vocabulary knowledge suggests that this is standard practice in AR. As the same strict dependence on vocabulary knowledge can be observed in the sample AR questions published by IELTS on the official websites (see the discussion around Fig.10 above), it seems reasonable to assume that, counter to what IELTS declares, more than only reading skills are assessed in the AR test. The example test items discussed above reveal that vocabulary knowledge is actually an integral part of the assessment construct. This key feature of IELTS AR questions is not

made explicit in official IELTS exam information or in official IELTS training materials. IELTS candidates would be well advised to develop their vocabulary with a view to the AR test, and the IELTS organization would better support its clients, the test takers, if clear and explicit guidelines for learning vocabulary for the test were provided.

## 3.2. Sources of knowledge about vocabulary and IELTS AR

Finding information and learning about vocabulary and IELTS AR is not a straightforward matter. Search terms such as "IELTS vocabulary" or "vocabulary for IELTS" or "vocabulary for IELTS Academic Reading" will instantly produce millions of results on the internet. However, if authoritative sources of information and knowledge are to be consulted, these are more likely to be the information disseminated by IELTS through its official websites, published peer-reviewed research, as well as textbooks and other exam training materials issued by the leading publishers in the field.

Official information about vocabulary and the AR test has been discussed in detail in Chapter 2. Section 2.4 evidenced that IELTS' official websites and publications dedicate little space to vocabulary generally. Mentions of useful vocabulary, how to learn it and which IELTS tests to apply it to are fragmentary and randomly positioned within the body of information and support material on the websites. No official description is provided of the vocabulary contained in or required for IELTS, and vocabulary is not mentioned in relation to the AR test. Furthermore, the exam study advice provided is contradictory, as the official information underplays the importance of vocabulary for success in the test by not addressing it, while at

the same time inviting candidates generically to "improve language proficiency" (IELTS, 2019a, p.29).

The present section explores published research and IELTS textbooks for knowledge about vocabulary and the AR test, critically summarizing what these sources reveal and contrasting the findings with the official information disseminated by IELTS. Both research and textbooks afford useful insight into the matter at hand. Nonetheless, they also pose a variety of problems, the main one being that neither source explicitly answers the question of what vocabulary is needed for success in IELTS AR nor how best to go about learning it.

### 3.2.1. What the literature says about vocabulary and IELTS AR

Vocabulary in connection with the AR test has to date received only little attention in the literature. Available research on vocabulary and IELTS tends to focus on lexis in the Writing and Speaking tests. This may be due to a number of reasons. In the first place, the fact that vocabulary is explicitly assessed only in these two tests, albeit as an embedded assessment feature, presumably determines that interest in vocabulary primarily concentrates here. At the same time, researching vocabulary in IELTS is doubtlessly complex. The main cause of complexity stems from the comprehensive testing construct used in the exam. As Read (2000) points out, any vocabulary assessment measures in a comprehensive test such as IELTS cannot be studied in isolation from the overall test, as they are "embedded in [the] test to measure some larger construct" (Read, 2000, p.189). A further factor in the overall dearth of vocabulary studies on IELTS may be the difficulties involved in investigating its test materials independently of the IELTS consortium (Akbariam & Alavi, 2013),

given the limitations of access to exam material imposed by the organization.

Nonetheless, some relevant research is available that directly or indirectly supplies useful knowledge about vocabulary and the AR test. This literature consists on one hand of IELTS-commissioned investigations regularly disseminated through three online publications issued by Cambridge Assessment and IELTS, namely Research Reports, Studies in English Language Testing (SiLT) and Research Notes. Much of this literature is available on an open access basis on the IELTS website[46], while other studies need to be requested or purchased from the organization. The research in these publications is of course guided by the interests of the organization in terms of areas considered relevant and of what and how much information they desire to divulge. Nevertheless, some useful information can be gleaned from this research that is revealing about vocabulary and the AR test. On the other hand, over the years a wide variety of topics connected to IELTS have been covered by an impressive amount of academic research that is largely independent of the organization. A search with the term "IELTS" on Google Scholar calls up more than 40,000 papers from the 1990s to today. Articles on IELTS can easily be found in any of the main academic journals in the fields of Applied Linguistics, English language teaching and assessment, as well as journals focusing on a variety of issues connected to HE. Within this massive body of literature a very small number of studies focus on vocabulary in connection with the AR test. It is this group of studies that is of course of the highest relevance for the purposes of the present thesis. Nonetheless, some other studies are also relevant, and these include work on

[46] Research published by IELTS can be accessed here: https://www.ielts.org/teaching-and-research/research-reports

vocabulary in IELTS in general, as well as studies of IELTS AR that do not specifically focus on vocabulary. The subsections that follow seek to review this literature, in search of knowledge about vocabulary and AR.

#### 3.2.1.1. Research on IELTS AR with incidental reference to vocabulary

A few studies of the IELTS AR test incidentally allow some relevant insight about vocabulary in this test. The key points they bring to light are that:

- AR passages do not contain much academic vocabulary (Green & Hawkey, 2011; Weir, Hawkey, Green, Unaldi & Devi, 2009)
- high- to mid- frequency vocabulary makes up most of the lexical coverage of AR passages (Green & Hawkey, 2011)
- learning vocabulary is very useful towards success in AR (Bax, 2013)
- developing knowledge of synonymy is particularly useful (Bax, 2013)

Green and Hawkey (2012) compared how experienced and non-experienced item writers selected and developed AR test materials. The sources for the chosen reading passages were mainly websites, journals, magazines, newspapers, books and academic papers. Although it is unknown whether the materials finally submitted by the item writers in the study were actually adopted for real IELTS tests, the choice of sources confirms the claim made by the official IELTS websites that IELTS AR passages "are taken from books, journals, magazines and newspapers" (IELTS.org, 2023)[47]. Clearly,

[47]- A description of the format of the four IELTS tests: https://www.ielts.org/for-test-takers/test-format

such text sources suggest that the reading material in the exam is not strictly academic. In fact, Green and Hawkey (p.323-324) note that all the texts chosen by the participants in their study "involved plausibly academic topics presented for the general reader" – topics that are "plausibly academic" do not necessarily make the texts academic in terms of language.

The study performed by Weir, Hawkey, Green, Unaldi and Devi (2009) adds further support to this deduction. In their report, the authors compared reading in IELTS Academic to the experience of first-year reading at British universities. Two university lecturers participating in the study observed that newspapers and magazines were not frequent sources of degree-course reading material, and judged sample AR passages as being more characteristic of journalism than of standard academic texts.

This insight about IELTS AR is of great relevance to the present thesis, as it implies that knowledge of academic vocabulary should not be necessary for this test. However, despite declaring as sources for AR passages publications that cannot be identified as specifically academic, the IELTS website also surprisingly announces that the Academic test "features vocabulary that is familiar within an academic setting" (IELTS.org, 2023)[48]. It is true that the study by Green and Hawkey (2012) shows that the process of producing AR passages involved subjecting original magazine texts to minor editing in order to make them "more 'academic' in style and tone and less journalistic" (p.323). However, the examples of the lexical editing carried out by the item writers in the study suggest that changes to the original texts consisted more in making them less

[48] A description of the Academic vs the General Training version of IELTS: https://www.ielts.org/about-ielts/ielts-test-types

colloquial than in introducing vocabulary that could be considered academic. For instance, "*having a good giggle*" was substituted with "*laughing*", "*lab*" with "*laboratory*" and "*shut eye*" with "*sleep*" (p.308-309). These alternatives are hardly particularly academic. Furthermore, the item writers also chose to substitute or completely eliminate a number of words from their texts because they deemed them "too technical for the general reader, […] or too infrequent and so difficult for IELTS candidates" (p.324). As a presumably undesired result, the texts were rendered less academic: a characteristic of academic discourse is that it contains vocabulary that is more technical and less frequent than is common in other, less formal types of discourse. Some examples of words that were discarded in the Green and Hawkey study are "*photovoltaic panels*", which was substituted with "*solar panels*", or "*thorax*", which became "*chest*" (p.307). The discarded words would not be out of place even in a less technical academic text, while the words chosen in their place could be found in any type of text. Thus, in contrast with the claim on the IELTS website that the vocabulary used in AR passages is "familiar within an academic setting" (IELTS.org, 2023)[49], the literature about the AR test strongly suggests that focusing on vocabulary frequently used in academic contexts should not be necessary or even useful towards preparing for the test.

That high-frequency vocabulary probably makes up a substantial proportion of the lexical coverage of AR passages should not come as a surprise. After all, this is the case of "almost any text" (Schmitt & Schmitt, 2020, p.118). In fact, the Green and Hawkey (2012, p.302) report shows that the item writers in their study produced texts containing over 90% of high-frequency vocabulary, with a tendency to contain more words in the 2 – 3k frequency band than

[49] See footnote 48.

in the 1k band. The report also shows that the AWL vocabulary in the texts provided a coverage of 5 to 9% of the passages. This is somewhat below the 8 to 10% coverage that this list is claimed to supply in an average academic text (Coxhead, 2000; Nation, 2001; Schmitt & Schmitt, 2020), thus adding further solidity to the idea that academic vocabulary is probably not particularly relevant to IELTS AR.

Further insights are revealed by the results in terms of AWL vocabulary in the passages analyzed in Green and Hawkey (2012, p.302). Chapter 1 of this thesis showed that the literature has at this stage identified a number of problematic issues with the construct and content of the AWL (Cobb, 2010; Gardner & Davies, 2013; Neufeld & Billuroğlu, 2006; Schmitt & Schmitt, 2014). It seems, in fact, that more than half of the word families in the AWL (65%) are represented in the first three frequency levels of the general usage lists BNC and COCA (Cobb, 2010; Gardner & Davies, 2013). This, according to Gardner and Davies (2013), does not in itself invalidate the usefulness of the AWL. After all, academic and general vocabulary largely overlap, although academic vocabulary can be defined as body of words that are spread over different general frequency levels but that that tend to appear particularly frequently in academic discourse. However, with a view to guiding IELTS candidates in their preparation for the AR test, the relevance of AWL matches in the reading passages seems questionable, given what appears to be a marginal presence in these texts. More to the point, as Cobb (2010) has shown that these word families are effectively subsumed in the high- to mid-frequency levels of the BNC, and the passages analyzed in Green and Hawkey (2012) evidence the very strong presence of words in these levels of frequency, it would probably make more sense for IELTS candidates to devote attention

to learning the far larger BNC-COCA word lists (25,000 word families vs the 570 of the AWL).

Cobb (2010) shows that about 35% of the AWL (i.e. about 200 word families), is essentially represented in the first two or three levels of what Schmitt and Schmitt (2014) have termed mid-frequency (i.e. levels 4k -8k of the combined BNC-COCA lists). Mid-frequency vocabulary is particularly relevant for university-level reading, according to Schmitt and Schmitt (2014), as it is usually able to supply the further coverage beyond high-frequency vocabulary that is necessary to achieve the 95-98% coverage typically required by undergraduate reading. This being the case, once again it would seem more useful for IELTS candidates to focus on a large body of mid-frequency vocabulary such as that supplied by the BNC-COCA lists, rather than limit themselves to the 200 word families provided by the AWL.

Within the small body of literature on the IELTS AR test that is independent of the IELTS organization, and to the best of the present author's knowledge, only Bax (2013) touches on the issue of vocabulary in AR. He investigated differences between successful and unsuccessful AR candidates by studying their eye movements and analyzing their cognitive and metacognitive processes while completing AR test items. Among his findings is the unsurprising insight that successful candidates were more lexically proficient than unsuccessful candidates, in that they were better able to match words and synonyms in the questions and the text. As a consequence, Bax concludes that extensive work on students' vocabulary knowledge and on their awareness of a variety of relations of synonymy is of great value for success in the AR test. This last point is borne out by the Green and Hawkey (2012) IELTS report, where True/False/Not Given questions clearly hinged on

knowledge of synonymy. As discussed in Section 3.1.2 above, the official IELTS channels also emphasize the importance of synonymy in this particular question type. However, Bax seems to suggest that knowledge of synonymy is relevant across the test and not only in True/False/Not Given questions. For instance, in his analysis of the cognitive processing required for success with sentence completion questions, he shows that knowledge of synonymy is necessary alongside reading skills such as inferencing (Bax, 2013, p.13). In fact, he claims that sentence completion questions and matching questions are "designed specifically to target lower-order specific information" (Bax, 2013, p.16), through knowledge of synonymy and grammar. As pointed out in Section 3.1.2 above, the official channels of information about IELTS do not mention this, and thus fail to inform test candidates about the type of vocabulary knowledge they need in order to succeed in the exam.

#### 3.2.1.2. Work on vocabulary and the four IELTS tests

To the best of the author's knowledge, to date two works have been published that specifically study vocabulary and IELTS: a chapter from the TESOL Encyclopedia of English Language Teaching (Colovic-Markovic, 2018), and a study by Milton, Wade and Hopkins (2010). Both works address vocabulary across the entire IELTS test, and relevant knowledge about vocabulary and the AR test can be gained from both, although with the significant difference that Milton et al. is a research paper, while Colovic Markovic is not. The main points about vocabulary and IELTS AR that can be gleaned from the two works are:

- vocabulary exerts a particular influence on attaining a good score (Colovic-Markovic, 2018)
- high- and mid-frequency vocabulary is useful for IELTS AR (Colovic-Markovic, 2018)

- orthographic knowledge of vocabulary can greatly influence scoring in the AR test (Milton, Wade & Hopkins, 2010)

Colovic-Markovic (2018) nominally addresses vocabulary in the IELTS exam as a whole. Disappointingly, however, the chapter only really looks into vocabulary in the Speaking and Academic Writing tests. There are passing references to the usefulness of the advice for "reading and listening" (p.4), but there is no explicit mention of the AR test. For instance, the assertion is made that candidates "need to learn a range of lexical devices that bridge parts of discourse and indicate the relationships between ideas" (p.4). Such devices, it is claimed, are helpful towards improving candidates' performance, and are specifically mentioned in relation to the Speaking and the Academic Writing tests. It is also mentioned that such lexical devices need to be "interpreted accurately in reading and listening" (p.4). A series of examples are provided as useful for the Academic Writing test, consisting in a range of rhetorical devices to signal similarity, contrast, sequence and effects, as well as to introduce examples, explanations and express opinions. There is no mention as to whether they apply also to the AR test or if further, or other, linkers are useful, or in what way it might be useful to be able to interpret them in a text. Nonetheless, such lexical items could conceivably aid reading as well, as their recognition in a passage can help comprehension of text structure and intertextual connections, as well as support fluency and speed. Other specific suggestions for vocabulary areas to target refer to the Speaking test, such as anaphoric nouns (e.g. *aspect, item, approach, challenge*) and their synonyms; reporting verbs and phrases; evaluative adjectives and adverbs, and multiword units (MWUs) (p.4-5). Again, all these lexical subsets should also be useful for reading, but this is not mentioned. As an apparently general recommendation for success in IELTS, the chapter advises learning the first 1000 most frequent word families

in English, as well as the AWL (p.4-5). Specific mention is made of the claim that the AWL can increase academic text comprehension, and Nation (2001) is cited in support of this.

Thus, Colovic-Markovic (2018) outlines some potential targets for learning vocabulary for IELTS AR, and highlights the importance of increasing both vocabulary size and depth. However, this advice poses a number of problems. First of all, no time frame is proposed in which to usefully attain this increase of vocabulary size and depth before the exam date. Also, the dimensions of this vocabulary program and its exact composition is not made clear beyond the first 1000 most frequent words and the AWL. Colovic-Markovic claims that "every IELTS test candidate will find [learning high frequency vocabulary] beneficial" and that learning the AWL "is of benefit" (p.4), but she does not back these assertions with any research or IELTS endorsement. In fact, her claims and suggestions seem based on IELTS-course teaching traditions and classroom experience, as well as on what can be gleaned about vocabulary from the public versions of the Speaking and Writing assessment criteria available from the IELTS websites. Overall, this chapter from the TESOL Encyclopedia of English Language Teaching seems to contribute to perpetuating fundamentally unsubstantiated notions about vocabulary and IELTS, and does little to forward our knowledge of vocabulary useful for IELTS AR.

Milton, Wade and Hopkins (2010) set out to quantify the roles of phonological and orthographical vocabulary size in overall language proficiency, and in each of the four linguistic skills. To do so, IELTS scores were correlated to test results of vocabulary size. A high correlation to vocabulary size of both phonological and orthographical nature was found with the overall IELTS score. However, the Reading, Writing and Listening test scores were found

to have a particularly high correlation to orthographic vocabulary size, while this type of vocabulary size was understandably less significant for the Speaking test score. Phonological vocabulary size seemed largely irrelevant for success in the AR test, and only showed significant correlations with speaking, listening, and to lesser degree, writing. This contrasts with Walter (2008), who posits that phonology is of great relevance to the reading skill because words read seem to be first registered in the phonological loop of verbal working memory rather than in its visuospatial sketchpad. The students in her study who demonstrated a more solid phonological storage of vocabulary showed stronger reading skills than the students who had poor phonological representations of words just read. One reason for the contrast in findings between Milton et al. and Walter may be that Walter's work regards general reading skills, while Milton et al. studied reading in IELTS. It may well be the case that reading in exam conditions requires quite different skills than reading outside of an exam. In fact, the literature on vocabulary and reading typically overlooks the language exam context, with the result that it arrives at conclusions that can prove hard to apply to vocabulary in and for the IELTS AR test.

Milton et al. (2010, p.98) conclude that overall IELTS scores seem to be enormously sensitive to orthographic vocabulary size in particular, and this is of primary importance to the purposes of the present thesis. Moreover, they found that 48% of variance in scores in the AR test can be explained by orthographic vocabulary size (p.94). In fact, results of regression analyses lead the authors to suggest that orthographic vocabulary size may be the most determining factor for success in the AR test (p.97). This suggests that attention to receptive knowledge of vocabulary is highly relevant for the AR test. The implication for teaching and learning

vocabulary towards IELTS AR is to develop a strong sight vocabulary, potentially working also on recognition of word form.

#### 3.2.1.3. Studies on vocabulary and IELTS AR

Very few investigations have so far addressed the specific issue of vocabulary and IELTS AR. Two relevant studies have appeared in recent years: Drummond (2018), and Chen and Liu (2020). Some important insight regarding vocabulary and the AR test afforded by these works is that:

- test-takers scoring 6.5-7.0 probably know at least the first 3 - 4000 most frequent words in English (Drummond, 2018)
- research does not agree on the influence of vocabulary size on test scores in IELTS AR (Chen & Liu, 2020; Drummond, 2018)
- vocabulary size seems to play a bigger role than vocabulary depth on overall AR scores (Chen & Liu, 2020)

Drummond (2018) investigated the degree to which IELTS scores can reliably be used to stream international students into Academic English courses during their first year at UK universities. To this aim, he analyzed the receptive vocabulary size of a cohort of international freshman (first year) students and how it related to their overall and individual IELTS test scores. The study found a very weak correlation between the AR test and vocabulary size, which is in sharp contrast with the investigation by Milton et al. (2010), where a very strong correlation was found between receptive vocabulary knowledge and the AR test. Given that the construction of the two studies was reasonably similar, Drummond hypothesized that this difference in results might have been affected by the attitude taken by the participants towards IELTS. His freshman students may not have treated the exam as a high-stakes test, thus not demonstrating their

maximum competence, while the maturity of the older students in Milton et al. could have led them to put in their maximum effort.

More particularly of relevance for the purposes of the present thesis, Drummond's investigation showed that candidates attaining an overall score of 6.5 to 7.0 may have a vocabulary size that affords them approximately 90% text coverage. According to Schmitt and Schmitt (2014), such a coverage is granted by knowledge of the first 3- to 4000 most frequent words in English. These findings are extremely relevant for prospective IELTS candidates, as they constitute a first research-based indication of what vocabulary to learn with the aim of passing IELTS with a score that will allow access to Higher Education (HE) in English (usually 6.5 – 7.0). In fact, the results of the present investigation corroborate the findings in Drummond, as is discussed in Chapter 6.

In their recent study on the influence of depth and breadth of vocabulary knowledge on scores in IELTS AR, Chen and Liu (2020, p.12) found that vocabulary size was key for True/False/Not Given questions, while for Short Answer Questions, Matching Headings, and Multiple Choice questions, depth of vocabulary knowledge played a more determining role. Sentence Completion questions seemed to require both types of vocabulary knowledge. Overall, however, Chen and Liu found that vocabulary size was the most determining of the two types of lexical knowledge towards successfully answering AR questions (p.14-15).

### 3.2.2. What textbooks say about IELTS AR

Prospective IELTS candidates and IELTS course instructors may easily seek information about vocabulary and the test on the internet. In fact, the web currently supplies a vast and ever-growing array of websites that purport to train for IELTS. However, they

typically provide little to no details that support their authority on IELTS issues, nor do they usually clarify the sources of their materials and how these are informed. By contrast, the prestige of established ELT publishers is generally held to ensure that the materials they issue are valid for IELTS preparation. Therefore, textbooks are often turned to as a source of knowledge and guidance towards training for IELTS. Section 1.4.3 above discussed the reliance of language teachers on textbooks, as well as the mediating role of published materials, that often determine language teachers' work (Guerretaz & Johnston, 2013; Harwood, 2013; Thornbury, 2015). Given how difficult it is to find information about vocabulary and IELTS from the official sources, textbooks issued by a prestigious ELT publisher can understandably be seen as authoritative sources of guidance on the matter.

It should be noted, however, that no IELTS training materials are endorsed by the IELTS consortium with the exception of those published by Cambridge University Press. These, and only these, bear the stamp of authorized and reliable materials: "Our materials are official….[O]ur official stamp… represents… [a] unique relationship between Cambridge University Press and Cambridge Assessment English… All our materials are checked and validated by the teams who produce the real exams" ("Our materials are official", 2021). Nonetheless, all the main international ELT publishers include one or more IELTS titles in their catalogs; some examples relevant for Europe can be seen in the ELT catalogs issued annually by Pearson, Oxford or Macmillan. Given the lack of endorsement by IELTS, and the scarcity of official information about vocabulary in the test, the question arises as to the effective authoritativeness of these titles.

Most textbooks that prepare for IELTS include work on vocabulary. This can be seen in *Expert IELTS 7.5* (Aish, Bell & Tomlinson, 2017) and *Ready for IELTS* (McCarter, 2017), of which sample pages are shown in Figures 3.13 and 2.14, and 3.14, respectively. Further examples of this approach can be seen in textbooks such as *Mindset for IELTS 1* (Archer, Kosta & Passmore, 2017), *Expert IELTS 6* (Walsh & Warwick, 2017) or *Direct to IELTS* (McCarter, 2013). A small number of books also exist that are specifically dedicated to vocabulary for IELTS (for instance Cullen, 2008, 2021; Williams, 2012; Wyatt, 2017). Thus, vocabulary is not neglected in training materials. However, given that the approach to IELTS is largely skills- and strategy based, textbooks tend to dedicate a comparatively small amount of space to lexis.

The vocabulary content in published IELTS training materials essentially communicates the following about vocabulary and the exam:

- Developing vocabulary is less relevant to IELTS than skills development.
- Learning vocabulary is mainly relevant to the Speaking and the Academic Writing tests.
- Vocabulary development should be beneficial for IELTS overall: there is no specific vocabulary to learn for the AR test.
- There is no specified amount of vocabulary to learn towards IELTS
- Vocabulary in the AR test can be dealt with applying reading strategies such as guessing from context.
- Developing depth of vocabulary knowledge is a useful approach to prepare for IELTS. Particularly useful aspects of vocabulary knowledge are collocation, synonymy, affixation and word form.

- Learning vocabulary by topics is helpful towards the exam.
- There is no indication that the vocabulary that is useful for IELTS is academic.

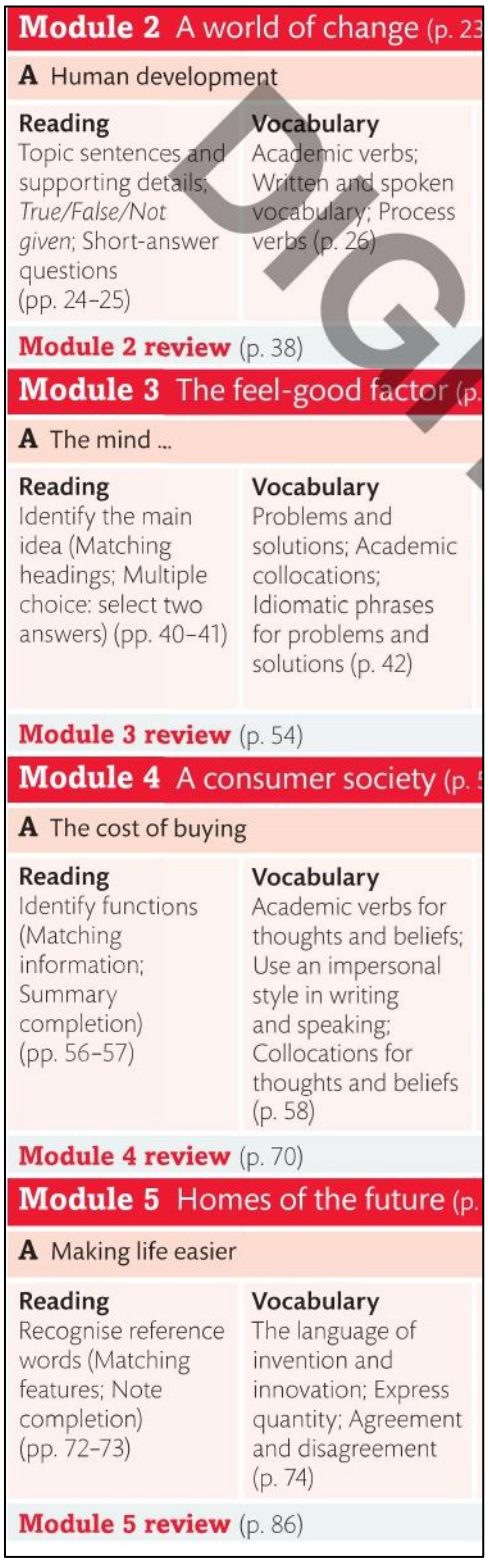
Vocabulary development is secondary to skills development across IELTS textbooks, although the amount of space dedicated to vocabulary can vary quite significantly from one book to another. The overall message communicated by this approach is that vocabulary development is important, but less than skills development.

Much vocabulary work that appears in IELTS textbooks is not explicitly directed at any particular test in the exam. Vocabulary sections are included in most units, with varying amounts and types of exercises that tend to be organized around topics or lexico-grammatical aspects. Characteristically, no indication is provided as to which test the vocabulary might be useful for, or how it might appear or be used in any given test. Examples of this tendency can be seen in Cullen (2008), McCarter (2013), Walsh and Warwick (2017) or Williams (2012). When textbooks specify which tests the vocabulary is useful for, these are usually the Speaking and the (Academic) Writing tests. In the few cases in which vocabulary specifically regards the AR test (e.g. Archer, Kosta & Passmore, 2017), it tends to be approached from a reading-skills perspective, typically with the aim of developing the ability to guess meaning from context and recognize paraphrase. This puts across the idea that it is not useful or necessary to learn vocabulary for the AR test and that it is sufficient to learn how to manage vocabulary encountered in the test.

Vocabulary sections in IELTS textbooks tend to dedicate quite a lot of attention to certain aspects of depth of vocabulary knowledge,

particularly synonymy and collocation, as well as to certain areas of morphology such as affixation and derivation. Awareness and knowledge of these aspects of morphology, as well as of synonymy, should be of great value for the AR test: Section 3.1.2 above showed that most of the questions in the test revolve around recognition of synonymy and paraphrase. Gardner (2013) makes the case for developing knowledge of affixation and derivation as a means to increase vocabulary size and improve recognition of lexis in text. It is therefore both surprising and unfortunate that the particular relevance of this vocabulary work to the AR test is not highlighted in IELTS textbooks, making it something of an opportunity missed to present such vocabulary work as apparently useful "in general" across IELTS (see for instance McCarter (2013), or Walsh and Warwick (2017)). By contrast, collocation is probably an area of vocabulary knowledge with less impact on reading comprehension, having a far greater effect on the productive skills. Nonetheless, it tends to be addressed quite extensively in IELTS textbooks (e.g. Archer et al., 2017; McCarter, 2013; Walsh & Warwick, 2017), often aimed specifically at the Speaking or the Writing tests (e.g. Archer et al., 2017), but also very often apparently aimed at the exam in general (e.g. Cullen, 2008; McCarter, 2013; Walsh & Warwick, 2017; Williams, 2012).

Textbooks seem to approach vocabulary for IELTS in three main ways: thematically, grammatically, or as an aspect of exam technique. Textbooks such as *Expert IELTS Band 7.5* (Aish, Bell & Tomlinson, 2017) and *Ready for IELTS* (McCarter, 2017) use a combination of the three approaches, as can be seen from their contents pages, shown in Figures 3.13 and 3.14, respectively. This approach can also be observed in the textbooks *Mindset for IELTS 1* (Archer et al., 2017), *Direct to IELTS* (McCarter, 2013), and *Expert IELTS 6* (Walsh & Warwick, 2017).



**Module 2** A world of change (p. 23

**A** Human development

| Reading | Vocabulary |
|---|---|
| Topic sentences and supporting details; *True/False/Not given*; Short-answer questions (pp. 24–25) | Academic verbs; Written and spoken vocabulary; Process verbs (p. 26) |

**Module 2 review** (p. 38)

**Module 3** The feel-good factor (p.

**A** The mind ...

| Reading | Vocabulary |
|---|---|
| Identify the main idea (Matching headings; Multiple choice: select two answers) (pp. 40–41) | Problems and solutions; Academic collocations; Idiomatic phrases for problems and solutions (p. 42) |

**Module 3 review** (p. 54)

**Module 4** A consumer society (p.

**A** The cost of buying

| Reading | Vocabulary |
|---|---|
| Identify functions (Matching information; Summary completion) (pp. 56–57) | Academic verbs for thoughts and beliefs; Use an impersonal style in writing and speaking; Collocations for thoughts and beliefs (p. 58) |

**Module 4 review** (p. 70)

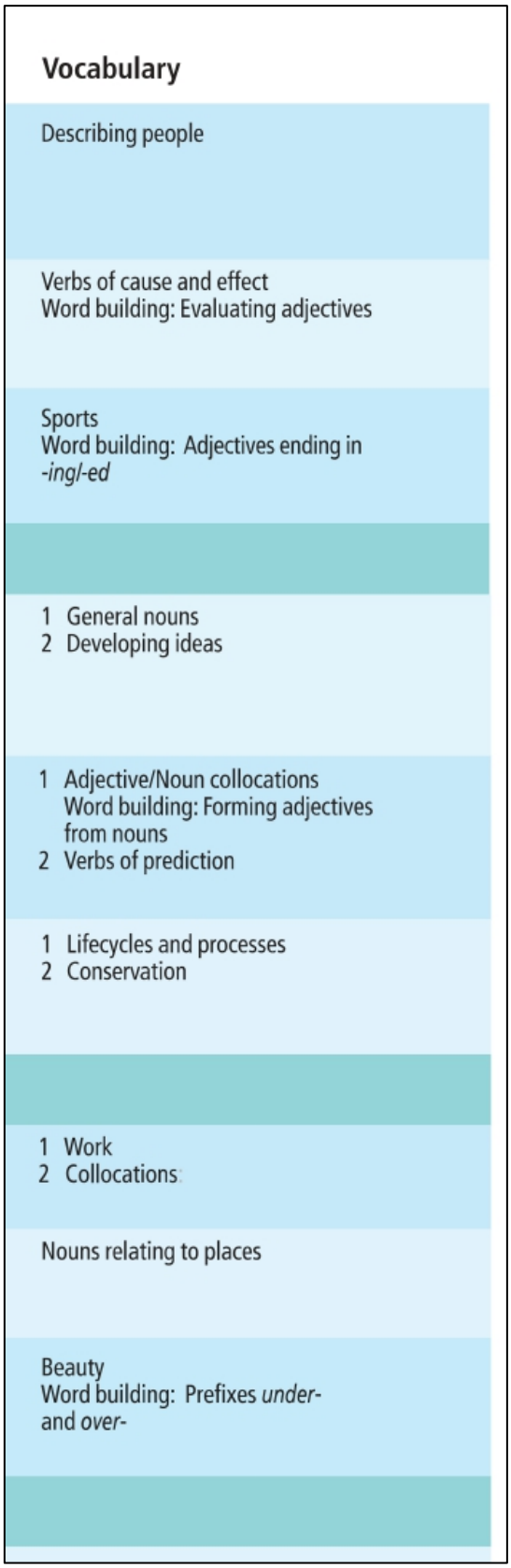
**Module 5** Homes of the future (p.

**A** Making life easier

| Reading | Vocabulary |
|---|---|
| Recognise reference words (Matching features; Note completion) (pp. 72–73) | The language of invention and innovation; Express quantity; Agreement and disagreement (p. 74) |

**Module 5 review** (p. 86)

**Figure 3.13:** An extract from the contents page of *Expert IELTS Band 7.5* (Aish, Bell & Tomlinson, 2017). The thematic, grammatical and exam-skill organization is evident in the vocabulary sections.



**Vocabulary**

Describing people

Verbs of cause and effect
Word building: Evaluating adjectives

Sports
Word building: Adjectives ending in *-ing/-ed*

1 General nouns
2 Developing ideas

1 Adjective/Noun collocations
Word building: Forming adjectives from nouns
2 Verbs of prediction

1 Lifecycles and processes
2 Conservation

1 Work
2 Collocations

Nouns relating to places

Beauty
Word building: Prefixes *under-* and *over-*

**Figure 3.14:** An extract from the contents page of *Ready for IELTS* (McCarter, 2017) evidencing the thematic, grammatical and exam-skill organization of the vocabulary content.

Vocabulary books for IELTS such as Cullen (2008) and Williams (2012) are structured completely around topics. These topics can mostly be traced to a few official IELTS webpages that list exam topics, some of which are shown in Figures 3.15, 3.16 and 3.17 below.


**Figure 3.15:** A list of IELTS topics extracted from the IDP IELTS (2023) article "Vocabulary to help prepare for common IELTS topics". (https://ielts.idp.com/prepare/article-common-vocabulary-ielts-topics)

## Part 2: a monologue, speech or talk

In Part 2 of the IELTS Listening test, you will hear a monologue which is set in an everyday context. You might hear a speech about local facilities, describing the layout of a recreation centre, or you will hear a description of rooms in a particular building. There are a variety of question types in this part of the test and some questions may involve maps so there is vocabulary that may be helpful to know.

If you see a map or diagram, the first piece of advice is to write L and R on either side of your booklet, to make sure you don't confuse your right with your left! It would also be useful to draw a compass with the points North, South, East and West if this has not been already done for you. Remember when you are under test conditions, you will be nervous, and may confuse left with right, meaning you cannot follow the description.

1. **Rooms in buildings:** kitchen, bathroom, bedroom, living room, dining room, lounge, library, gymnasium (gym), cafeteria (cafe), classroom, waiting room, reception, ticket desk, storage room, theatre

2. **Place markers:** street, road, avenue, lane, drive, court, place, terrace, way

There is some vocabulary you should be listening for, but may not have to write down when doing a map question in Part 2, which will allow you to follow the map more easily. Make sure you know where these direction words point to.

3. **Directions and prepositions of place:** north, south, east, west, up, down, right, left, straight, across from, between, beside, diagonal, corner, opposite, adjacent to, near, past, before, after

4. **Verbs:** turn, move, continue on, walk, cross, pass, start, finish, end, stop, go straight ahead

5. **Places on a map:** tennis court, river, courtyard, laboratory, building, bridge, road, path, traffic lights, bench, seat, table, basketball court, running track, swimming pool, beach, forest, garden, castle

**Figure 3.16:** Recommended topics for IELTS Listening Part 2. Source: https://ielts.idp.com/prepare/article-common-vocabulary-ielts-listening

## Part 4: a university lecture

Even though Part 4 is the most difficult part of the IELTS Listening test, the vocabulary used is still words that are common knowledge. Part 4 is also based on academics, so there could be a range of different topics spoken about.

Look through the range of topic areas below and some vocabulary that is frequently used.

1. **Health:** vegetarian, vegan, healthy, unhealthy, leisure, disease, vitamin, protein, carbohydrates, exercise, treatment, obese, overweight, fit, doctor, check up, medicine, vitamin, pandemic, virus, cure, vaccination

2. **Animals and their habitat:** mammals, reptile, primates, predators, prey, mountain, jungle, forest, island, pond, river, stream, zoo, pet, endangered, species, ocean, sea

3. **Continents and Countries:** North America, South America, Asia, Africa, Europe, Antarctica, Australia, Oceania, England, Canada, China, United Kingdom, Germany, Mexico, Switzerland

4. **Environment:** global warming, disaster, earthquake, tornado, blizzard, hurricane, pollution, temperature, drought, flood, cyclone, volcanic eruption, deforestation, desertification, bush fires

5. **Government:** politics, leader, politician, senator, mayor, laws, regulations, senate, president, society, individual, council, rules

**Figure 3.17:** Recommended topics for Listening Part 4. Source: https://ielts.idp.com/prepare/article-common-vocabulary-ielts-listening

However, none of the topics specified on the IELTS webpages refer to the AR test. As can be seen, the topics listed in Figures 3.16 and 3.17 refer to the Listening test. The topics listed in Figure 3.15, on the other hand, are extracted from the IDP IELTS (2023) article "Vocabulary to help prepare for common IELTS topics". Careful reading of the article shows that in actual fact the suggestions made and the example test material included only refer to the Speaking

test, in spite of a few imprecise claims to a more general validity. Nonetheless, the topics listed on these official IELTS webpages typically match those that structure vocabulary work in IELTS textbooks. Thus, the message conveyed by IELTS textbooks is muddled, as they seem to claim that it is useful to learn vocabulary by topics for the exam in general, although the actual topics they cover are only endorsed by IELTS for the Speaking and the Listening tests. As the IELTS webpages provide no information regarding topics for the AR test, it is by no means clear that these topics should be of relevance for the AR test as well. Chapter 4 shows that in fact none of these topics really match those found in AR passages.

Section 3.2.1.1 quoted the claim about IELTS Academic that it "features vocabulary that is familiar within an academic setting" (IELTS.org, 2023)[50]. Interestingly, IELTS textbooks do not make reference to academic vocabulary in their vocabulary sections. This is probably a wise choice, as section 3.2.1.1 evidenced that research into the AR test suggests that the test probably does not contain much academic vocabulary. However, the contradiction between the claims on the official website and what research reveals about vocabulary in the AR test raises the question of how textbooks are informed.

Most IELTS textbooks tend to focus on a very small amount of lexical items in any given vocabulary section. For example, Archer et al. (2017) usually include a maximum of 6 -8 words in each section. Vocabulary books may include a larger amount of words and phrases, e.g. Cullen (2008) covers a word list of about 1,211 words and MWUs, while Williams (2012) covers about 277 different words. The final outcome is that textbooks deliver an unclear message as to the total amount of words needed for IELTS, and provide no

[50] A description of IELTS Academic and IELTS GT: https://www.ielts.org/about-ielts/ielts-test-types

indication of how many or which words should be known for the AR test. Perhaps more importantly, IELTS textbooks seem to communicate that building a large vocabulary is not relevant to the exam, as they rarely provide any practical suggestions for (rapidly) increasing vocabulary size (Serrano van der Laan, 2020). This is in contrast with what seems advisable based on the research findings described in the preceding section, which pointed to the determining nature of vocabulary size for success in reading. In fact, the vocabulary work in most IELTS textbooks develops depth of knowledge rather than size. Chen and Liu (2021) showed that depth of knowledge is certainly important in the AR test, particularly in order to deal with certain question types. However, developing depth of knowledge requires an investment of time that the average IELTS candidate does not have at their disposal. Furthermore, such a time investment is likely to render only small returns and may not significantly impact text coverage. Overall, Chen and Liu found that vocabulary size carried more weight in the AR test, in line with the general literature on vocabulary and reading. Therefore, teachers applying the depth-of-knowledge approach promoted by average IELTS textbooks will not appropriately prepare their students for the AR test.

To sum up, vocabulary instruction in IELTS textbooks seems to supply content and guidance that are not confirmed by research into IELTS. Curiously, the approach to vocabulary taken by these textbooks is also counter to officially disseminated IELTS information. Therefore, the question of how these materials are informed seems particularly urgent, as they strongly give the impression that they are based on classroom traditions and guesswork.

This chapter has shown that vocabulary knowledge is key to successfully answering the questions in the IELTS AR test. The insight afforded by the sample AR materials on the official IELTS websites strongly suggests that a vocabulary size beyond high frequency is also key to successfully dealing with the AR passages. This insight is borne out by research on IELTS, even when this literature only indirectly addresses vocabulary and the AR test. In sharp contrast, the information and training material disseminated by the IELTS organization underplay the importance of vocabulary knowledge, prioritizing skills development and exam technique. The disconnect between the research and the official IELTS line carries on into mainstream IELTS textbooks, which typically focus on developing skills and exam technique. The vocabulary work in these textbooks mainly addresses the productive tests in the exam, with little or no attention to the AR test. Even in the cases in which the vocabulary content can be useful to the AR test, the priority tends to be depth over size of vocabulary knowledge, which is again in contrast with the evidence that can be gleaned from the research. The question, then, is how to connect the knowledge gained from research, and from the analysis of sample test materials, with IELTS training. The next chapters address this problem.

# 4. THE IELTS AR PASSAGES IN A SELECTION OF CAMBRIDGE IELTS PRACTICE TESTS VOLUMES

Identifying vocabulary that is demonstrably useful towards success in IELTS AR should be highly useful for IELTS candidates, as would be providing them with a clear idea of the size and nature of this vocabulary. Vocabulary is a key factor in reading in general, and tends to be perceived as such by learners, as discussed in Chapter 1 of this thesis. Furthermore, Chapter 3 showed that vocabulary knowledge plays a key role in IELTS AR, due to the significant lexical demands the test involves, both in terms of navigating the reading passages and in terms of successfully dealing with the questions. However, as discussed in the previous chapters, the IELTS organization provides almost no information regarding vocabulary useful towards the AR test. Furthermore, there is no set vocabulary syllabus for the test. Chapter 3 showed that IELTS textbooks rarely address vocabulary specifically geared towards the AR test, and that

the vocabulary content tends to be unclear as regards target size and characteristics. To the best of the author's knowledge, no research to date has attempted to identify a quantifiable body of vocabulary useful for IELTS AR. This thesis endeavors to do so, by analyzing the vocabulary in a selection of 72 AR passages from past IELTS papers.

Before the vocabulary analysis, which is the subject of Chapter 5, the present chapter examines the reading passages in the 72 IELTS AR practice test selected for this investigation, with the aim of contextualizing and better understanding the vocabulary that appears in these texts. The 72 IELTS AR practice test passages are past IELTS papers published in five volumes in the CIPT collection, which is endorsed by the examination body. Their distinctive features are described and discussed, with a particular focus on those that have a bearing on the vocabulary in the passages. The findings are compared to the claims made about AR passages in a variety of official IELTS publications.

## 4.1. The Cambridge IELTS Practice Tests (CIPT) volumes

The present investigation is completely autonomous from the IELTS consortium. As other independent researchers have found before (Akbariam & Alavi, 2013, p.139), the absence of a connection to the organization prevents access to original IELTS AR test materials, which are confidential. However, a relevant body of publicly available "real" AR passages is to be found in the CIPT volumes, published with an annual to biannual cadence and commercialized by Cambridge University Press. The tests contained in these books are marketed as authentic past papers and representative of real IELTS tests, although

> […] the exact combination of the four modules (Listening, Reading, Writing, Speaking) of each of the four tests […] is not the same as those found in any one sitting so that, for example, the Listening may have come from December in one year but the Reading in the same test may have in fact come from March in the following year and so on. *(*N. White, Development Editor, ELT, Cambridge University Press, personal communication, April 7, 2008).

CIPT 8 (Cambridge IELTS 8, 2011) assures that the tests present a level of difficulty approximately equal to the genuine IELTS tests although it specifies that "… [Cambridge] cannot guarantee that [the prospective candidate's] score will be reflected in the real IELTS test." *(*p.9).

The first CIPT appeared on the market in 1996 (Cambridge IELTS 1, 1996) and subsequent volumes have been published at more or less regular intervals since then, the most recent volume to date being released in June 2022 (Cambridge IELTS 17, 2022). Until volume 10 (Cambridge IELTS 10, 2015), CIPTs contained four complete Academic tests and two General Training tests. From volume 11 onwards, separate dedicated volumes have appeared for each of the two versions of IELTS (Cambridge IELTS 11 Academic, 2016; Cambridge IELTS 11 General Training, 2016).

## 4.2. The AR passages in CIPT volumes 4 – 9

Six CIPTs were chosen for the purposes of the present investigation: volumes 4 to 9 (Cambridge IELTS 4, 2005 – Cambridge IELTS 9, 2013 in the List of References; from here on referred to as CIPT 4,

5, etc. See also Fig. 4.1). Each book contains four complete IELTS Academic tests and each AR test comprises three passages; thus, a total of 72 AR texts are investigated in this thesis. For copyright reasons, the passages cannot be reproduced here; however, the CIPT volumes selected for this investigation are much-used books that are well-known to IELTS candidates and tend to be available in language resource facilities around the world. All six are available for loan in the library of the Politecnico di Torino (Italy) Language Center, and were thus accessible to the author of this thesis, as this is her place of work. Although their publication was discontinued as of 2020 to make way for newer volumes, the publisher has confirmed that the practice test material in these books is still fully valid, as there have not been any changes to IELTS (M. Tubby, Cambridge University Press ELT Consultant for Piedmont, Italy, personal communication, April 19, 2021).


**Figure 4.1:** The six CIPTs used in this investigation: Cambridge IELTS Practice Tests volumes 4 to 9, i.e. Cambridge IELTS 4 (2005) – Cambridge IELTS 9 (2013).

This section analyzes the AR passages in the six selected CIPT volumes, in terms of length, sources, topics, and discourse patterns. It also explores the extent to which it is appropriate to claim that the passages are authentic and academic. For reasons of efficiency, each passage is identified using three digits identifying the CIPT volume number, followed by the test number and the passage number. For

example, "CIPT 4.2.3" identifies the third AR passage in the second IELTS practice test in CIPT volume 4.

### 4.2.1. Length

IELTS.org (2023)[51] states that the AR test consists of "three long texts". Figure 4.2 shows that the CIPT AR passages selected for the present investigation have an average length of 866 words, which could arguably qualify as "long" in the context of a 60-minute reading test consisting three such passages. At the same time, Figure 4.2 evidences that the CIPT AR passages vary considerably in length, as a significant amount of texts are above and below this average. The extreme cases of this variability in length are CIPT 7.2.3, which has a word count of 1158, and CIPT 9.3.1, with 606 words. IELTS candidates are likely to find it more informative to know the average length of the AR passages and their possible range of variability than being told that the texts are "long".

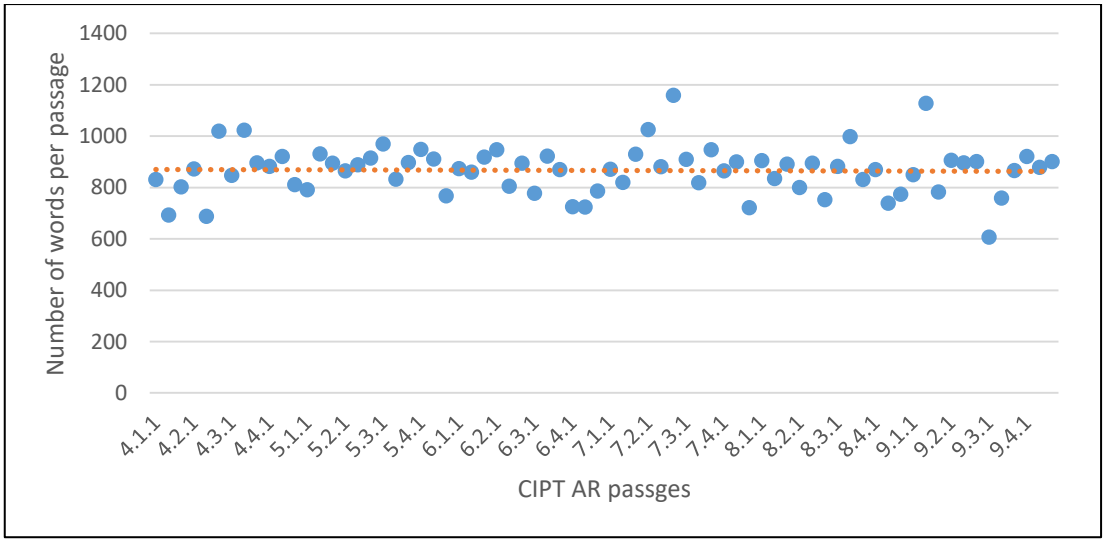



**Figure 4.2:** The number of words per passage in each of the 72 CIPT AR passages. Each dot represents one AR passage. The red dotted line indicates the mean total (866 words).

[51] A description of the four IELTS tests: https://www.ielts.org/for-test-takers/test-format

The variability in text length can be observed more clearly in Figure 4.3, which groups the passages by length ranges. Although the figure confirms that most passages are in the 800-word range (33 texts), a significant amount are in the 700- and 900-word range (13 and 18, respectively). A small number of passages are in the 600-, 1000- and 1100-word ranges (3, 3 and 2 respectively). While these findings suggest that texts of these lengths are less common, it would seem meaningful for IELTS candidates to know that they might encounter passages quite a bit shorter, or more importantly, quite a bit longer than the average.

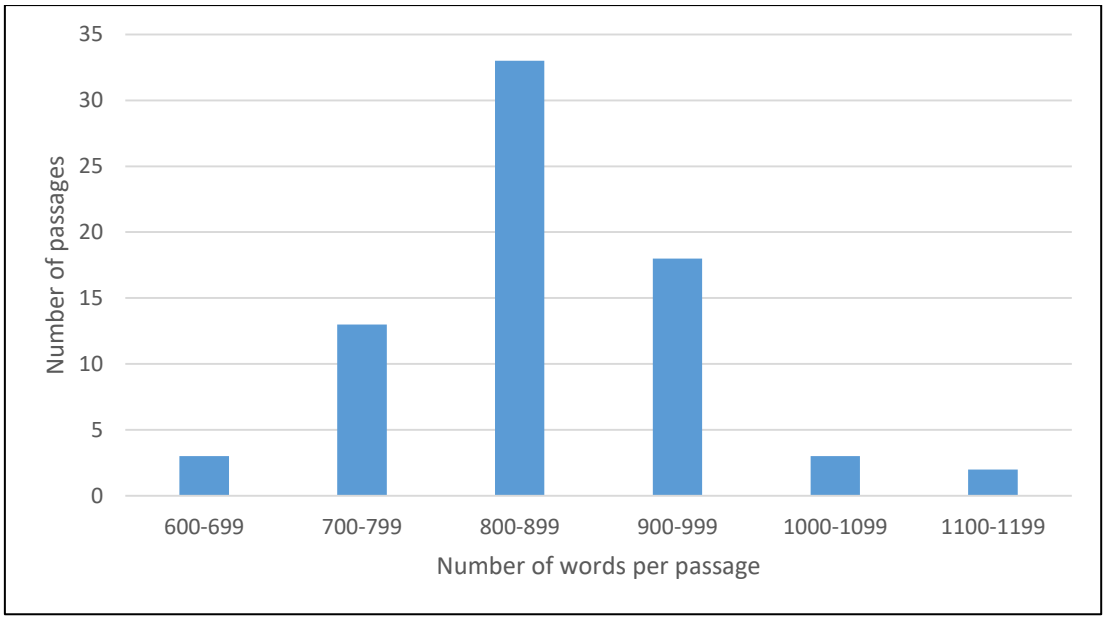



**Figure 4.3:** Text length of the 72 CIPT AR passages.

In the context of taking the test, the length of each individual passage may be less significant than the combination of text lengths of the three passages in an IELTS AR test. However, it is difficult to identify a clear pattern in terms of the combination or the position of longer and shorter passages in each CIPT AR test, as is evidenced by Figure 4.4.

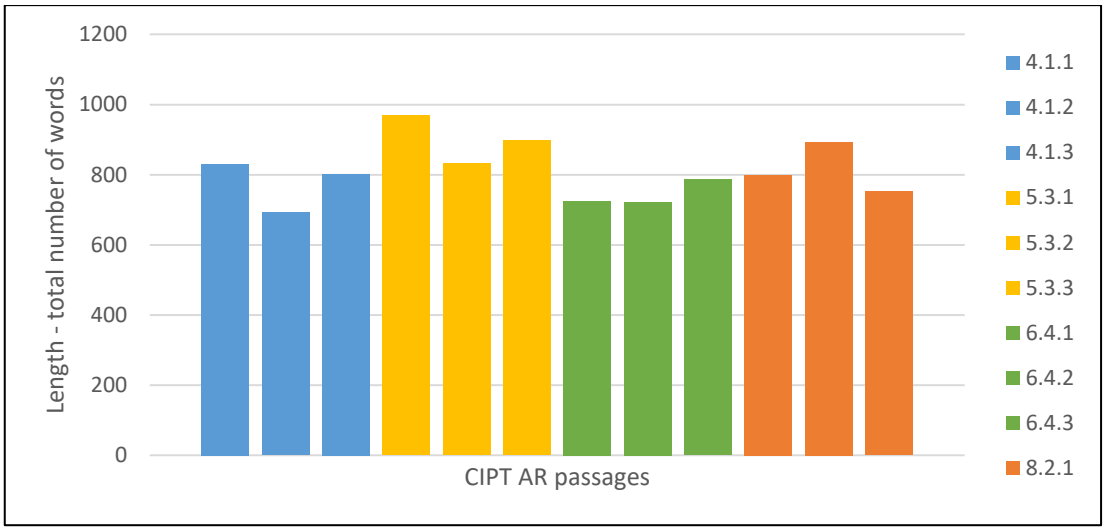



**Figure 4.4:** A comparison of four CIPT AR tests, showing the length of each passage. The lack of regularity in the position of longer/shorter passages within each test is evident.

Longer or shorter passages do not seem to have a set position within the test: passages 1 and 3 can be longer than passage 2 (CIPT 4.1 and 5.3), while in other cases the longest passage is the second (CIPT 8.2) or even the third (CIPT 6.4). In the example AR tests in Figure 4.4, the differences in text length within tests is quite marked in some cases, as in CIPT AR 8.2, where passage 3 has a word count of 752, while passage 2 has 894 words. In other cases, the text length can be quite homogenous, as in CIPT AR test 6.4, where all three passages are within the 700-800 word count. These findings with regard to the CIPT passages suggest that IELTS AR candidates should expect to encounter a mix of longer and shorter passages, within the ranges identified in the preceding paragraphs, with no set order within each test.

### 4.2.2. Sources

IELTS claims that "texts are taken from books, journals, magazines and newspapers" (IELTS.org, 2023)[52]. Further information about the

[52] A description of the format of IELTS AR can be accessed by clicking on "Academic Reading" in the table on this webpage: https://www.ielts.org/for-test-takers/test-format

sources of the reading passages in the AR test can be found in the IELTS booklet *Information for candidates. Introducing IELTS to test takers* (IELTS, 2019b, p.2), which states that "texts and tasks are sourced from publications from all over the English-speaking world". Green and Hawkey (2012) report that the IELTS item writers they studied tended to source their reading passages from websites, journals, newspaper magazines, textbooks, and peer-reviewed specialist journals. Preferred sources included magazines on current events, science and technology such as *New Statesman*, *The Economist* and *New Scientist* (Green & Hawkey, 2011, p.323), but on-line news services such as the BBC website or Google News were also resorted to (Green & Hawkey, 2011, p.288).

The source acknowledgements for the CIPTs can be found at the end of each volume, and have been collected in Appendix 8. The analysis of these sources reveals that books and magazines are predominant. Figure 4.5 shows the different source types used for the 72 AR passages analyzed here, and exposes that books and magazines stand for almost 50% of the source texts. Specifically, Figure 4.5 reveals that books are the sources of 18 passages, while 23 passages are sourced from magazines, with science magazines the most extensively used (17 of the total magazine-sourced passages). A range of other sources have also been used, although far less, with five or less passages sourced from each type. As can be seen in Figure 4.5, sources outside books and magazines are newspapers, newsletters, websites, a report from an official agency, an encyclopedia, and both academic and official agency journals. Very noticeably, the figure reveals that the sources for as many as 14 of the 72 AR passages in the present study are not accounted for in the selected CIPT volumes. This finding is discussed in Section 4.2.5 below in relation to the issue of the 'authenticity' of the passages.

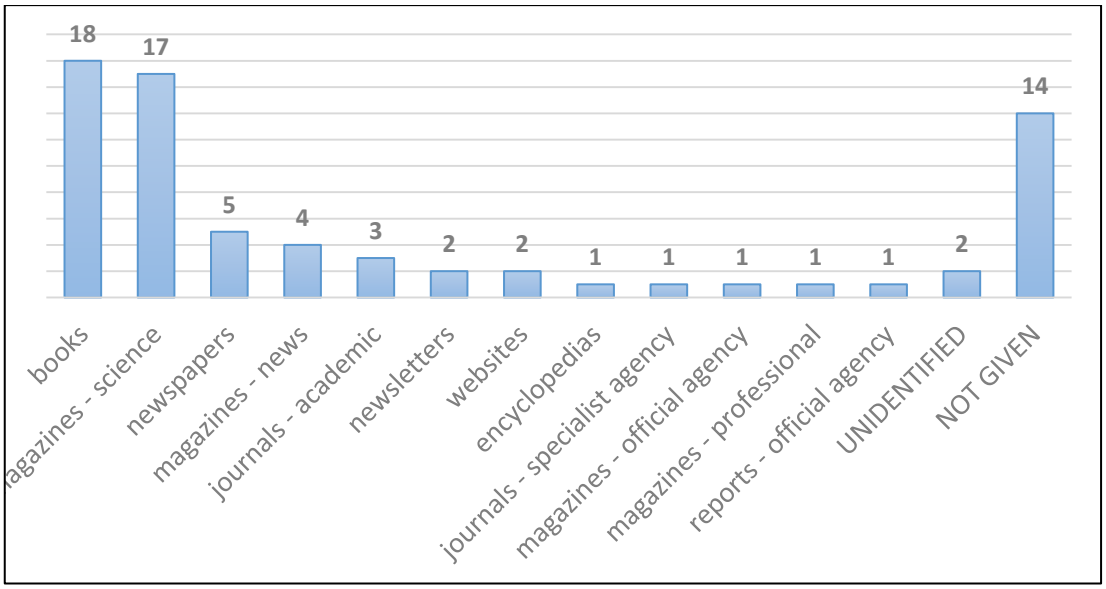



**Figure 4.5**: The sources for the AR passages in CIPT 4 – 9 grouped by category.

Figure 4.5 shows that magazines were much resorted to for the production of the AR passages analyzed here. The range of magazines used can be seen in Figure 4.6, and includes science magazines such as *New Scientist, Scientific American* or *Focus Magazine*, news magazines such as *The Economist*, as well as professional magazines (*Sales and Marketing Management*) and magazines issued by official agencies (*Forum magazine*, Council of Europe).

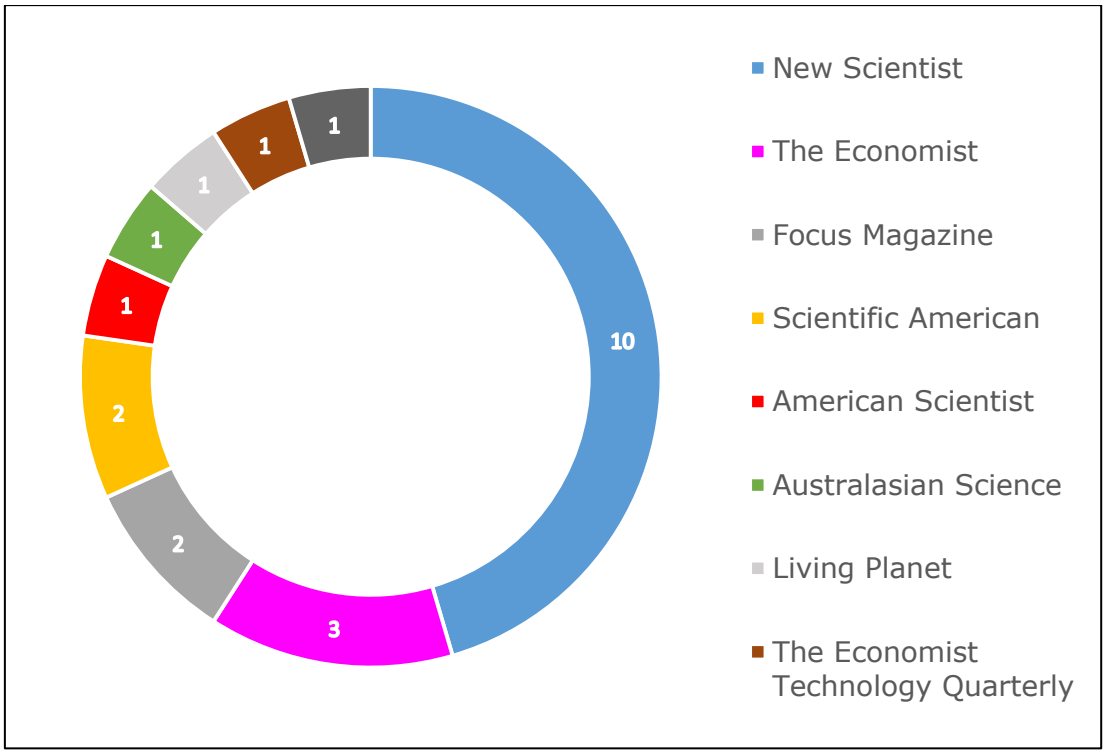



**Figure 4.6:** The magazines used as source material for the passages in the CIPT AR tests. The numbers indicate the total amount of times each magazine was used as the source for a passage across the 72 AR tests investigated here.

The predominance of magazines as source material can be seen more clearly in Figure 4.7, which highlights these sources, contrasting them with all the others.

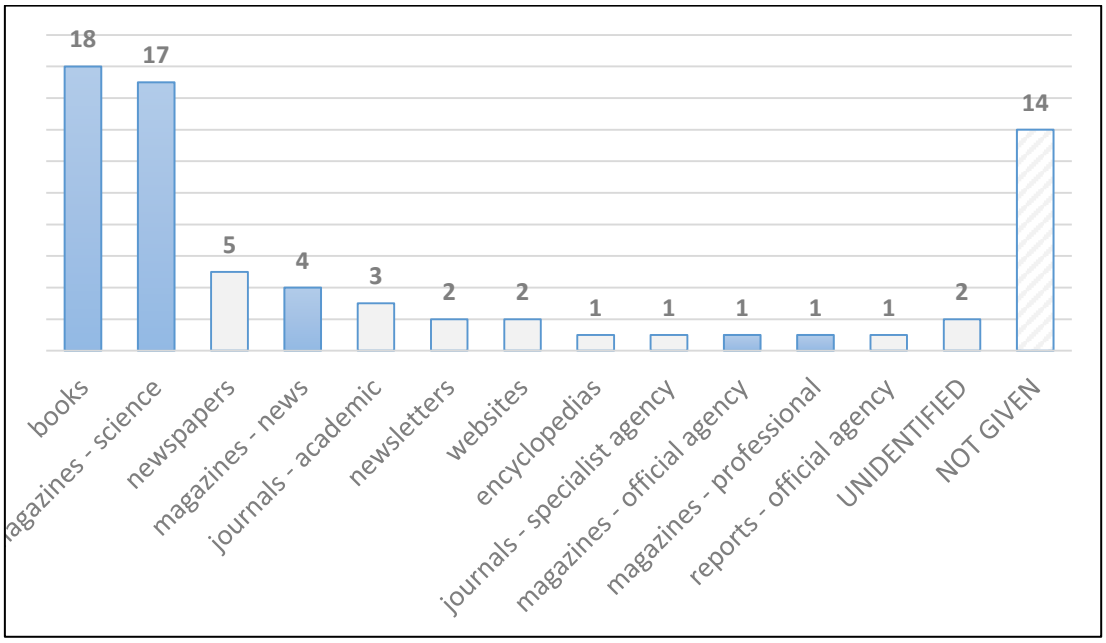



**Figure 4.7:** The sources for the AR passages in CIPT 4 – 9, highlighting books and magazines.

Among the magazine types used, science magazines were overall the most resorted to as sources, for a total of 17 (Fig. 4.5). Magazines that qualify as science magazines are those that publish news and commentaries about science and technology, aimed at a general, non-specialist readership. The science magazines used as source material in CIPT volumes 4 – 9 can be seen in Figure 4.6. This figure shows that *New Scientist* was resorted to far more than any of the other magazines, with as many as 10 AR passages sourced from this publication.

The sources for AR passages listed on the IELTS website outside of books and magazines are represented to a far smaller degree. Figure 4.6 shows that other acknowledged source types were only used between one and five times each throughout the six CIPTs analyzed here. This matches the findings by the independent judges of IELTS AR material in the IELTS Research Report by Weir, Hawkey, Green, Unaldi, & Devi (2009), where a majority of passages were deemed to be "somewhat journalistic" and magazine texts were considered to be "well represented in the test" (p.143). However, neither the report nor the official IELTS websites specify the greater weight of books and magazines over any of the other sources. It is possible that this is the result of a policy decision made by the organization with regard to the level of detail divulged about exam material. In the light of the findings displayed in Figures 4.5 to 4.7, a different, and worrying, interpretation could be that the CIPT volumes misrepresent the range of source material actually used in real IELTS AR passages.

A second discrepancy with official claims about the exam is that the CIPT volumes include further source types besides those listed on the IELTS website, namely newsletters, official publications and encyclopedias. Although only five passages derive from these

sources (see Figure 4.5), their presence seems to indicate that other source types are possible in IELTS AR beyond those listed in official IELTS information material. This might be relevant information for both exam candidates and teachers. It is possible that this discrepancy be due to changes in the requirements for item writers with regard to text acceptance, which the author of this thesis has not had access to, as the IELTS test specifications are confidential (Green & Hawkey, 2011).

Thirdly, the inspection of the source texts referenced in the CIPT volumes (see Appendix 8 for the full list of source texts) showed that there appears to be a massive predominance of British, American and Australian publications as sources of materials for the AR passages. Table 4.1 lists all the sources acknowledged in the CIPT volumes outside of books and websites. The table reveals that the *Straits Times* and the *Autistic Association of New Zealand Newsletter* are the only exceptions to the prevalence of big-player Anglosphere sources. Among these, there is a majority presence of UK publications.

| SOURCE | COUNTRY |
|---|---|
| American Scientist | USA |
| Annual Review of Genomics and Human Genetics | USA |
| Appropriate Technology | UK |
| Australasian Science | AU |
| Australia Telescope National Facility Current Affairs Bulletin | AU |
| Autistic Association of New Zealand Newsletter | NZ |
| Children UK | UK |
| Focus Magazine | UK |
| Forum Magazine | EU |
| Living Planet | unknown |
| New Scientist | UK |
| Oxford Review of Education | UK |
| Sales and Marketing Management | USA |
| Scientific American | USA |
| Sydney Morning Herald | AU |
| The Economist | UK |
| The Economist Technology Quarterly | UK |
| The Geographical Journal | UK |
| The Guardian | UK |
| The Independent | UK |
| The Straits Times | Singapore |

**Table 4.1:** The sources of all the CIPT AR passages other than websites and books, with their country of publication.

This imbalance can be appreciated more clearly in Figure 4.8, which shows the percentages to which each country of publication is represented in the source texts used for the CIPT AR passage. Although the UK, Australia and the USA are obviously relevant members of the English-speaking world, a selection of source countries largely limited to these three seems a bit far from the claim of being "from all over" this world, as IELTS information materials would have it (IELTS, 2019b). Interestingly, one of the CIPT AR passages (CIPT 7.3.3) was sourced from an EU publication (*Forum Magazine*, Council of Europe), and thus not from the English-

speaking world, but from a community of countries that uses English as its lingua franca for its official communications and publications.

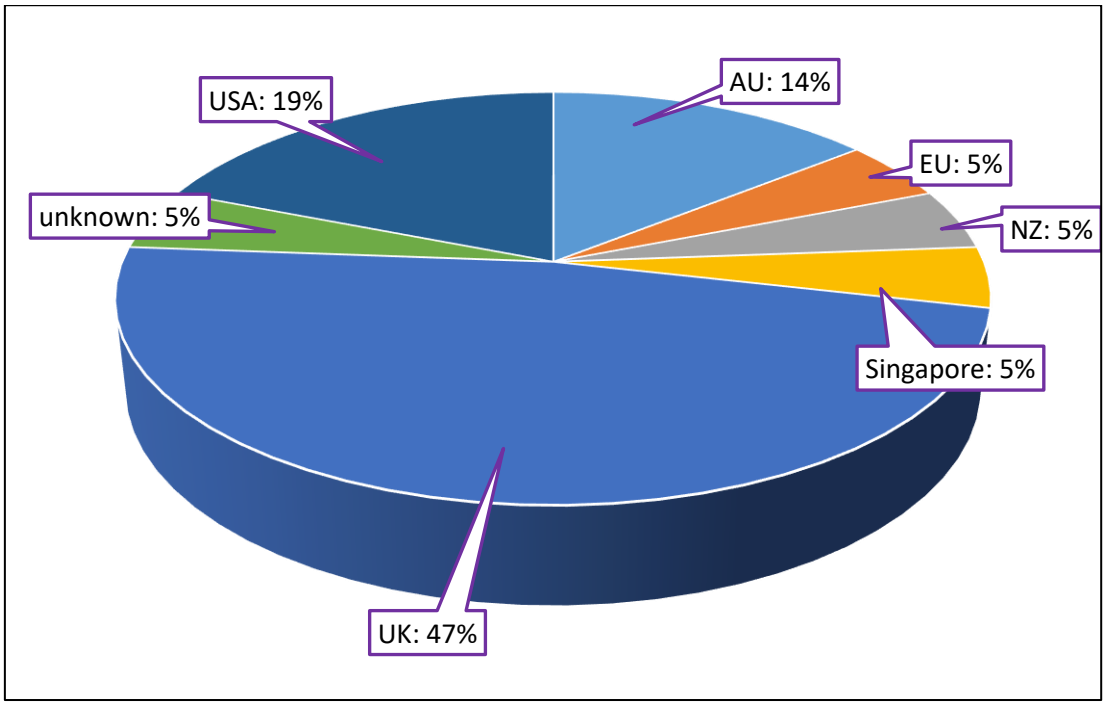



**Figure 4.8:** The country of publication of the source texts used for the CIPT AR passages, with the percentage to which each country is represented in the collection of texts.

Finally, but perhaps more importantly, Figure 4.5 reveals that the CIPT volumes include very few texts sourced from academic papers and journals: only 3 out of the 56 passages for which sources are given in the acknowledgments. This may seem striking in a test specifically named *Academic Reading*. However, as discussed above, research internal to IELTS suggests that AR passages may often be less than academic. For instance, the judges in Weir et al.'s study (2009, p.143) noted that "IELTS texts often appear to be somewhat journalistic and that newspaper/magazine texts are well represented in the test". They further pointed out that although newspaper and magazine material could be used in first year university reading, they considered "books, journals, reports and internet sources" as more relevant sources for undergraduate study (Weir et al., 2009, p.143). The issue of how far it is appropriate to consider IELTS Academic

effectively 'academic' is the object of discussion in Section 4.2.5 below. In the present discussion of the source texts used for the CIPT AR passages, it is worth noting that only one of the sources of undergraduate reading material mentioned in Weir et al. (2009) – books - is represented to any relevant degree in the CIPT passages. As can be seen in Figure 4.5, the other sources identified by the judges in the report as characteristic of undergraduate study are present only negligibly, with 4 journal articles, 1 report and 1 web-based source. Although it was not possible to locate and inspect the books used as sources for the CIPT passages, their titles (see Appendix 8) suggest that many indeed are, or could conceivably be used as, textbooks at university level.

It is possible that passages taken from characteristically academic sources are under-represented in the CIPTs, and that 'real' IELTS AR passages are more frequently sourced from these types of publications. This would once more raise questions as to the validity of the CIPTs as official IELTS practice material. If, however, the CIPT passages are to be taken as representative of the real exam, this absence of reading material that is characteristic of undergraduate study in IELTS AR opens an issue of construct validity, as it is unclear how far the test effectively reflects real-life academic activities and reading material.

Moore, Morton and Price (2012, p.63) compared university reading and the IELTS Academic Reading test and found "a good deal of divergence" between the two. Although their study regarded the tasks required by the AR test rather than the text types, it seems relevant that several studies have noted important differences between reading in IELTS and reading in the university context. This opens the question of how the exam "measures if you are ready to begin studying in English" and "is suitable for those wanting to study

in an English-speaking […] university", as claimed by IELTS.org (2023)[53].

Again, it should be underlined that the current study is restricted to a small sample of IELTS AR passages – those in the six CIPT volumes analyzed here. As a consequence, it is possible that the far lager mass of AR materials effectively used in the multiple annual IELTS sessions worldwide may be sourced more evenly from the types of publications indicated on the IELTS website and in Green and Hawkey (2012). However, if the sample texts investigated here are to be considered generalizable examples of genuine IELTS materials, it would appear that the list of source types for the AR passages made public through official IELTS channels may provide a slightly unrealistic idea of the kinds of publications the AR passages effectively come from.

### 4.2.3. Topics

Official IELTS information about the AR test claims that "[a]ll the topics are of general interest. They deal with issues which are interesting, recognisably appropriate and accessible to test takers entering undergraduate or postgraduate courses […]" (IELTS.org, 2023)[54]. Similarly, the IELTS booklet *Information for candidates. Introducing IELTS to test takers* (IELTS, 2019b) states that "[AR] texts are […] on academic topics of general interest". With the aim of verifying these claims, an attempt was made to identify the topics covered in the AR passages in CIPT 4 to 9.

[53] A description of IELTS Academic can be found here: https://www.ielts.org/about-ielts/ielts-test-types

[54] Information about topics in the IELTS AR test can be found here: https://www.ielts.org/for-test-takers/test-format

The list of topics developed for the present investigation (see Appendix 9) follows the topics taxonomy in Weir et al. (2009, p.134) but also includes other subject areas not covered there, that appeared in the CIPT AR passages. Notably, a number of passages in the CIPT volumes seem to cover multidisciplinary subjects, such as neuroscience, which touches areas of biology, psychology and computer science, among others, or social science, which can combine a broad array of disciplines, from education to demography or social anthropology. It was therefore decided to assign a double classification to each passage, in order to better capture their multidisciplinarity, on the basis of what was judged to be the predominant topics in each text. The resulting classification can be seen in Figure 4.8 below and in Appendix 9. As it is based on the author's interpretation, this classification is inevitably subjective and other categorizations are of course possible. However, the classification developed for the present investigation is likely to be largely uncontroversial as the topics in these texts are overall quite straightforward. This is also apparent in the study by Weir et al. (2009), where the two judges who compared IELTS passages to authentic undergraduate reading material seem to have found little difficulty in agreeing on the assignment of these passages to university subject areas.

Figure 4.9 shows that the most frequent topics in the CIPT volumes seem to be psychology, biology, engineering and technology, environmental science, social science and history. This coincides partially with the findings by Weir et al. (2009), who also list social studies, engineering and technology as common topics in the 42 IELTS texts they analyzed. In contrast with Weir et al. (2009), however, the CIPT volumes only seem to contain three texts with business as a main topic, while the judges in Weir et al. (2009) found

business and administrative studies to be one of the prominent topics in IELTS passages.

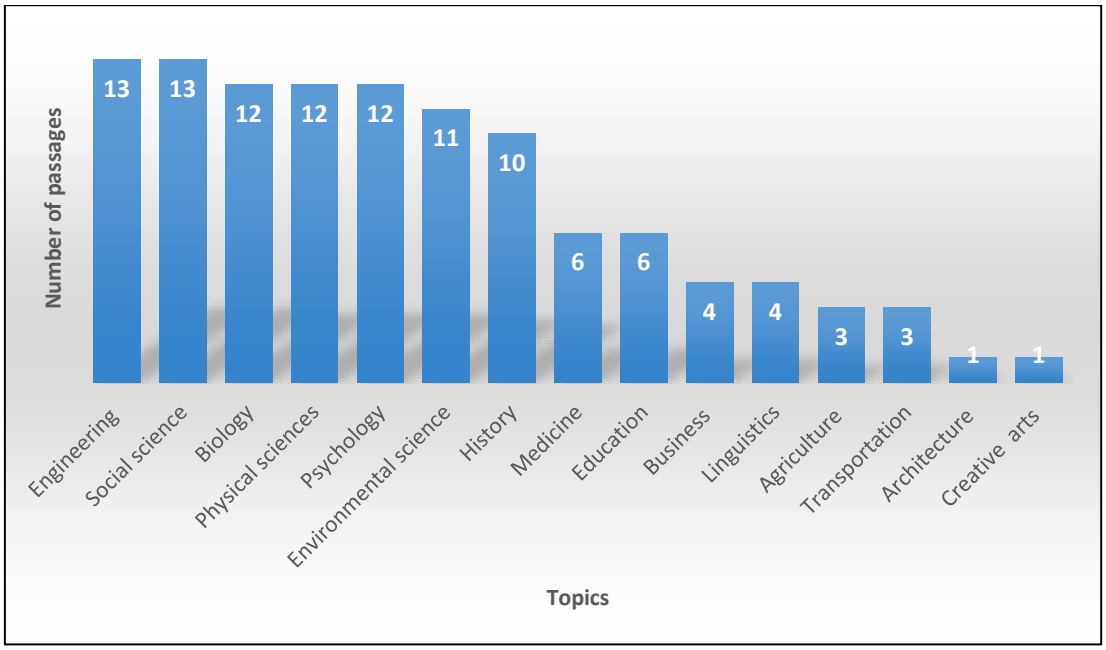



**Figure 4.9:** Topics in the IELTS AR passages in CIPT 4-9 and the number of passages for each topic.

The reason why topics such as psychology, environmental science and social science were chosen for the IELTS tests collected in the CIPT volumes is presumably the fact that these are broad, interdisciplinary subject areas, and as such are more guaranteed to be of interest to a wide audience. In fact, and as noted above, the item writers in the study by Green and Hawkey (2012) seem to have chosen popular psychology and science texts specifically because they considered them accessible and culturally neutral (Green & Hawkey, 2011, p.323). Thus, the claims by Weir et al. (2009) seem valid that "[o]verall […] the kinds of text used in IELTS are those that introduce academic topics to a general audience […]" (p.147), as do the claims by IELTS that "[t]exts are […] on academic topics of general interest" (IELTS.org, 2023, see above).

On the other hand, claiming, as Cambridge Assessment does, that "all the topics are of general interest to students at undergraduate or postgraduate level" (Cambridge Assessment English, 2023)[55] is more arguable. As is revealed by the comparison of source texts and CIPT passages in the discussion in Section 4.2.5 below on the degree to which it is possible to consider the practice passages authentic, reference to potentially sensitive issues seems to be avoided in IELTS. Topics such as drugs, sex and suicide removed from the original texts to adapt them to the IELTS format. The IELTS research report by Green and Hawkey (2012) confirms that this is standard practice in the development of AR passages for the exam. However, Newbold (2015) notes that precisely these topics are of interest to university-level students and criticizes the fact that they are systematically avoided in international examinations. He argues that if exam-takers are not allowed to engage with a full range of university-level topics, examinations such as IELTS can hardly claim to make predictions about a candidate's academic performance, and are therefore inappropriate as gate-keepers for access to Higher Education.

### 4.2.4. Discourse patterns

IELTS market their exam as containing texts that are "descriptive and factual" and others that are "discursive and analytical" (IELTS, 2019b, p.4). The Cambridge Assessment website informs that the reading texts "may be written in different styles, for example, narrative, descriptive or discursive/argumentative", adding that "[a]t least one text contains detailed logical argument." (Cambridge Assessment English, 2023, see above). This terminology describing the discourse patterns in IELTS reading passages requires closer

[55] "What's in the IELTS Academic Reading paper?": https://www.cambridgeenglish.org/exams-and-tests/ielts/test-format/

analysis and clarification. First of all, the terms 'narrative', 'descriptive' and 'discursive/argumentative' are presented as examples of "style". Weir et al. (2009, p.137), on the other hand, use the term "rhetorical task" for the same text characteristics, listing exposition, argumentation-persuasion-evaluation and historical biographical/autobiographical narrative as the main rhetorical tasks present in IELTS passages. Biber and Conrad (2009, p.112) consider all the above terms aspects of "register", and use the phrase "communicative purpose" to identify 'inform', 'analyze', 'interpret', 'explain', 'entertain', and 'persuade'. Gardner (2013, p.68) also interprets 'inform', 'define', 'explain', 'instruct' and 'tell a story' as aspects of register. Style is understood by Biber and Conrad (2009) to be one of several perspectives of text analysis, on the same footing as register and genre. More specifically, for the authors, style regards the manipulation of language for aesthetic purposes, and thus for them the term has little to do with the characteristics attributed to it on the IELTS website. On the other hand, Trask's Student Dictionary of Language and Linguistics defines register in terms of style: "A particular *style* of language which is appropriate in certain circumstances. Murmuring to your lover, chatting with friends, writing an essay, being introduced to the Queen - all these require different *registers* of English" (Trask, 1997, p.185, author's italics). There is clearly no broad consensus on the terminology for text analysis.

Traditionally, text register is subdivided into the four categories expository, descriptive, narrative and argumentative. Weir et al. (2009, p.145) identified a majority of IELTS passages as using a pattern of exposition (i.e. a register) that defines, describes and elaborates. This might be a representation of what the IELTS information material denominates "descriptive and factual" and could be associated with the traditional expository register. The

Purdue Online Writing Lab, the popular free online writing resource tool from Purdue University, defines expository essays as those that

> […] investigate an idea, evaluate evidence, expound on the idea, and set forth an argument concerning that idea in a clear and concise manner. This can be accomplished through comparison and contrast, definition, example, the analysis of cause and effect, etc. (Purdue OWL, 2022)[56]

Some examples of CIPT passages that could be classified as 'descriptive and factual' are CIPT 9.1.3 (a history of the tortoise), 8.4.3 (on how ant specimens can be collected for research), 8.1.1 (a history of timekeeping), 7.2.3 (a description of a rural transportation project in Tanzania), and 6.3.3 (a description of caloric restriction).

On the other hand, the narrative register is commonly associated with fiction or more generally with storytelling. For example, the Purdue OWL defines a narrative essay in the following way: "When writing a narrative essay, one might think of it as telling a story. These essays are often anecdotal, experiential, and personal" (Purdue OWL, 2022)[57]. It is hard to match this description to any passages in the CIPT volumes. In fact, Gardner (2013, p.68) lists fiction, biographies, autobiographies, personal essays, poems and plays as the main examples of narrative texts. The only text type from this list that appears in the CIPT volumes is the biography, and

[56] Expository essays, according to the Purdue University Online Writing Lab: https://owl.purdue.edu/owl/general_writing/academic_writing/essay_writing/expository_essays.html

[57] Narrative essays, according to the Purdue University Online Writing Lab: https://owl.purdue.edu/owl/general_writing/academic_writing/essay_writing/narrative_essays.html

only twice: CIPT 9.1.1 - a biography of W. Perkin, the inventor of synthetic dyes, and CIPT 9.4.1 – a biography of Nobel-prize winner Marie Curie. The CIPT volumes contain no examples of fiction or any of the other text types identified by Gardner as narrative. However, as indicated above, Weir et al. (2009) mention "historical biographical/autobiographical narrative" as one of the rhetorical tasks in IELTS Academic Reading passages. If we consider that narrating can be defined as "Organiz[ing] according to time. Reveal[ing] the logical or chronological steps one conducts to complete something or the cause-and-effect relationship between events" (Moxley, 2009), a number of CIPT passages could be tagged historical narratives: CIPT 5.1.1 (a history of Johnson's Dictionary), CIPT 5.2.1 (a history of Bakelite), CIPT 5.2.3 (an argumentative history of the birth of scientific English), or CIPT 8.1.1 (a history of timekeeping). Thus, the choice of including narrative as one of the text types in IELTS AR (Cambridge Assessment, 2023, see above) might still be justified. However, considering the small number of passages that can ultimately be identified as narrative in the CIPT volumes, it would seem that this text type is underrepresented in the collection.

The *Official Cambridge Guide to IELTS* (Cullen, French & Jakeman, 2014), a book of exam practice tests that also provides training in IELTS skills, identifies IELTS Reading passages as "descriptive", "discursive" and "argumentative". In fact, official information about IELTS AR claims that "[a]t least one text contains detailed logical argument." (Cambridge Assessment, 2023, see above). However, it is difficult to recognize the examples of "descriptive" and "discursive" passages in Cullen et al. (2014) as matching such labels since the example texts appear essentially expository. Furthermore, the example provided of an "argumentative" text seems to be so only in as much as it presents different opinions on the passage topic, in a

way characteristic of journalism, but it does not explicitly express the views of the author, which is purportedly the point of an "argumentative" text. In the CIPT passages, it could be claimed that usually one passage in each test is indeed more analytical or "argumentative" and discursive than the others. Examples could be CIPT 9.1.2, 8.2.3, 7.4.2, 6.1.3, or 5.1.2. It would appear that the first passage in each test uses a more standard expository register, while the texts containing some element of argument are usually placed in second or third position within each test. However, these texts do not usually present opposing arguments on a topic and state the author's point of view, as is the case of classic discursive essays. The reason for this must be the fact that the CIPT texts are more or less adapted excerpts from science magazine and academic journal articles, and coursebook chapters. It would probably be rare to find a 900-word discursive essay in sources such as these.

Ultimately, the more discursive CIPT passages seem only to use a style more characteristic of journalism, and are thus less openly expository than the other, more factual, passages in each test. In fact, Weir et al. (2009, p.143) found that some of the texts they analyzed "had very obvious journalistic features, such as opening paragraphs that served as 'attention grabbers'". This can be seen in a passage such as CIPT 8.3.1, which includes a number of features that are more characteristic of journalism than of an academic text, the first being the use of direct speech: "*And perhaps, says Diels, we'll be able to confront some other meteorological menaces. We think we could prevent hail by inducing lightning, he says*". The passage also contains catchy phraseology, such as "*With luck, as the storm clouds gather this winter, laser-toting researchers could, for the first time, strike back*". In terms of punctuation, the use of hyphens again seems more journalistic than academic: "*As the clouds roll in, a leisurely round of golf can become a terrifying dice*

*with death – out in the open, a lone golfer may be a lightning bolt's most inviting target*". A number of sentences begin with the conjunctions *and* or *but*, a construction that is conventionally frowned on in academic writing: "***But*** *while rockets are fine for research, they cannot provide the protection from lightning strikes that everyone is looking for. […]* ***And*** *even when they do trigger lightning, things still do not always go according to plan".* (Cambridge IELTS 8, 2011, p.65, author's bolding)

This finding is reflected in Weir et al. (2009), who found it hard to identify clearly distinguishing text features in the IELTS AR passages they analyzed. The authors suggest that the editing process may have heavily affected the original text register, making it difficult to assign the IELTS versions to any particular register or genre. This is the case of most of the AR passages in the CIPT volumes analyzed for the present investigation, where even passages containing markedly journalistic features, such as CIPT 8.3.1, do not employ this style consistently throughout the text, confirming the difficulty of classifying these passages in terms of discourse pattern. Thus, the official IELTS claim that at least one of the AR passages contains "detailed logical argument" would seem to need more support in terms of examples of more clearly argumentative texts in official IELTS training material such as the CIPT collection or the textbook by Cullen et al. (2014).

### 4.2.5. Are the CIPT AR passages authentic?

The IELTS booklet *Information for candidates* (IELTS, 2019b) claims that IELTS Reading texts are "authentic and are taken from notices, advertisements, company handbooks, official documents, books, magazines and newspapers" (p.4). This is one of the few remaining claims of authenticity in IELTS materials published in official IELTS

information – a currently discontinued link[58] still stated in March 2014 that "authentic academic and general contexts are a central feature of the Listening and Reading tests". Possible reasons for the virtual disappearance of reference to authenticity in IELTS information is discussed below, but first the state of the art on the concept of text authenticity in general is briefly reviewed.

There cannot be said to be a real consensus in the literature on what an 'authentic' text is. Widdowson (1978, p.80) made the distinction between "genuineness" – an inherent quality of a text – and "authenticity" – the uses to which the texts are put. Thus, according to Widdowson, authenticity is a social construct (Widdowson, 1998, 2000). Along the same lines, Taylor (1994) contends that authenticity is not only a function of the language but also of the participants, of what the language is used for, of the setting, of the sort of interaction and of the interpretations of the participants. Shomoossi and Ketabi (2007) point out that authenticity is a relative concept that depends on the pragmatic appropriateness of the materials used and the tasks set; thus, it is a situational construct. These views of authenticity furthermore question the validity of only labelling materials as 'authentic' if they have been produced by native speakers. Overall, these views refute a strictly dichotomous definition of texts in terms of 'authentic' or 'inauthentic' (Shomoossi & Ketabi, 2007, p.150).

At the same time, the most extended understanding of what an 'authentic' text is in the field of language learning and teaching is that this denotes a text that was written by and for native speakers for real-life communicative purposes rather than for pedagogical

[58] An official claim to authenticity: http://www.ielts.org/researchers/research/ielts_reading_and_listening_te.aspx NB: This link was last accessed on 23/03/2014; it currently re-routes automatically to a page where the quote above does not appear.

aims. This view is shared by part of the literature - Guariento and Morley (2001), Lee (1995), Little, Devitt and Singleton (1989), Nunan (1988), Wallace (1992), and also seems to be a very common interpretation in the English teaching community (see Buendgens-Kosten, 2014; Lanford, 2014; Tamo, 2009). It is probably safe to say that a majority of learners of English, and thus of IELTS candidates, also tend to share this interpretation of text authenticity.

As it is doubtful that the official IELTS communication channels would use specialist terminology to promote its exam with the general public, it can be presumed that IELTS also understands "authentic texts" to mean those written by and for native speakers for real-life communicative purposes rather than with pedagogical aims. However, the meticulous and exhaustive process of editing and adapting of materials destined for IELTS AR tests described in Section 3.1.1 would seem to be in some contradiction with any claims to authenticity. Further possible evidence of the fact that IELTS AR passages might not be 'authentic' in the most diffused sense of the concept is that sources are only provided for 56 of the 72 CIPT reading passages (See Appendix 8). In fact, Cambridge University Press have been careful to include in every volume variations on the phrase "While every effort has been made, it has not always been possible to identify the sources of all the material used…" (CIPT 6, 2007, p.176). This could indicate that the unsourced texts have been altered beyond recognition, which would invalidate full claims to 'authenticity'.

It was possible to locate the source texts for eleven of the CIPT passages, and they were compared to their IELTS version in the CIPT volumes. Links to the original texts and their corresponding CIPT version are listed in Appendix 7. At first glance, the 11 passages appear to be, fundamentally, shortened versions of the source texts,

with no major changes introduced. That is, the original texts seem essentially untouched and appear only to have been cut down to meet the standard IELTS average word length of about 860 words. A closer look reveals that this reduction in length required minor syntactical modifications and the introduction of sentences or words not present in the original in order to maintain comprehensibility and coherence in the IELTS version. Occasionally, reference to issues that are presumably considered inappropriate for IELTS has been eliminated (CIPT 4.3.1 - drug abuse and traffic, sexual behavior, AIDS; CIPT 6.1.3 - suicide).

The principal modifications, however, consist in a number of lexical alterations. Some of these seem to have the aim of limiting the amount of low-frequency vocabulary in the passages: some low-frequency words in the original text have been substituted by high-frequency terms. For instance, in CIPT 5.3.3, *eschewed* (a word at the high end of the mid-frequency range, as it belongs to frequency band 8000 in the BNC-COCA 1-25 word frequency lists)[59] becomes *avoided* (frequency band 2000 – i.e. high-frequency). In CIPT 6.1.3, *have begun to atrophy* (band 10k in the BNC-COCA lists – i.e. low-frequency) becomes *have begun to disappear* (band 2k – i.e. low-frequency). CIPT 5.1.3 changes *litany* (10k) into *hit-list* (compounds are not included in the BNC-COCA 1-25 lists) - the item-writer may have assumed that the pop-culture term *hit-list* would be an internationally recognizable word, on the par with high-frequency vocabulary. It would thus appear that higher frequency words are preferred to low frequency words in IELTS AR passages. This is supported by Weir et al. (2009, p.141), who found that IELTS

[59] The BNC-COCA 1-25 word frequency lists can be found here: https://www.lextutor.ca/cgi-bin/vp/comp/lists.pl?frame=bnc_coca_heads

reading passages contain a higher percentage of high-frequency, general vocabulary than is common in undergraduate reading material, which typically contains larger quantities of so-called subtechnical vocabulary.

Conversely, a number of lexical alterations are also present in the 11 CIPT AR passages discussed here, which result in the exact opposite of the above: high-frequency words have sometimes been substituted with more formal, lower-frequency words. This may be due to the effort to make the texts more academic described by Green and Hawkey (2012). For example, in CIPT 6.1.3 *store-bought food* is substituted with *provisions available in local shops*. In CIPT 6.1.2, *buying* is substituted by *purchasing*; although both are high-frequency words (1k vs 2k respectively), *purchase* is identified in dictionaries as the more formal of the two (see for instance the Cambridge Dictionary of English)[60]. Further examples are *cooked up*, which becomes *developed* in CIPT 5.3.3, or *what economists call externalities*, which becomes *what economists refer to as externalities* in CIPT 7.2.2.

In some cases, the lexical alterations introduced seem to have the purpose of making the texts less obviously journalistic. Catchy metaphorical language has been toned down or eliminated and substituted with more concrete phrases. For instance, CIPT 5.3.3 prefers *AI peaked around 1985* to the original *the high-water mark for AI occurred around 1985*. The phrase *a sexy-sounding semantic umbrella* becomes *an attractive name* in CIPT 5.3.3. More colloquial language that directly addresses the reader is rendered neutral, as in CIPT 7.2.2, where the *just take Britain* of the source text is

[60] Purchase is tagged 'formal' in the Cambridge Dictionary of English: https://dictionary.cambridge.org/dictionary/english/purchase

substituted with *in Britain, for example*. This sort of changes may have been the reason why the judges in Weir et al.'s (2009) study were not always able to recognize the genre of the IELTS passages they analyzed and were unsure whether they came from magazine articles, academic papers or textbooks.

In conclusion, the passages in the CIPT AR tests seem to be the result of processes of adaptation of the original source texts that include reductions in text length and some lexical editing to conform to exam requirements. Thus, although the original source texts for the IELTS reading passages are 'authentic' in the most broadly accepted sense of this term – that is, they were originally written for a general, English-speaking readership, without language-teaching or language-testing purposes - it is debatable whether the final product can be considered fully 'authentic', given the engineering it results from.

### 4.2.5. Are the CIPT AR passages academic?

The name "IELTS Academic Reading" logically leads to the assumption that the texts in the test must be academic. Popular understanding of academic texts views these as dealing with serious, scientific subject matter and as being written in a scholarly style that often requires specialist subject knowledge in order to be understood. Materials that introduce undergraduates to academic text describe the genre as complex, formal, precise, objective and explicit (Gillet, 2022), using conventional paragraph and overall structure[61], and being cautious and impersonal, using formal and

[61] Academic writing in English, according to Linnaeus University Library (2021): https://lnu.se/en/library/Writing-and-referencing/the-structure-of-academic-texts/

specialized vocabulary[62]. However, what type of texts effectively qualify as 'academic' is not quite so clear. D. Schmitt (2013) holds that it is the use made of a text, rather than the original purpose for which it was written, that determines whether a text is academic or not. The lecturers consulted in Weir et al. (2009, p.143) also show that the type of text used at university can be of a greatly varied nature, particularly in first year university reading, and can include material not specifically intended for a scholarly, or academic, readership.

IELTS does not actually claim that the reading passages in the AR test are academic. The officially disseminated information suggests that they are fitting for an academic context, rather than that they use academic prose, lexis or content, as shown in the following quotes from the booklet *Information for candidates. Introducing IELTS to test takers* (IELTS, 2019b, p.4): "Texts are appropriate to, and accessible to, test takers entering undergraduate or postgraduate courses"; "[texts] have been selected for a non-specialist audience but are appropriate for people entering university courses"; "Texts […] have been written for a non-specialist audience. All the topics are of general interest. They deal with issues which are interesting, recognisably appropriate and accessible to test takers entering undergraduate or postgraduate courses".

It would even appear that IELTS is at pains to avoid committing to any claim to academic-ness. Over the years, the official website descriptions of the AR test and of the AR passages have undergone continuous modifications, which each time further reduce the strength of claims to academic-ness. For instance, in 2014 the official

[62] Academic writing in English, according to Glasgow Caledonian University (2022): https://www.gcu.ac.uk/gsbs/ldc/academicwriting/improveyouracademicwriting/characteristicsofacademicwriting/

website stated that "authentic academic and general contexts are a central feature of the Listening and Reading tests" (IELTS.org, 2014). This sentence has since disappeared. In October 2020 the IELTS.org website stated that "The IELTS Academic test […] reflects some of the features of language used in academic study". This sentence has since been replaced with "IELTS Academic is suitable for those wanting to study at an English-speaking university" (IELTS.org, 2023)[63]. The IELTS-commissioned research report by Weir et al. (2009) can be seen to support these official claims, in that they consider AR passages "[o]verall […] the kinds of text […] that introduce academic topics to a general audience" (p.147). Thus, it can be affirmed that neither the IELTS organization nor their sponsored research make claims specifically identifying the AR passages as academic in the most diffused sense of the term. In fact, in their study comparing IELTS reading passages to undergraduate reading material, Weir et al. (2009) recognize that "[some IELTS AR passages have] idiosyncratic characteristics that do not match those typically identified with academic text" (p.147). The report notes that the vocabulary and the level of readability of AR passages are not comparable to more challenging texts used in undergraduate study (Weir et al., 2009, p.141). It could be concluded, then, to use Edward de Chazal's felicitous definition, that "IELTS reading texts and tasks might offer a flavour of academic ones, but without the rigour" (De Chazal, 2012).

This chapter provided a detailed overview of the AR passages in the 72 CIPT volumes investigated in the present thesis, identifying their main features and comparing the texts with the claims made about the IELTS AR passages in officially disseminated information about the test. The aim of this overview is to provide the context for the

[63] An introduction to IELTS Academic: https://www.ielts.org/about-ielts/ielts-for-study

vocabulary that is the object of investigation in the next chapter, i.e. the vocabulary in the CIPT AR passages.

# 5. A LEXICAL ANALYSIS OF 72 SAMPLE IELTS AR PASSAGES

In order to prepare for an exam, students should be furnished with sufficient information about it as to allow them to study for the test appropriately. Such information should enable candidates to set learning goals, in order to be able to measure their progress and set their learning pace, all key factors in developing and maintaining motivation (Dörnyei, 2001; Nation, 2013). Setting learning goals requires an awareness of the scope of the task ahead (Schmitt, 2008). When the task is learning vocabulary for an exam, its scope is determined by the amount of lexis to be learnt. With regard to the IELTS AR test, this information is not supplied. The present thesis posits that one way of efficiently quantifying the vocabulary learning task with a view to preparing for the IELTS AR test is to determine the frequency range of the vocabulary in the reading passages. This would provide IELTS candidates with a clearly identified and

demonstrably useful body of vocabulary to study for the exam. The present chapter reports on the lexical analysis of 72 sample IELTS AR passages, with the aim of identifying the vocabulary it is useful to know for success in the AR test.

The preceding chapter showed that IELTS AR passages are sourced from a wide variety of real-world publications, which are adapted to fit IELTS requirements in terms of length, style, genre and topic, without reference to any set vocabulary syllabus. As a result, it is not possible to predict the exact lexis that will appear in any given test. However, the passages in the past IELTS AR tests published in the CIPT volumes provide relevant clues as to the vocabulary that can be expected to be found in the exam passages. The CIPT volumes show that AR passages are sourced from publications ranging from science magazines to non-specialist books on topics suitable for readers entering university study. These sorts of texts are unlikely to contain large amounts of specialized, low-frequency vocabulary, and it would seem more probable that high- to mid-frequency vocabulary should account for most of the lexis in the texts. The present chapter investigates this assumption, through the analysis of the lexical profiles of the AR passages in the CIPT volumes selected for study in this thesis.

## 5.1. Methods and materials

The vocabulary in the 72 AR passages from CIPT volumes 4 – 9 was analyzed using the lexical profiling software *Compleat Web VP* (Cobb, 2022b) and *Text Inspector* (2017). Each CIPT passage was individually inputted into each tool, and the output relevant to the present thesis was collected as described in the subsections below. The data collected regarded word and phrase frequency and text coverage. A variety of statistical analyses were performed on the

output returned. A lexical profile of the corpus emerged that affords insight into the vocabulary present in IELTS AR passages that should be highly useful for students preparing for IELTS AR and for their teachers, as well as for writers of IELTS training materials.

### 5.1.1. Profiling the passages for frequency of individual words using *Compleat Web VP*: Description, benefits and limitations.

This sub-section provides a description of *Compleat Web VP*, the tool used to perform the lexical profile of the CIPT AR passages. Details of how it was used and the procedures followed are specified. Some limitations of the tool are discussed, as well as how these limitations may have influenced the analysis of the vocabulary in the passages under study.

#### 5.1.1.1. Description of the tool

The tool selected to perform the vocabulary profiling was the free online software *Compleat Web VP* (Cobb, 2022b), the acclaimed and widely used vocabulary profiling tool (Arndt & Wore, 2018; Laufer, 2021; Schmitt, 2010; Webb, 2021; Webb & Nation, 2017) developed by Professor T. Cobb at the University of Montreal. This tool provides a breakdown of the words in inputted texts into levels of frequency by matching the words in the text to the frequency-grouped divisions of a reference word list. The content and functions of the software are frequently updated and improved, in response to new research on vocabulary learning. Technical improvements are also regularly introduced. This means that some of, or some aspects of, the tool's routines used when the present research was performed have since changed, and are likely to continue to change over the years. Thus, future replications of the analysis performed in this thesis using

*Compleat Web VP* may render slightly different data from that presented here.

*Compleat Web VP* offers a number of different sets of word lists, called frameworks (see Fig. 5.1), that can be chosen from to obtain the lexical profile of a given text. Each framework consists of frequency-based word lists derived from one or more authoritative corpora such as the BNC, the COCA, the GSL and the AWL. At the time of writing this thesis, eight different frameworks were available for English, as can be seen in Figure 5.1.

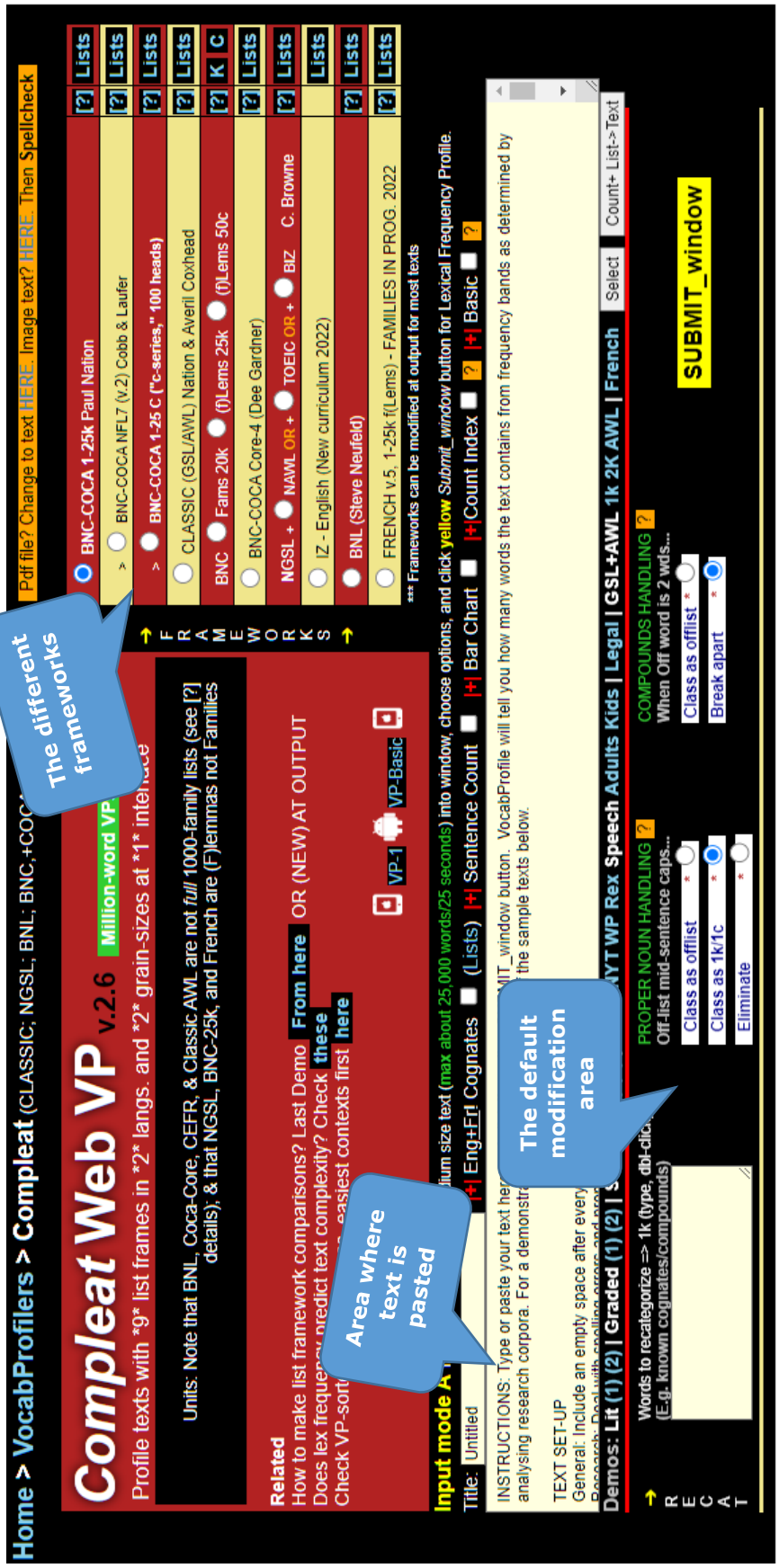



**Figure 5.1:** A screenshot of the initial page of Compleat Web VP (Cobb, 2022b), with key areas indicated. https://www.lextutor.ca/vp/comp/

The text to analyze is pasted into the input space provided and one of the available reference frameworks is selected (see Figure 5.1). After this, the SUBMIT button is clicked, and the tool immediately outputs a frequency profile of all the words in the inputted text, based on their match to the frequency lists in the selected reference framework. An example of the output generated by *Compleat Web VP* for one text is shown in Figures 5.2 – 5.5

The BNC-COCA 1 - 25k framework (see Figure 5.1) was chosen for the purposes of the present investigation. This framework matches the words in any inputted text to the twenty-five sub-lists of 1000 word families in the frequency list developed by Nation in 2012 from the BNC and the COCA combined (Nation, 2016). Each subsequent sub-list of 1000 word families, from sub-list K1 to sub-list K25, contains families of decreasing frequency in the English language with respect to the sub-list that precedes it. Thus, the words in sub-list K1 are the most frequent and those in sub-list K25 are the least frequent.

The BNC-COCA list was developed by Nation and Davies in 2012. Aware of the limitations imposed by the exclusively British English source of his acclaimed pedagogical, frequency-based word lists, that were developed from the BNC, in 2012 Professor Nation merged his lists with the then brand new COCA, in collaboration with its developer Professor Mark Davies (Cobb, n.d.B.). The resulting master list, composed of 25 sub-lists in decreasing frequency, is a far more representative language sample as compared with Nation's original lists of 2005, through the addition of US English.

Given the largely British and American sources for the AR passages in the CIPT volumes (see Chapter 4), a reference word list compiled from both the BNC and the COCA seemed the most suitable for the

lexical analysis of these texts. The BNC is the largest, most comprehensive and most influential corpora of contemporary British English currently available. 90% of its contents are derived from written texts (University of Oxford, 2015), and this makes it relevant for the analysis of the lexis in the CIPT AR passages. The COCA, on the other hand, can be considered the BNC's American English counterpart, with a number of significant differentiating characteristics. The foremost difference is that the COCA is far larger than the BNC, with 1 billion words versus the 100 million words of the British corpus (Corpus of Contemporary American English, n.d.). Another significant difference with the BNC is that new words are annually added to the COCA, ensuring its currency. The BNC, by contrast, is a static corpus, as it was completed in 1994 (University of Oxford, 2015). As a closed corpus, the BNC provides a very comprehensive "snapshot" of English at a given time in history (Schmitt, 2010), that is recent enough to still be relevant. The COCA, on the other hand, is an ever-growing, up-to-date corpus that allows for unique insight into linguistic variation in English (Corpus of Contemporary American English, n.d.; Schmitt, 2010). Although the COCA contains a higher percentage of spoken language than the BNC with 20% versus 10% (Corpus of Contemporary American English, n.d), it was nonetheless considered a highly relevant reference corpus for the study of the AR passages in the CIPT volumes.

The BNC-COCA 1 - 25k framework on *Compleat Web VP* is extremely easy to use. Inputted texts are instantly broken down into lists of words grouped into frequency levels, from K1 (highest frequency) to K25 (lowest frequency). After generating some basic lexical statistics about the text (see Figure 5.2), the tool provides a color-coded version of the text, which allows a quick visualization of the different frequency levels of the vocabulary in the text (see Fig. 5.3). This is followed by a color-coded types list, where the word types, or

different words, from the text are shown grouped into each frequency level, from 1k to 25k. The number of tokens, or individual words, for each type is given in square brackets after each word (see Fig. 5.4). Finally, a color-coded list of word families is supplied, where the different word families represented in the text are grouped into frequency levels K1 to K25 (Figure 5.5).

| Freq. Level | Families (%) | Types (%) | Tokens (%) | Cumul. token (%) |
|---|---|---|---|---|
| K-1: | 189 (50.7) | 223 (51.62) | 590 (67.7) | 67.7 |
| K-2: | 79 (21.2) | 91 (21.06) | 123 (14.1) | 81.8 |
| K-3: | 43 (11.5) | 48 (11.11) | 55 (6.3) | 88.1 |
| K-4: | 18 (4.8) | 21 (4.86) | 28 (3.2) | 91.3 |
| K-5: | 11 (2.9) | 12 (2.78) | 17 (1.9) | 93.2 |
| K-6: | 9 (2.4) | 9 (2.08) | 9 (1.0) | 94.2 |
| K-7: | 8 (2.1) | 9 (2.08) | 12 (1.4) | 95.6 |
| | | Coverage 95 [?] | | |
| K-8: | 6 (1.6) | 6 (1.39) | 6 (0.7) | 96.3 |
| K-9: | 1 (0.3) | 1 (0.23) | 3 (0.3) | 96.6 |
| K-10: | 1 (0.3) | 1 (0.23) | 1 (0.1) | 96.7 |
| K-11: | 1 (0.3) | 1 (0.23) | 4 (0.5) | 97.2 |
| K-12: | | | | |
| K-13: | 1 (0.3) | 1 (0.23) | 3 (0.3) | 97.5 |
| K-14: | | | | |
| K-15: | | | | |
| K-16: | 1 (0.3) | 1 (0.23) | 1 (0.1) | 97.6 |
| K-17: | 1 (0.3) | 1 (0.23) | 2 (0.2) | 97.8 |
| | | Coverage 98 | | |
| K-18: | | | | |
| K-19: | 2 (0.5) | 2 (0.46) | 2 (0.2) | 98.0 |
| K-20: | | | | |
| K-21: | | | | |
| K-22: | 2 (0.5) | 2 (0.46) | 13 (1.5) | 99.5 |
| K-23: | | | | |
| K-24: | | | | |
| K-25: | | | | |
| Off-List: | ?? | 3 (0.69) | 3 (0.34) | 99.84 |

**Figure 5.2:** Statistical output for CIPT 5.2.1 using the BNC-COCA 1-25 framework on Compleat Web VP (see Fig. 5.1). The number and percentage of words in the text is given at each frequency level K-1 to K-25, first in terms of word families, then in terms of word types, and finally of word tokens. The last column supplies the cumulative percentage of text coverage added by the tokens at each frequency level. The "Off-list" category, as well as the key text coverage percentages 95% and 98% (Laufer & Ravenhorst-Kalovski, 2010; Nation, 2006), are highlighted in yellow in the figure.

Some basic lexical statistics can be obtained for any text inputted into Compleat Web VP using the BNC-COCA 1- 25k framework. An example is given in Figure 5.2. The tool provides a table that details, for each frequency level, the number of word families in the text, as well as the number of types (i.e. the different words in the text, counted once only and on their first appearance in the passage) and the number of tokens (i.e. each individual word counted every time it appears). In brackets next to each figure, the percentage of total vocabulary they represent is provided. The cumulative percentage of tokens is also given, which makes it possible to see how much text coverage is added by each frequency level. The text coverage percentages 95% and 98% identified by Nation (2001) as watershed percentages for text comprehension are helpfully indicated in the table (see Chapter 1 for a discussion of their relevance to reading comprehension). Any words not included in the 25 lists are classified into the "Off-list". The same categories of data are provided for this additional list as for each of the 25 frequency levels (i.e. word families, types, tokens, cumulative percentage).

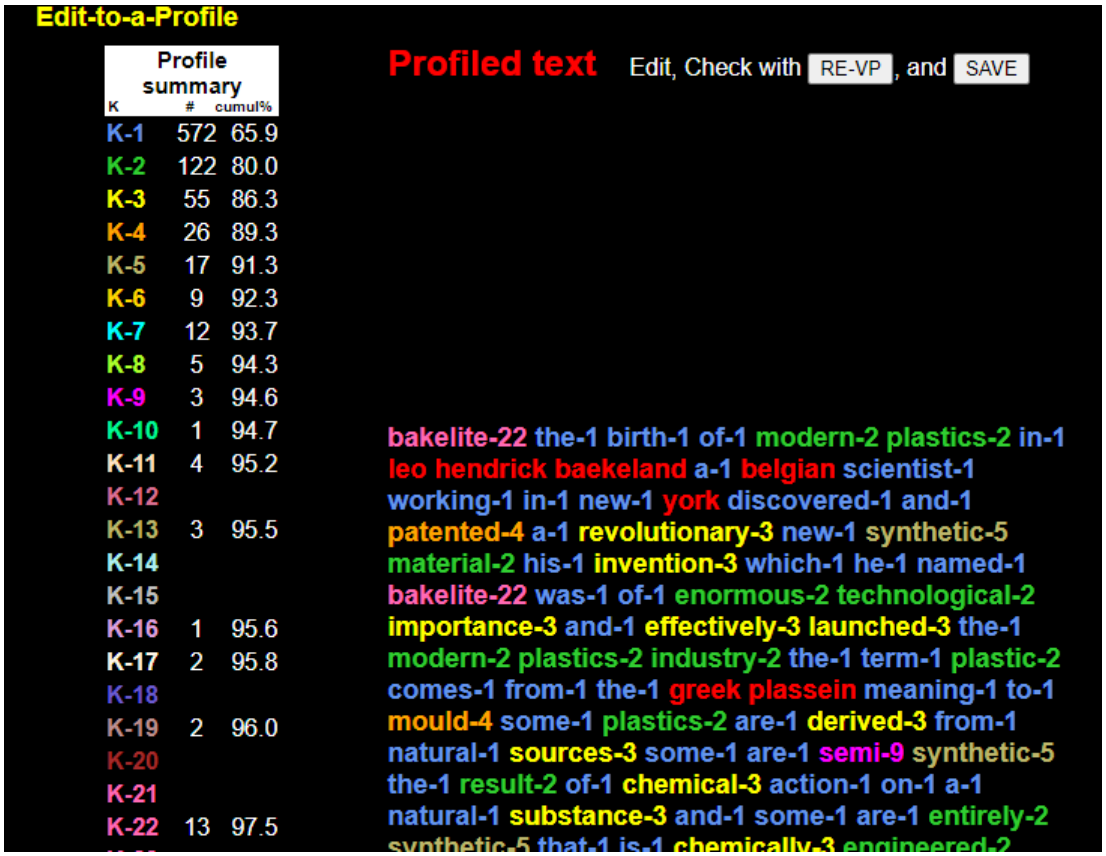



**Figure 5.3:** A screenshot of the color-coded profile of the CIPT 5.2.1 text, generated by Compleat Web VP. Each frequency level has been assigned a different color, making it easy to quickly identify the words at each level of frequency.

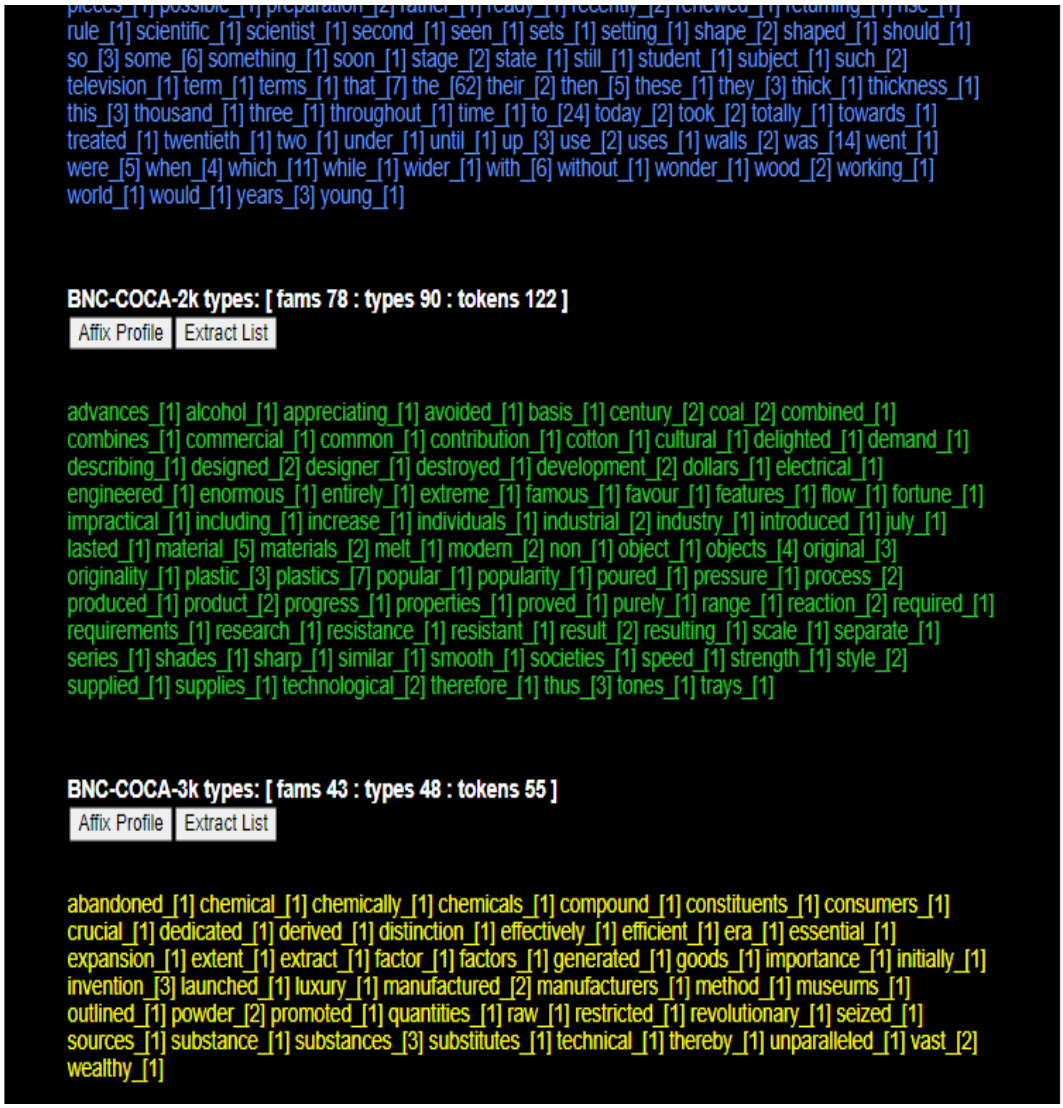



**Figure 5.4:** A screenshot of the color-coded types list for the CIPT 5.2.1 text, generated by Compleat Web VP. The word types from the text are shown grouped and color-coded into each frequency level, from K1 to K25.

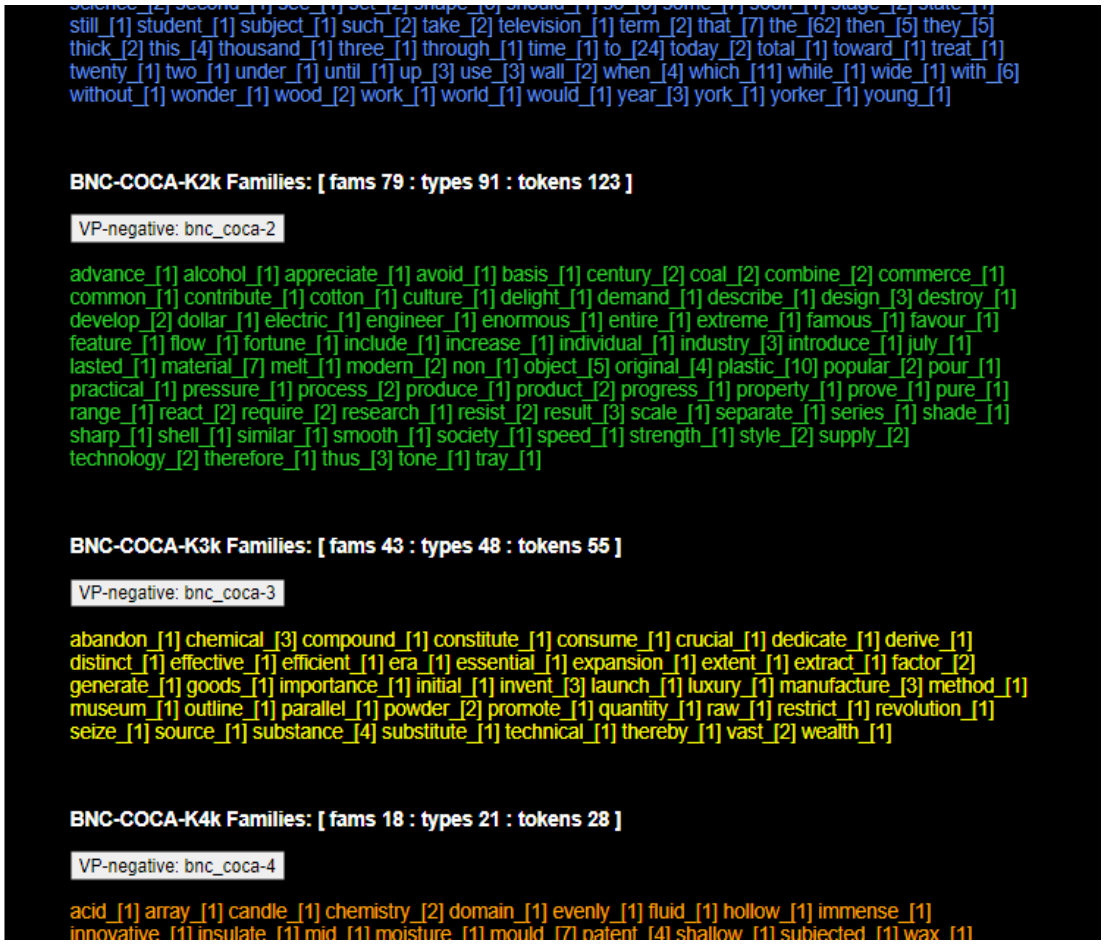



**Figure 5.5:** A screenshot of the color-coded word families list for the CIPT 5.2.1 text, generated by Compleat Web VP. The word families represented in the text are shown grouped and color-coded into each frequency level, from K1 to K25.

The tool also supplies data on a few basic ratios and indices (see Figure 5.6) that can be used to assess the potential difficulty of a text. These include type-token ratios and lexical density indices, which are widely-used, basic measures of text difficulty (Schmitt, 2000). The type-token ratio shows the range of words that appear in the text (Schmitt & Schmitt, 2020), i.e. it indicates the degree of lexical diversity in a text. A low ratio suggests that the text contains few different types, which should mean that only a limited number of words need to be known in order to understand the text. A high type-token ratio, by contrast, indicates that the text contains many different words, thus requiring a larger vocabulary size for its comprehension. Lexical density, on the other hand, measures the number of content words present in the text. A text with a high

number of content words compared to the number of grammatical words is considered a lexically dense, and therefore potentially difficult, text (Schmitt, 2000).

As can be seen in Figure 5.6, the BNC-COCA 1-25 framework provides the following ratios and indices for the whole text inputted: the total number of tokens and types in the text, the type-token ratio, and the ratio of tokens per type. The lexical density of the text is also supplied, calculated as the number of content words divided by the total number of words in the text. Below this data, the tool supplies further statistics, this time related only to the words in the "on-list", i.e. all the words in the text except for those classified into the "off-list". Again total numbers of tokens and types are provided, but also the number of word families in the inputted text. The number of tokens and types per family, as well as the family/token ratio are indicated.

| RELATED RATIOS & INDICES | |
|---|---|
| *Pertaining to whole text* | |
| Words in text (tokens): | 868 |
| Different words (types): | 428 |
| Type-token ratio (TTR): | 0.49 |
| Tokens per type: | 2.03 |
| Lexical density (content [482]/total [868]): | 0.56 |
| *Pertaining to onlist only* | |
| Tokens: | 847 |
| Types: | 412 |
| Families: | 356 |
| Tokens per Family : | 2.38 |
| Family/token ratio (FTR) : | 0.42 |
| Types per Family : | 1.16 |
| Singletons ratio Fams(n=1)[243] / total [356] | 0.68 |

**Figure 5.6:** Ratios and indices related to CIPT 5.2.1 returned by the BNC-COCA framework on Compleat Web VP.

*Compleat Web VP* performs a number of default actions, such as replacing contractions with their constituent words, and replacing figures (e.g. 1, 20, etc.) with the word *number*. Neither of these actions can be modified. In the current version of the tool, proper nouns are by default classified into frequency level K1. However, when the vocabulary profiling was performed on the CIPT AR passages for the present investigation, *Compleat Web VP* handled proper nouns in a different way, with most being default-categorized in the "Off-list". This was not deemed to represent a problem for the purposes of the this thesis, as it seemed reasonable to presume that the average IELTS candidate should be able to recognize a proper noun when encountered in a text. However, as a result of a recent improvement, it is now possible to modify the default categorization of proper nouns into level K1 before submitting the text for profiling, with the following settings made available: proper nouns can be

classed as "Off-list", eliminated or classed as K1, as shown in Figure 5.7. Nonetheless, in his note accessible through the "?" symbol next to the "Proper noun handling" area (see Figure 5.7), Cobb warns that classing all proper nouns as "Off-list" words or eliminating them altogether may make the text seem more difficult than it actually is. Proper nouns are in many cases known by learners, and in others can easily be inferred from the context. Therefore, eliminating proper nouns from the frequency profile of the text by categorizing them in the "Off-list" or by deleting them, could alter the density of known-to-unknown words, making the text apparently more complex than it effectively is (Cobb, 2021a). However, as the purpose of the present investigation was not to assess the readability of the CIPT passages, but instead to identify the frequency levels of their vocabulary, leaving proper nouns out of the main profile of the texts still seems appropriate.

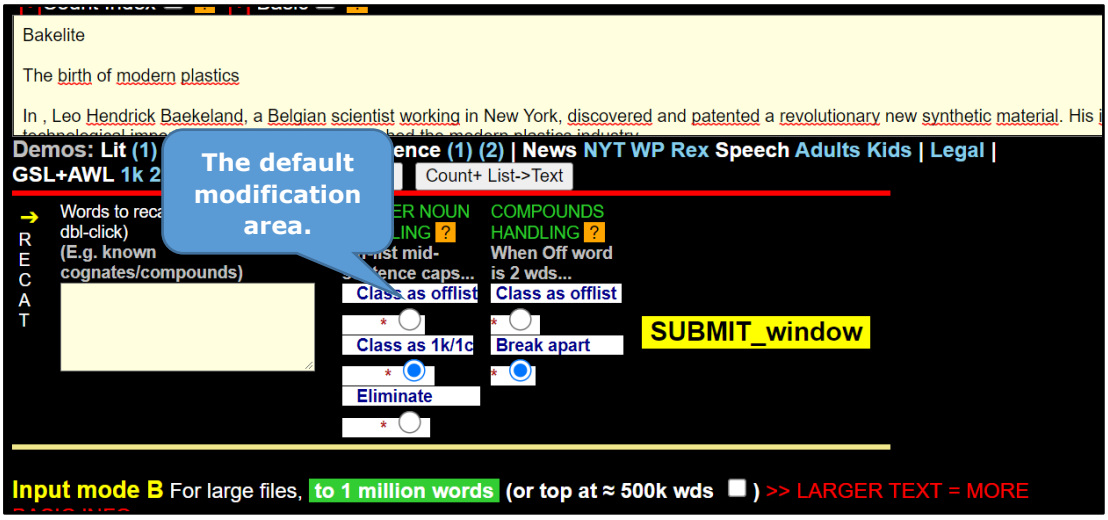



**Figure 5.7:** A zoomed view of the area of the initial page of Compleat Web VP in which modifications can be made to how the tool handles proper nouns and compounds. A full view of the initial page can be seen in Figure 5.1.

Another recently added default action is to separate compounds into their constituent components, profiling each one separately (see Figure 5.7). The tool argues that there are enormous amounts of compound words in the higher levels of frequency and that

attempting to include most or all of them would make the lists for the higher k-levels unmanageable in terms of size (Cobb, 2019). The tool makes the case that most compounds are made up of short, high-frequency words that learners should usually recognize. Learners should easily be able to interpret these words in their compound combination as – according to the tool – most compounds are transparent, i.e. the meaning of the compound can be arrived at from the meanings of each of its individual components (e.g. *guesthouse, bathmat, weekend*). The default treatment of the components of compounds as individual words is thus considered more useful. However, when the CIPT passages were profiled for the present investigation, this default action was not yet in place, and compounds were mostly classified by default as "Off-list". The effect of this categorization on the frequency profile of the CIPT passages is examined in the discussion of results in Section 5.2. The issue of how compounds are handled on *Compleat Web VP* is critically discussed in Section 5.1.1.2.

#### 5.1.1.2. Limitations of the tool

*Compleat Web VP* quickly generates simple, clear and easy to use profiles of the vocabulary of inputted texts. As it stands today, however, the BNC-COCA 1-25 framework on *Compleat Web VP* suffers from some important limitations. One is that the word lists on which it is based do not take account of polysemy, thus not clarifying the frequency of the different meanings of any given polysemous word. Another major limitation is that this framework does not profile texts for formulaic units, in spite of the solid body of research that shows that formulaic language is an intrinsic component of vocabulary in English (see Chapter 1 for details and references). How the framework handles compounds also appears problematic in the light of existing research (see below). Finally, the choice of using a reference corpus based on word families, rather

than on a different unit of counting such as the lemma, may not provide a clear picture of exactly how many individual words are actually involved at each level of frequency, as has been criticized in the literature (Gardner & Davies, 2014; Kremmel, 2016; McLean, 2021; Schmitt, 2010a). The first three limitations are discussed in this subsection, while a discussion of the benefits and drawbacks of word lists based on word families can be found in Chapter 1 (Section 1.2.1.).

If frequency is to be considered "one of the best indicators of usefulness of individual words in general English" (Martinez & Schmitt, 2012), polysemy is clearly an issue, since the question immediately arises as to which meanings of polysemous words are more frequent. Research shows that certain meanings of words can be far more frequent than others (Gardner & Davies 2007; Garnier & Schmitt, 2015; Liu, 2011). This would seem to call for the need to take polysemy into consideration when developing pedagogical word lists based on frequency. However, Nation (2016) is dismissive of this if the term polysemy is taken as indicating "the different senses of the same basic meaning" (p.42). He provides words such as *appeal* or *tree* as examples, and claims that leaners are perfectly capable of recognizing the core meaning of such words and understanding the specific meaning of *appeal* (request) or *court of appeal* through context. As a consequence, he argues that treating the different senses of such words as separate words would add unnecessary complication to the construction of word list (p.51-52). Contextual clues are of course very useful in reading, and seem to be more easy to use in reading than in listening (van Zeeland, 2013). However, the idea that it can be taken for granted that learners can use contextual clues successfully has been challenged by Laufer (2003), and van Zeeland's (2013) study shows that there is often a wide margin of error in guessing as a strategy for reading.

Furthermore, an excessive need to guess meaning from context slows down reading fluency. Kremmel and Schmitt (2016) point out that fluent reading involves quick meaning-recall of words in a text without assistance. In their study, even a change of word form caused difficulty, in line with the findings in Schmitt and Zimmerman (2002) regarding derivational knowledge, and McLean (2017) and McLean and Stoeckel (2021) with regard to affixation. Thus, even words with a shared core meaning would seem to hold the potential to be problematic and could conceivably be listed separately on the basis of their respective frequency in a word list.

It is likely that the type of polysemous words that are most genuinely problematic are those which in reality are homonyms, i.e. words with the same spelling and pronunciation but that have distinct, unrelated meanings. Some examples of homonyms are *quail, ring, bat, right, letter,* or *ruler*. If the correct meaning of such a word is not known when encountered in a text, the reader is likely to run in to difficulty. In fact, Nation (2016) recognizes the relevance of including this aspect of words in word lists, but provides few solutions. Cobb (2013) approached the matter, and admitted that inclusion of meaning as a factor in frequency lists would probably revolutionize these lists to a high degree. At the time of publication of his paper, Cobb was optimistic as to an imminent solution to these problems in the field of vocabulary profiling, thanks to the possibilities afforded by developments in computer software. However, to date these limitations have not been resolved. As a result, the reference vocabulary lists used in *Compleat Web VP* still do not take account of polysemy, and this would seem to constitute a relevant flaw in their design.

Perhaps the greatest limitation of *Compleat Web VP* is that the profiles generated analyze lexis only at word level, thus disregarding

formulaic sequences. Chapter 1 of this thesis has shown that current research has firmly established the keyness of formulaic language to the way in which language is used, with Martinez and Schmitt (2012) suggesting that it is likely that a very large percentage of the most frequent individual words in the available corpora are in reality part of high-frequency formulaic units ("…the tips of phraseological icebergs", p.313). Thus, not taking account of formulaicity is likely to render a distorted frequency profile for any given text. In order to analyze the CIPT AR passages for formulaic language for the purposes of the present investigation, it was therefore necessary to use further vocabulary profiling tools beyond *Complete Web VP*. These tools and how they were used in this study is described and discussed in Section 5.1.2, that addresses the vocabulary profiling of the CIPT AR passages for formulaic units.

As of 2021, the tool *Phrase Profiler* has been added to *Lextutor*, the website that hosts *Compleat Web VP*. *Phrase Profiler* identifies formulaic units in a text, using five different reference frameworks, including the PHRASE list (Martinez & Schmitt, 2012). An important improvement to *Lextutor* would be to merge the lists of formulaic units into the single word lists on *Compleat Web VP*, much as Martinez and Schmitt advise with regard to word lists in general:

> [I]t would be sensible to combine our formulaic sequences into these wordlists in a way that would create a much more inclusive overall description of the most frequent (and therefore useful) lexical items of English, both individual- and multi-word. (Martinez & Schmitt, 2012, p.304).

The third important limitation of *Complete Web VP* regards its handling of compounds. Compounding is a key feature of English vocabulary, as Gardner (2013) points out: "English has literally

thousands of compound words and compounding is a major source of new words entering the language […]" (p.136). As explained above, *Complete Web VP* by default breaks compounds apart and classifies their separate constituents according to their individual frequency in the reference word lists. Cobb (2019) justifies this strategy with his claim that compounds are largely composed of high-frequency words, the knowledge of which can easily lead to comprehension of the compound. That is to say, Cobb holds that most compounds are transparent i.e., that their meaning can be arrived at through knowledge of their individual components. He does not supply any supporting research for this claim, but other authoritative voices can be found that also endorse this view, such as Gardner (2013), who claims that "… the parts of compound words are helpful in understanding the overall meanings of many compounds, and many of these parts are basic words of the language" (p.138). However, there is research in SLA that suggests that although more advanced learners of English may rely on decomposition of transparent compounds to arrive at their meaning, less proficient learners are more likely to attempt to process the unknown compound as a single word, potentially encountering difficulty (Uygun & Gürel, 2017). Other research stresses the difficulties learners encounter in distinguishing when a compound is transparent (e.g. sunlight) and when it is opaque (e.g. honeymoon) (Suzuki, 2017), i.e. when the meaning of the compound cannot be arrived at through knowledge of its individual constituents. Relying on knowledge of the individual constituents of a compound is of course an inappropriate strategy when dealing with semantically opaque compounds. A lexical profiling tool would need to differentiate between transparent and opaque compounds, rather than treat them all in the same way.

To further complicate matters, whether most compounds are semantically transparent is not clearly supported by existing research. In fact, although Nation (2016) proposes ways in which to deal with transparent compounds when creating word lists, he recognizes that research is needed to determine whether most compounds are transparent. This acknowledgment leads him to further ask how many opaque compounds exist, and which are the most frequent opaque compounds (p.69). Gagné et al. (2020) show that the very concept of semantic transparency is unclear, noting that it is more a psycholinguistic than a purely linguistic construct, and as such, can change over time, as the connection between the label and the referent becomes increasingly distant, if not completely lost. One example of a lost referent might be the compound *marshmallow*, at one time in history an acceptably transparent compound, when the sweet was made from the marshmallow plant. Today, few people are likely to be aware of the original recipe of the candy or be familiar with the plant, with the result that the name of the sweet has become opaque.

The issue of transparency seems to play an important role in the processing and storing of formulaic language, according to Siyanova-Chanturia and Martinez (2015). They posit that more transparent and more frequent formulaic units may be more likely to be stored and retrieved in their entirety rather than through reconstruction of their constituent parts. Bauer (2019) argues that "[t]hings called compounds, if they have 'some kind of unitary semantic or pragmatic function', which they can be argued always to have, are MWEs [Multiword Expressions], although not all MWEs are compounds." (p.45). If compounds are formulaic units, and therefore, are processed in a similar way, this would be a strong case for treating them as single units rather than dealing with them in terms of their separate parts.

This overview of the state of the art regarding compounds shows that the situation is far from clear. In his comprehensive study of compounds and compounding, Bauer (2019) categorically states that "…there is no agreed definition of a compound in English" (p.45). Under these circumstances, making a decision as to how to handle compounds on a vocabulary profiling tool is enormously difficult and fraught with potentially serious pitfalls. Some compounds that emerged through the lexical profiling of the CIPT AR texts illustrate these difficulties and are discussed in Section 5.2 below. It is argued that compounds such as *breakthrough, comeback, downside, headlines* or *proofread* are deceptively transparent, and as a result it could be more appropriate to list them as full words in a reference word list, rather than break them up into their constituent parts as in *Compleat Web VP*.

#### 5.1.1.3. Procedure followed using *Compleat Web VP*

The 72 CIPT AR passages were individually profiled using *Compleat Web VP*. All numbers were deleted from the texts before profiling, in order to circumvent the tool's default action of substituting all figures with the word *number* and classing this word in frequency level 1k. It was felt that the resulting lexical profile would more realistically represent the vocabulary of the texts if the K1 level was not artificially inflated by the recurrence of the word *number*. At the time in which the lexical profiling was carried out, it was not possible to modify other default actions of the tool such as its handling of proper nouns and compounds. As explained in Section 5.1.1.1, before 2019 this category of words were default-classed into the "Off-list". The contents of the "Off-list" resulting from the profiling procedures were inspected and analyzed, and the findings are discussed in Section 5.2.

The individual statistical output for each passage was recorded on Excel sheets. For each level of frequency K1 – K25 plus the so-called "Off-list", this output included data on the exact number and percentage present of word families, word types, word tokens and cumulative tokens. Subsequently, the data for all the passages was represented in a variety of figures and tables, in order to more easily view overall and individual frequency characteristics and evidence the most salient data. These diagrams and tables can be seen in the discussion of results in Section 5.2.

### 5.1.2. Profiling the passages for frequency of formulaic units using *Text Inspector*: Description, benefits and limitations.

Formulaic language is a rich and complex area of vocabulary, and its relevance to reading comprehension is discussed in Chapter 1, together with the difficulties associated with learning it. Research shows that any given text may be to a high degree composed of formulaic units rather than of individual words, with some authors claiming that phraseological units may compose up to 50% of a text (Erman & Warren, 2000). Vilkaite (2016) provides the following taxonomy of formulaic language: clichés, proverbs, "lexical phrases", binomials, "collocational frameworks", collocations, phrasal verbs, idioms, and "lexical bundles". However, she points out that an important number of formulaic language categories have not as yet been the object of extensive or in any way conclusive research. Thus, identifying formulaic language in the CIPT texts appears a complex task, if it is to be approached in a principled manner.

Some categories of formulaic language have undergone substantial investigation, according to Vilkaite (2016), namely collocations,

phrasal verbs, idioms and what she calls "lexical bundles". For the purposes of the present study, it was felt that collocation could be overlooked as a specific category, given that it should not cause particular difficulty in reading. In fact, González Fernández and Schmitt (2015) found that learners may know more collocations than research has been aware of so far. "Lexical bundles", on the other hand, are defined by Vilkaite (2016) as "extended collocations [of] completely fixed sequences" or "bundles of words that show statistical tendency to co-occur". This seemed too open a category to be of immediate pedagogical usefulness. The fact that no systematic list of "lexical bundles" is currently available was felt to be an additional justification for disregarding this category. By contrast, phrasal verbs and idiomatic language, as understood by Vilkaite, are captured in Martinez and Schmitt's (2012) PHRASE list. As the aim of this work is to provide pedagogically useful information for IELTS study, it seemed preferable to focus on formulaic language that has been pedagogically systematized, rather than refer IELTS candidates to a large and unsystematic mass of formulaic language that would be of little practical use towards preparing for the exam. Thus, it was decided that the formulaic language in the CIPT AR passages would be analyzed exclusively with reference to the PHRASE list.

Among the existing pedagogical vocabulary lists of formulaic or multi-word units, the PHRASE list is the most advanced in terms of its pedagogical usability. As is discussed in Chapter 1, this list is based on sound pedagogical principle and has been carefully researched to cover the MWUs that are most likely to cause difficulty, as it focuses on opaque formulaic units, i.e. those that cannot be understood from their individual components. The list is organized into frequency levels and has been conceived as possible to integrate into a frequency-based list of individual word families such as the

BNC-COCA. This makes it extremely useful for learners, teachers, researchers and materials writers, as it makes it possible to easily identify the position and relevance of any PHRASE-list MWU in terms of its overall frequency in the English language. The fact that the PHRASE list is free-of-charge and readily accessible online adds to its usefulness as a pedagogical tool. Furthermore, it is particularly geared towards receptive use, which makes it useful with a view to developing vocabulary for the IELTS AR test. Finally, and most importantly for the purposes of the present investigation, the PHRASE list has been incorporated into a number of vocabulary profiling software tools, thus strongly facilitating research.

Until very recently, vocabulary profiling software was only able to search texts for n-grams, i.e. strings of words of an amount set by the software user. The resulting lists subsequently needed to be looked through manually, as the software was not able to distinguish between sequences of words and real phrases. Over the last few years, and to the great relief of researchers, teachers and learners, a number of tools have appeared that can automatically identify effective formulaic units in texts. Some of these supply output with reference to the PHRASE list. One of these tools is *Text Inspector*, which automatically identifies MWUs from the PHRASE list and classifies them by K level. Another tool is *Phrase Profiler* (Cobb, 2021b), a recent addition to the *Lextutor* vocabulary profiling tools and a much-needed upgrade of this otherwise outstanding vocabulary analysis website. *Phrase Profiler* includes the PHRASE list among the reference lists that can be chosen there to analyze texts. Finally, the *Multi-Word Units Profiler* (Eguchi, 2021) is a recent addition to the array of phraseological language-profiling tools that includes the PHRASE list as one of the possible reference lists to choose from.

A range of software was therefore available that, on face value, met the purposes of the present investigation. The issue was then to select the most appropriate tool. Given the high quality and ease of use of other *Lextutor* tools, an obvious first choice to profile the CIPT AR passages for formulaic units was *Phrase Profiler* (Cobb, 2021b). At the moment of writing the present thesis, this recent addition to the vocabulary profiling suite on *Lextutor* offers the possibility of analyzing four different aspects of formulaic language in texts, namely academic collocations, academic phrases, idiomatic phrases, and sentence transitions. The analysis of idiomatic phrases is based on the PHRASE list. Similarly to other profiling routines on *Compleat Web VP, Phrase Profiler* lists and counts the MWUs in the text uploaded, indicating types and tokens. It also highlights the MWUs inside the text. An example of how the output is presented can be seen in Figure 5.8.

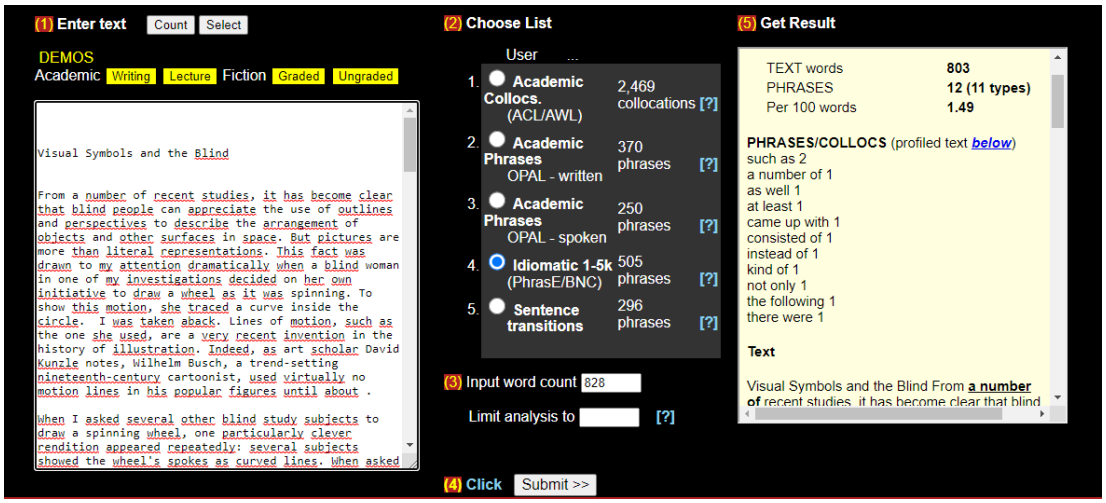



**Figure 5.8**: A screenshot of the interface of Phrase Profiler v.1.2 (Cobb, 2021b), with the results of profiling CIPT 4.1.3 using the PHRASE list (Martinez & Schmitt, 2012) as a reference list.

However, the output supplied by *Phrase Profiler* is quite limited, compared to what is provided on the individual-word profiling tools on *Compleat Web VP*, and also compared to the other profiling tools that use the PHRASE list discussed later in this chapter. Possibly the

greatest limitation of *Phrase Profiler* is that it provides no indication of the frequency band each MWU belongs to. This frustrating absence implies that each MWU identified by *Phrase Profiler* must subsequently be searched for manually in the PHRASE list, in order to learn its level of frequency. As categorizing the vocabulary in the CIPT passages by frequency was key to the purposes of the present investigation, such additional, inevitably slow work was not optimal for the analysis pursued here. A further limitation of *Phrase Profiler* is that, unlike the profiling routines on *Compleat Web VP*, it does not provide a pop-out-and-paste to Excel or Word feature, which again implies time-consuming manual work. Thus, other tools were explored.

The *Multi-Word Units Profiler* (Eguchi, 2021) is another recent tool that uses the PHRASE list. After the PHRASE list has been selected among the four available lists of formulaic language, this Creative Commons software instantly identifies and highlights the MWUs in any text inputted (see Figure 5.9), and provides a table with detailed data about them (Figure 5.10). As can be seen in the screenshot of an example profile (Figure 5.10), the output table lists the MWUs found in the text, indicating their frequency of occurrence in the passage (i.e. the number of tokens) and the frequency band each MWU belongs to, as recorded in the PHRASE list. The table also supplies additional data cross-referenced from the PHRASE list for each MWU listed. This includes its frequency in spoken discourse as well as in general written and academic written discourse, and the example sentence from the PHRASE list illustrating the meaning of the MWU. Finally, the table indicates the exact position of each MWU in a frequency count of 1 million words, counting MWUs as individual units equal to individual words.

From **a number of** recent studies , it has become clear that blind people can appreciate the use of outlines and perspectives to describe the arrangement of objects and other surfaces in space . But pictures are more than literal representations . This fact was drawn to my attention dramatically when a blind woman in one of my investigations decided on her own initiative to draw a wheel as it was spinning . To show this motion , she traced a curve inside the circle . I was taken aback . Lines of motion , **such as** the one she used , are a very recent invention in the history of illustration . Indeed , as art scholar David Kunzle notes , Wilhelm Busch , a trend - setting nineteenth - century cartoonist , used virtually no motion lines in his popular figures until about .

When I asked several other blind study **subjects to** draw a spinning wheel , one particularly clever rendition appeared repeatedly : several subjects showed the wheel 's spokes as curved lines . When asked about these curves , they all described them as metaphorical ways of suggesting motion . Majority rule would argue that this device
somehow indicated motion very well . But was it a better indicator than , say , broken or wavy lines - or any other **kind of** line , for that matter ? The answer was not clear . So I decided to test whether various lines of motion were apt ways of showing movement or if they were merely idiosyncratic marks . Moreover , I wanted to discover whether
there were differences in how the blind and the sighted interpreted lines of motion .

To search out these answers , I created raised - line drawings of five different wheels , depicting spokes with lines that curved , bent , waved , dashed and extended beyond the perimeter of the wheel . I then asked eighteen blind volunteers to feel the wheels and assign one of the following motions to each wheel : wobbling , spinning fast ,
spinning steadily , jerking or braking . My control group **consisted of** eighteen sighted undergraduates from the

**Figure 5.9:** An example of the annotated text output produced by Multi-Word Units Profiler v.2.0.1 (Eguchi, 2021), showing part of CIPT 4.1.3 with the PHRASE list MWUs highlighted.

| Expression | Occurrence | Frequency Level | Frequency (per million words) | Spoken general | Written general | Written academic | Example sentence |
|---|---|---|---|---|---|---|---|
| a number of | 1 | 1-K | 15090 | ★★★ | ★★★ | ★★★ | A number of concerns were raised. |
| all but | 1 | 3-K | 2214 | ★★★ | ★★★ | ★ | She all but sent him chocolates and flowers. |
| as well | 1 | 2-K | 11519 | ★★★ | ★★★ | ★★★ | I like it as well. |
| at least | 1 | 1-K | 25034 | ★★★ | ★★★ | ★★★ | "Well, you could email me at least." |
| come up with | 1 | 4-K | 1898 | ★★★ | ★★★ | ★★ | Is that the best you could come up with? |
| consist of | 1 | 2-K | 5362 | ★★ | ★★★ | ★★★ | What does it consist of? |
| in addition | 1 | 2-K | 7822 | ★★★ | ★★★ | ★★★ | The house was well located in addition. |
| in fact | 1 | 1-K | 15983 | ★★★ | ★★★ | ★★★ | "The researchers tried several approaches, in fact." |
| instead of | 1 | 2-K | 6907 | ★★★ | ★★★ | ★★★ | He can go instead of me. |
| kind of | 2 | 3-K | 3510 | ★★★ | ★★ | - | The windows are kind of fogged up. |
| not only | 1 | 1-K | 14110 | ★★★ | ★★★ | ★★★ | "Not only was it cheap, it was delicious." |
| subject to | 1 | 2-K | 5218 | - | ★★ | ★★★ | All baggage is subject to inspection. |
| such as | 2 | 1-K | 30857 | ★★ | ★★★ | ★★★ | "We have questions, such as how it happened." |

Showing 1 to 13 of 13 entries

**Figure 5.10:** A screenshot of the table outputted by Multi-Word Units Profiler v.2.0.1 (Eguchi, 2021) after profiling CIPT 4.1.3 using the PHRASE list (Martinez & Schmitt, 2012) as the chosen reference list.

As can be observed in Figures 5.9 and 5.10, the *Multi-Word Units Profiler* interface is clean and easy to read, and is arguably more visually attractive than *Phrase Profiler* (Cobb, 2021b). The tool also provides more detailed output than *Phrase Profiler*, which interestingly refers users to Eguchi's tool "for another approach" to the analysis (Cobb, 2021b). The most useful feature of *Multi-Word Units Profiler* for the purposes of this thesis is that it indicates the frequency band of each MWU identified. However, the output table lists the MWUs in alphabetical order rather than in frequency order, and unlike the individual word profiling routines in *Compleat VP*, *Multi-Word Units Profiler* does not include the possibility to smoothly export the data to an Excel sheet. As with *Phrase Profiler,* this again would have made it necessary to manually extract the data and re-organize it for the analysis in this investigation.

In contrast with *Phrase Profiler* and *Multi-Word Units Profiler*, *Text Inspector* (2017) lists all the PHRASE list MWUs it finds by frequency order, indicating types and tokens. Most importantly, this tool supplies results grouped by frequency levels. This meant one less task for the analysis of the 72 CIPT AR passages and was determining in making it the chosen tool for the present investigation. *Text Inspector* is described and discussed in the next section.

#### 5.1.2.1. Description of the tool

*Text Inspector* is a subscription-based text analysis tool that assesses the readability of a text and its potential level of lexical difficulty on the basis of a variety of lexical analyses. It determines a CEFR level for each text inputted, and calculates readability using the well-known indexes Flesch Reading Ease, Flesch-Kincaid Grade and the Gunning Fog index. The software also analyzes lexical diversity (i.e. how many different words there are in a text) and lexical sophistication (i.e. what levels of frequency these words belong to), and identifies some key metadiscourse markers. The tool claims to be useful for teachers and materials writers, but also for learners and researchers, through a long list of assertions, some of which are:

- "[you can] check the level of learners' texts",
- "[you can] design and create better learning materials",
- "[you can] assess written texts more easily",
- "[you can] improve your use of English",
- "[you can] gain insight into real-life language usage",
- "[you can] conduct linguistics research"

  (Text Inspector, 2017).

Created by the late Professor S. Bax, of the University of Bedfordshire, the software is supported by the Centre for Research in English Language Learning and Assessment (CRELLA), of the same university, all of which are authoritative credentials.

The aims of *Text Inspector* essentially differ from those of this thesis, as assessing the difficulty of a text is not one of the objectives of the present investigation. Nonetheless, one of the reference lists it uses to measure lexical sophistication is the PHRASE list, and this does make it useful for the purposes of the present study. However, it should be noted that *Text Inspector* offers the PHRASE list as a reference list only in combination with a text analysis using the AWL. The tool argues this choice by claiming that "[u]sed alongside the Academic Word List (AWL) the PHRASE list provides a well-rounded tool that *can help better inform ESL teaching and learning*" (Text Inspector, 2017 author's italics)[64]. Interestingly, when describing the value of the AWL, the tool states: "When used alongside the PHRASE list, the AWL list *can help teachers to improve materials for TOEFL and IELTS and help ESL students learn the vocabulary they need to succeed in an academic setting*." (Text Inspector, 2017 author's italics)[65]. It should be recalled that the developers of the PHRASE list explicitly constructed it so as to allow it to be incorporated into the BNC lists of individual words (Martinez & Schmitt, 2012). As is discussed in the beginning of Section 5.1.2., each MWU in the PHRASE list bears a frequency count number that fits directly into the BNC 1000-word lists. The AWL is not mentioned in relation to the construction or the implementation of the PHRASE list at any time. The claim that using the AWL in combination with the PHRASE list can help improve pedagogical materials for IELTS

[64] How the PHRASE list can be used on *Text Inspector*: https://textinspector.com/help/analysing-vocabulary-using-the-phrase-list/

[65] Reference to the PHRASE list in relation to the AWL on *Text Inspector*: https://textinspector.com/help/academic-word-list-and-phrases/

also calls for further clarification, particularly in light of the fact that, as noted in Section 1.2.3, IELTS does not officially refer exam candidates to the AWL or any other word list as a source of vocabulary development towards the exam. Finally, it should be recalled that the construct of the AWL has been problematized by current research (see Chapter 1, Section 1.2.3). The apparently uncritical inclusion of the AWL as a reference list is thus surprising in an authoritative lexical analysis tool as is *Text Inspector*.

Notwithstanding the perplexities raised by the position of the PHRASE list feature inside the tool, *Text Inspector* currently stands as one of a small group of vocabulary analysis instruments that includes this reference list among its vocabulary profiling routines. *Text Inspector* can thus be used to identify PHRASE list MWUs in texts. Once a text has been inputted, the tool singles out MWUs and groups them by frequency level, from K1 to K5, at the end of the list of AWL word families identified in the text. An example of how these results are displayed can be seen in Figure 5.11.

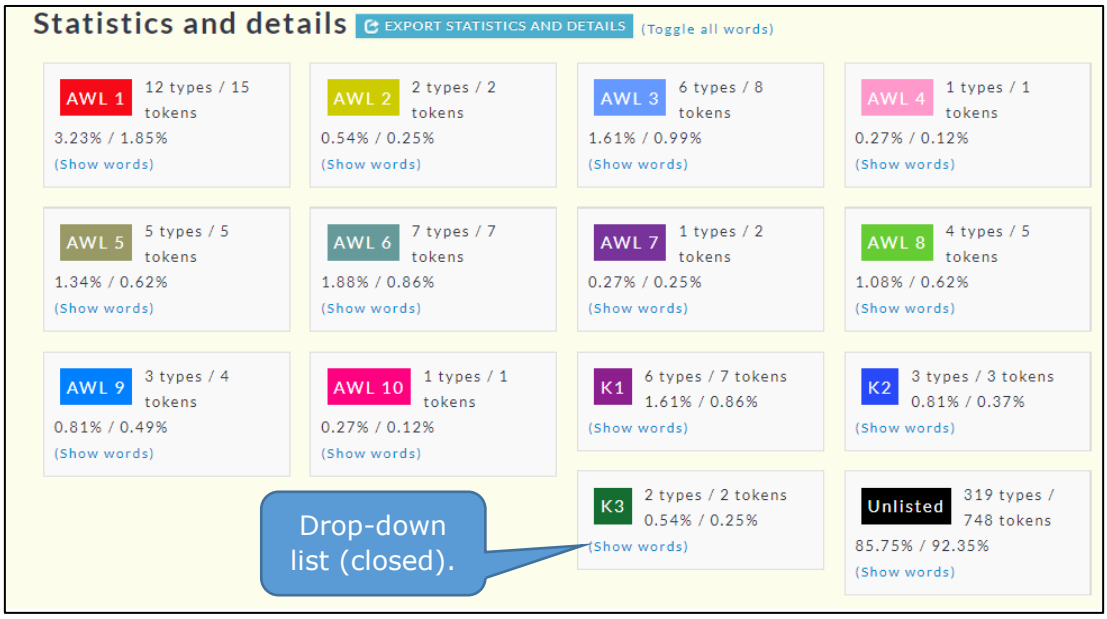



**Figure 5.11:** A screenshot of the output on Text Inspector using the AWL analysis tool. The PHRASE list MWUs are listed last, labelled K1, K2 and K3. The results shown here refer to CIPT 4.1.3.

For each frequency level, it is possible to open drop-down lists of all the words and phrases classified there. An example is provided in Figure 5.12 for CIPT 4.1.3.

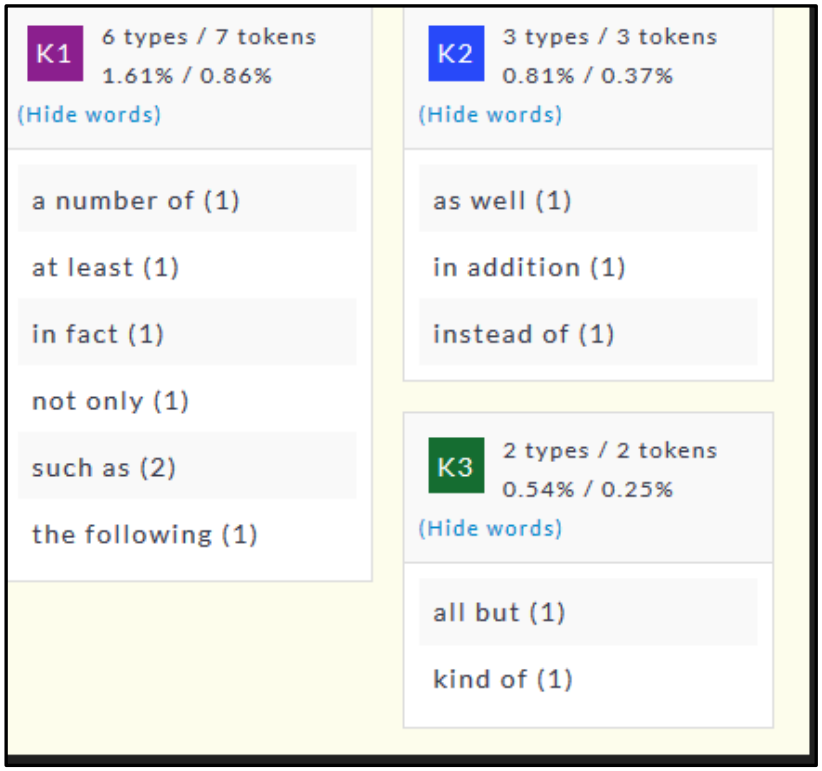



**Figure 5.12:** Open drop-down list of PHRASE list MWUs identified by Text Inspector in CIPT 4.1.3.

The tool also produces a tagged and color-coded version of the inputted text (Fig. 5.13), which facilitates seeing the identified vocabulary in context. However, the removal of all punctuation, including capital letters, does not facilitate reading. This rendering of the output can usefully be compared with the highlighted version of the text generated by the *Multi-Word Units Profiler v.2.0.1* (Eguchi, 2021) shown in Figure 5.9, which is far more reader-friendly.

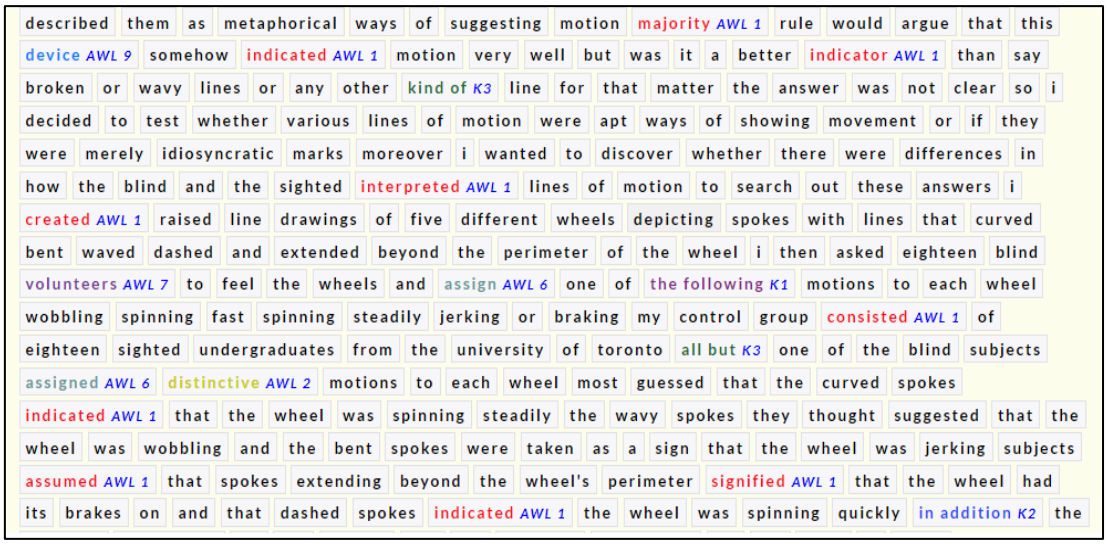



**Figure 5.13:** The tagged and highlighted version of CIPT 4.1.3 generated by Text Inspector using the AWL analysis tool. PHRASE list MWUs are tagged K1-K5.

As can be observed in Figure 5.13, each individual word and phrase in the tagged and color-coded version of the inputted text is positioned on a tile. The tiles that include the tags AWL or K[1, 2, etc.] can be modified. Mis-classifications can thus be corrected. Clicking on the tile will open a drop-down list of all the AWL and PHRASE list frequency levels, plus an "unlisted" category (see Figure 5.14).

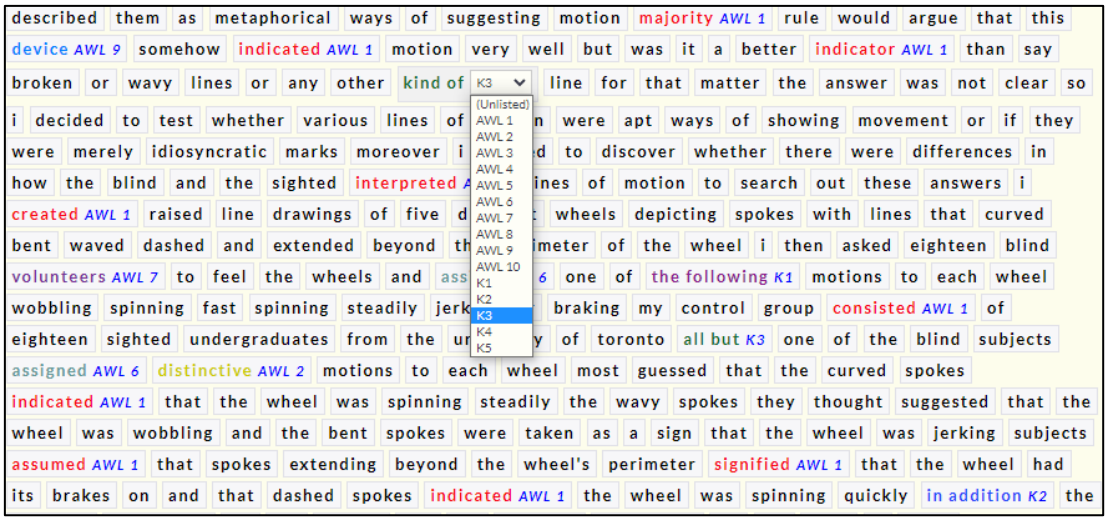



**Figure 5.14:** An example of the re-categorization feature available on Text Inspector for PHRASE list MWUs and AWL words. Clicking on the tile containing the wrongly categorized word or phrase opens a drop-down list of all the frequency levels, to which the item can be re-assigned.

A phrase that has been classified into the wrong category can be moved by clicking on the correct category in the drop-down list. Word strings mistakenly identified as MWUs can also be de-classified. In the example in Figure 5.11, the "Statistic and Details" area identifies *kind of* as an MWU belonging to PHRASE list frequency level K3 (Fig.5.12). However, the complete tagged text shown in Figure 5.13 makes it clear that this is an inappropriate identification. The PHRASE list defines *kind of* as synonymous with *sort of*, and provides the following defining example: "The windows are kind of fogged up." (Martinez & Schmitt, 2012). This is clearly not the meaning in the context of the CIPT passage in Figure 5.13. Clicking on the tile containing *kind of* in the tagged text and selecting the category "Unlisted" (Fig. 5.14), followed by "Update" will de-classify the phrase and update and correct the output data (Fig. 5.15).

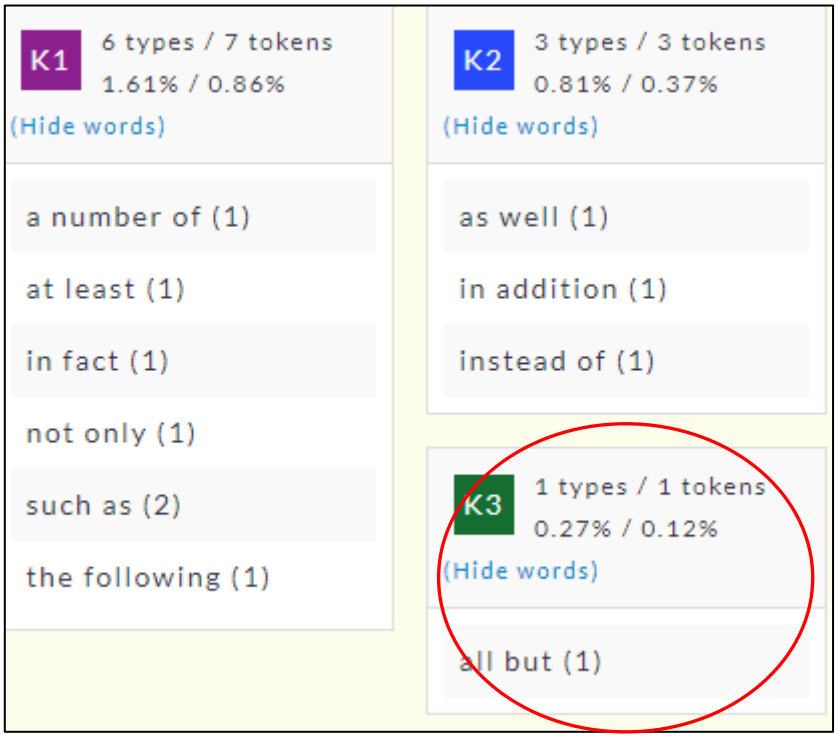



**Figure 5.15:** Corrected output for PHRASE list frequency level K3, after de-classifying the phrase *kind of*. Compare with Fig.5.12.

The data provided in each of the features of the analysis can be directly exported to an Excel sheet, greatly facilitating the

researcher's work. This is an important advantage of Text Inspector with respect to the other tools discussed in this section that also use the PHRASE list.

#### 5.1.2.2. Limitations of the tool

*Text Inspector* presents a number of advantages, namely that it allows easy correction of erroneously identified MWUs and produces user-friendly lists of hits organized by frequency level (1k to 5k, in accordance with the PHRASE list). The tool is not flawless, however. An important drawback identified in the course of the present investigation is that the PHRASE list has been uploaded as it stands and has not been lemmatized. This means that the tool overlooks any PHRASE list MWU that is not in the exact form in which it appears in the original list. Thus, the output generated can only provide an approximate profile of the MWUs in any given text. As a result, each text needs to be reviewed manually in search of any missed MWU. However, it should be mentioned that manual checks are necessary also with the other tools examined in the search for the most appropriate software for this investigation. In the process of choosing the most appropriate tool it was found that the three tools examined - *Phrase Profiler*, *Multi-Word Units Profiler* and *Text Inspector* - often do not agree in terms of the PHRASE list MWUs they identify in any given CIPT passage. An example of this finding can be seen in Figures 5.8, 5.10 and 5.11, where CIPT 4.1.3 contains 11 MWUs according to *Text Inspector* and *Phrase Profiler*, while *Multi-Word Units Profiler* identified 13. *Text Inspector* missed the MWUs *come up with* (4k), *consist of* (2k), *subject to* (2k). Interestingly, it picked up *the following* (1k), which by contrast *Multi-Word Units Profiler* missed. It should be noted that three of the four MWUs missed by *Text Inspector* are inflected forms of the units recorded in the PHRASE list. *Phrase Profiler*, on the other hand, did pick up *come up with* and *consist of*, and furthermore identified yet

one more MWU that neither of the other tools spotted: *there were* (1k). These findings strongly suggest that manual checks are necessary when using any of the MWU-profiling tools, and are not limited to *Text Inspector.*

The example of the mismatches between profiling tools described above reveals the inability of *Text Inspector* to recognize inflected forms as an important limitation, that does not hamper the other two tools examined. However, as described above, *Text Inspector* lists the identified MWUs by frequency level, and allows for direct exportation to spread sheets. *Phrase Profiler* and *Multi-Word Units Profiler* do neither of these. The savings in terms of time and effort afforded by these features were determining in finally choosing *Text Inspector* as the profiling tool for the analysis of MWUs in the CIPT AR passages.

It was decided not to manually check the output of the tool to find any outstanding MWUs. This was based on the consideration that the time and effort saved by not reviewing the output outweighed the potential loss of a small number of MWUs in the passages. It was felt that the overall profile Text Inspector provided of the MWUs present in the CIPT AR passages was acceptably accurate. Nonetheless, the profiles obtained in this investigation using Text Inspector need to be considered approximate.

#### 5.1.2.3. Procedure followed using *Text Inspector*

The 72 CIPT passages selected for this investigation were processed one by one on *Text Inspector*. The data generated by the tool was exported to Excel sheets and stored, but only the data regarding the PHRASE list analysis was used for the lexical profiling of the passages. This data was recorded separately on Excel sheets. Subsequently, the data for all the passages was represented in a

variety of figures and tables, to bring to light overall and individual frequency characteristics and any other salient data. This material can be seen in the discussion of results in Section 5.2.

## 5.2. Results and discussion

The results of the lexical profiling of the 72 CIPT AR passages are presented and discussed separately in this section in terms of individual words and in terms of formulaic language. Overall conclusions are drawn at the end of the section.

### 5.2.1. Results of the lexical profiling for individual word frequency

The seminal paper by Nation (2006) reveals that average, non-specialist texts in English are typically composed by up to 90% of high-frequency vocabulary (i.e. frequency bands K1 to K3, according to Schmitt and Schmitt (2014)), with another 8% provided by mid-frequency lexis (i.e. frequency bands K4 to K9, as determined by Schmitt and Schmitt (2014)). The remaining words in the text (2%) are supplied by low-frequency bands (i.e. from K10 onwards). In their critical revisitation of Nation's paper, Schmitt and Schmitt (2014) represented their forerunner's findings in a simple diagram (p.487). This diagram very graphically shows the pattern in which the highest frequency bands account for the highest percentages of text coverage, after which coverage levels drop drastically, with the subsequent frequency bands returning increasingly small coverage percentages.

Figure 5.16 presents the raw outcome of the frequency profiling of the 72 CIPT AR passages in terms of individual words, and as can be seen, it broadly reproduces the pattern identified by Nation (2006) and Schmitt and Schmitt (2014). The higher frequency bands

provide most of the text coverage, which becomes increasingly smaller as the profile progresses into the mid- to low-frequency bands. However, several important differences can be observed between the vocabulary profile of the CIPT passages and the graph of an average real-world text in Schmitt and Schmitt (2014, p.487). Although the overall coverage percentages provided by high-frequency word families is very similar, totaling about 90% in both cases, there are noticeable differences in terms of the distribution of the vocabulary in the high-frequency bands.

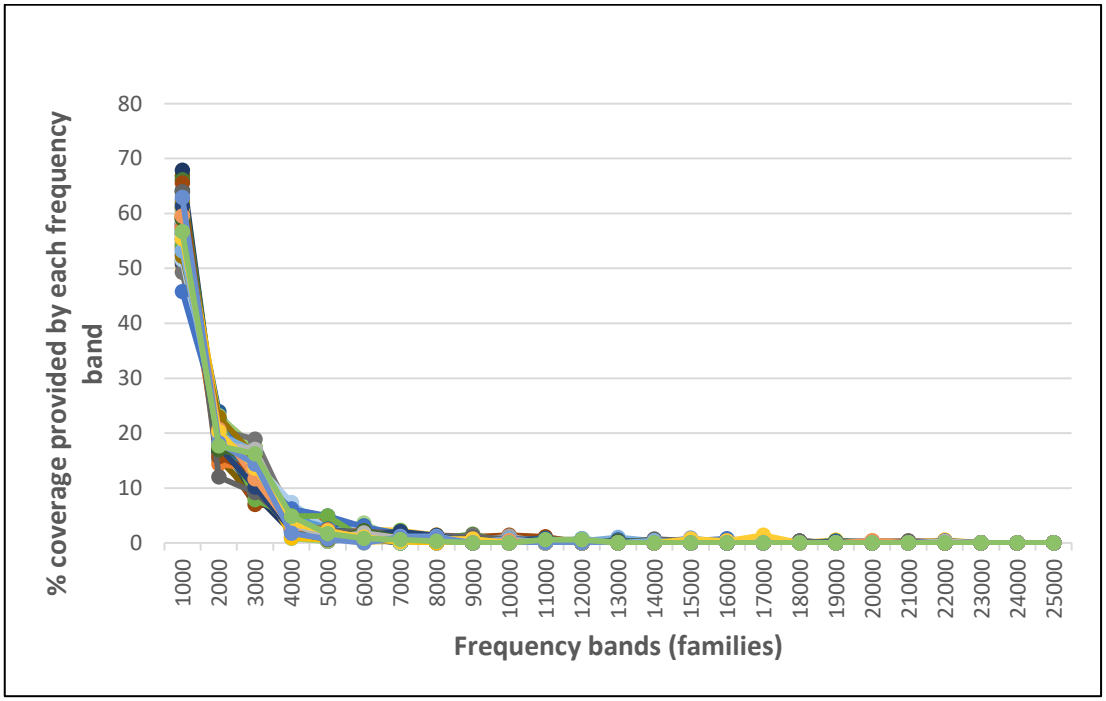



**Figure 5.16:** The percentage of text coverage of the 72 CIPT AR passages provided by the word families in each frequency band.

First of all, it can be observed that the amount of coverage supplied by each of the three high-frequency bands is greater in the CIPT passages than in Schmitt and Schmitt (2014). At the same time, the profile of the CIPT passages reveals that level K1 provides less coverage than in Schmitt and Schmitt. These divergences can be seen more clearly in Figure 5.17, which shows the mean coverage percentages provided by the different frequency bands in the CIPT

AR passages, making it easier to compare to the graph in Schmitt and Schmitt.

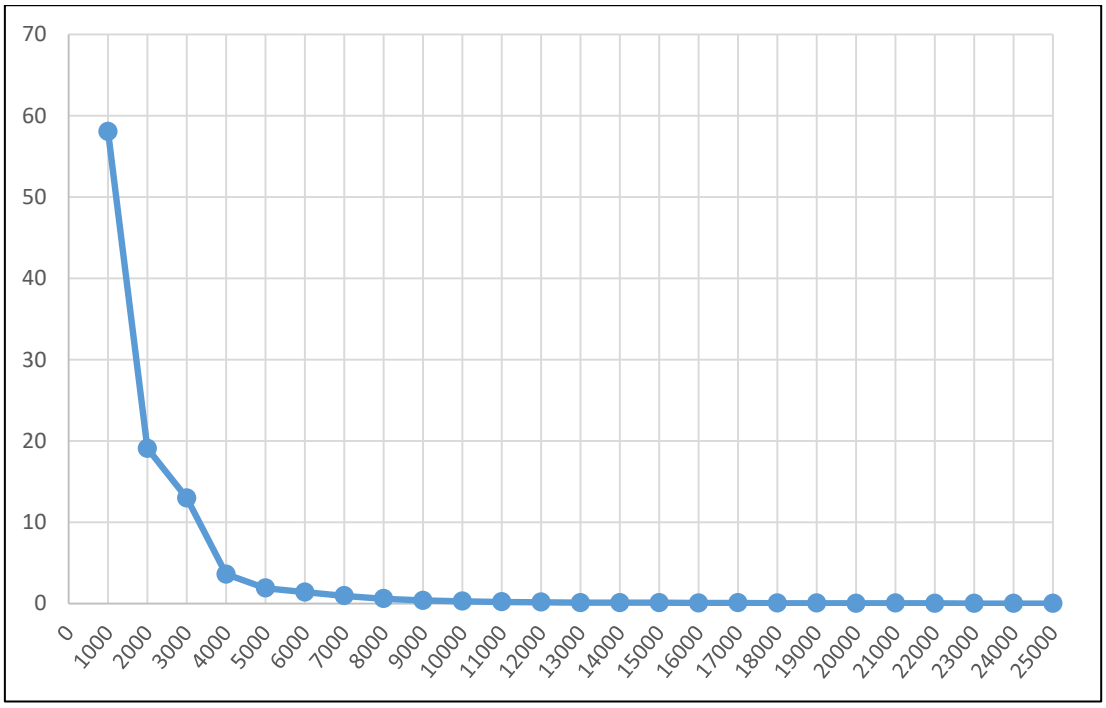



**Figure 5.17:** Mean percentage of text coverage of the 72 CIPT AR passages provided by the word families in each frequency band.

In their diagram, the distribution of text coverage in the high-frequency levels is approximately 80% (K1), 8% (K2) and 3% (K3), while Figure 5.17 shows that the coverage figures for the CIPT passages is 58%, 19% and 13% respectively. The fact that high-frequency vocabulary is more evenly distributed in the CIPT passages may be the result of the engineering of the source texts described in Green and Hawkey (2012). Their study showed that IELTS AR item writers tended to alter source texts so that they included slightly larger amounts of high-frequency vocabulary, apparently taking care to increase the quantities of vocabulary at all three high-frequency levels (Green & Hawkey, 2011, p.302).

The second difference that can be observed between the profile of the CIPT passages and Schmitt and Schmitt (2014) in terms of

coverage distribution regards the speed of the decrease from one frequency band to the next. While the decline in coverage return in Schmitt and Schmitt occurs almost immediately, with frequency band K2 supplying less than 10% text coverage, Figure 5.17 shows that a similar decline in the CIPT AR passages only takes place from frequency band K4. More in detail, in Schmitt and Schmitt coverage values drop drastically from K1 to K2 (from 80% to 8% approximately), and then again to K3 (from 8% at K2 to about 3% at K3). By contrast, Figure 5.17 reveals a far gentler decrease between K1 and K2 (from 58% to 19%), and quite a small drop from K2 to K3 (from 19% to 13%) in the CIPT passages. These differences could again be attributed to the deliberate inclusion of more vocabulary at all three levels of high frequency in IELTS AR texts described in Green and Hawkey (2012). Whereas Schmitt and Schmitt, and Nation (2006) made it clear that knowledge of K1 vocabulary was particularly useful for reading real-world texts, the results of the vocabulary profile of the CIPT passages suggest that IELTS AR candidates should be prepared to meet vocabulary from across the high-frequency spectrum in their test.

Another important difference between the profile of the CIPT passages and Schmitt and Schmitt's (2014) graph is the point at which coverage values drop below 0%. In Schmitt and Schmitt, values go below 0% only at the beginning of the low-frequency bands, specifically at level K10. By contrast, Figure 5.17 shows that in the CIPT passages values drop below 0% already at level K7, that is, before the end of the mid-frequency area. This insight revealed by the vocabulary profile of the CIPT passages suggests that the minimum coverage levels necessary for adequate text comprehension should involve less mid-frequency vocabulary in IELTS AR passages than in real-world texts. This is again borne out by the findings in Green and Hawkey (2012), which show that IELTS

item writers tend to reduce the amount of less-frequent vocabulary in source texts when developing AR passages. The CIPT vocabulary profile also corroborates the findings in Weir et al. (2009), where IELTS AR passages were found to contain larger amounts of high-frequency lexis than average first-year university reading material.

Beyond the differences with Nation's (2006) and Schmitt and Schmitt's (2014) coverage figures, the raw data represented in Figure 5.16 also reveals what appears to be a significant variability between passages in terms of coverage percentages. This variability between texts is particularly noticeable between frequency levels K1 and K8, that is, the high- and mid-frequency levels. As could be expected, these frequency levels provide most of the text coverage in the CIPT passages, making any particularity in this area worthy of attention. The standard deviation of the results, shown in Figure 5.18, evidences a high variability of coverage percentages for the high-frequency bands in particular, with values of ±4.5%, ±2.2%, and ±2.7% respectively for frequency bands K1, K2 and K3. From the beginning of the mid-frequency level (K4), standard deviation decreases markedly, reaching essentially insignificant values from K6 (±0.8%). It should be noted that the variability discussed here regards absolute variability. In relative terms, the percentages of variation can reach remarkably high values, particularly for the mid- to low-frequency band levels, to the point of apparently making the results obtained meaningless. However, given that this relative variation regards very low mean percentages of word families (under 1% from K7), it was not taken into consideration in this study. The absolute variation values, on the other hand, were considered relevant, as the broad absolute standard deviation observable in the high-frequency bands could have a significant bearing on what frequency bands to concentrate on with a view to success in IELTS AR.

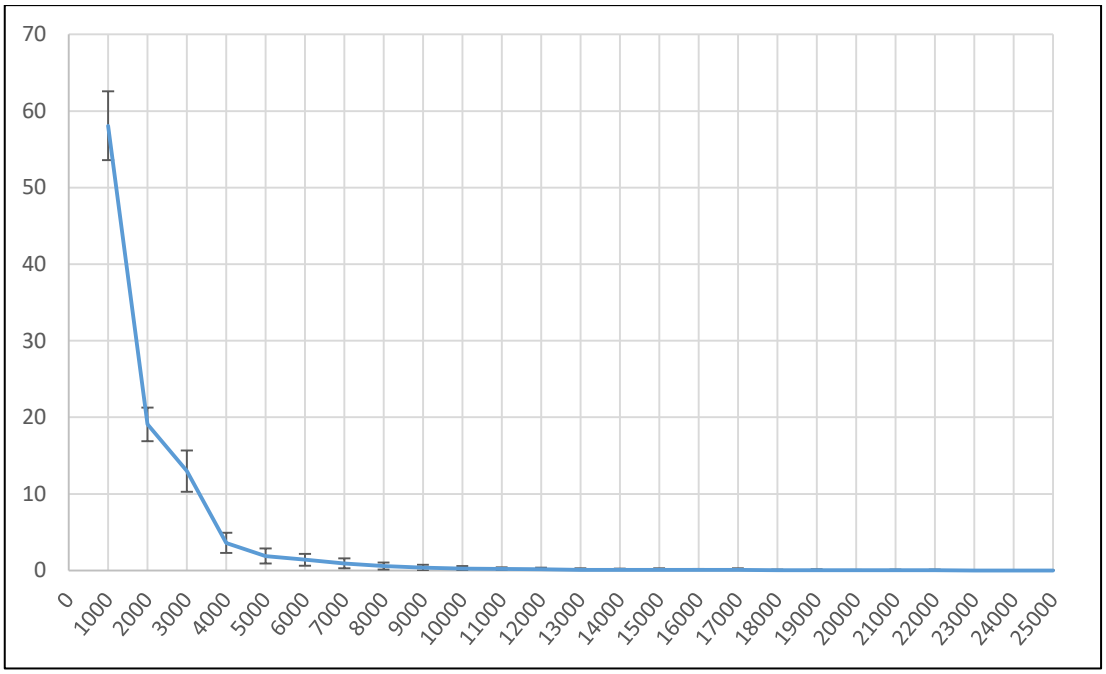



**Figure 5.18:** Mean percentage of text coverage of the 72 CIPT AR passages provided by the word families in each frequency band, with standard deviation.

Figure 5.19 more clearly evidences the extent of this variability between texts by depicting the extreme envelope of the data. The figure shows that for frequency level K1, the vocabulary in the CIPT AR texts ranges from around 46% (CIPT 8.4.2) to just under 70% (CIPT 6.4.2). From level K2 to K7, the distance between the values of the extreme envelope is remarkable, with 24% vs 12% for K2, 18% vs 7% for K3, and 7.5% vs 1% for level K4.

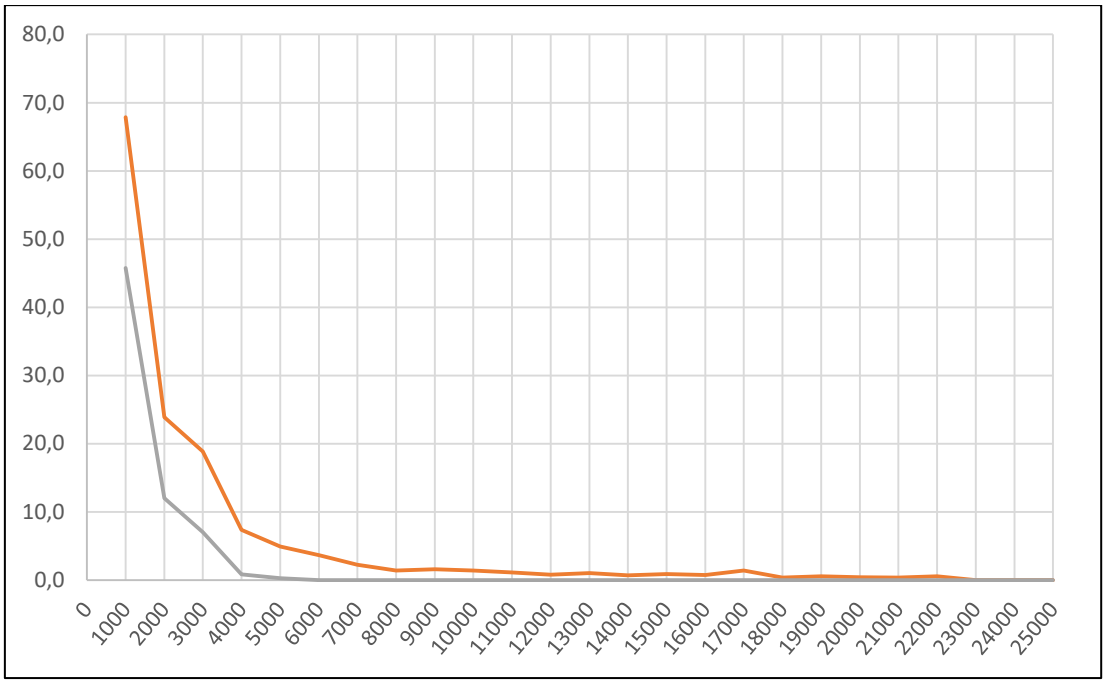



**Figure 5.19:** Extreme envelope of the mean percentage of text coverage provided by the word families in each frequency band in the 72 CIPT AR passages.

This highly variable lexical composition of the CIPT passages is a surprising outcome for which it is not easy to find an explanation. The investigation presented in this thesis may evidence, for the first time, a flaw in the design of the AR tests. However, if the high level of lexical variability between AR passages is not the result of an oversight but a deliberate feature of the test, it seems necessary to query the rationale behind it, and to interrogate the assessment aims that underlie this choice. Unfortunately, and as is discussed in Chapters 2 and 3, IELTS publishes very few details or research about the AR test beyond its format and its broad assessment objectives. Therefore, the issue should be pursued with IELTS in future research on its test validity and fairness. In the meantime, as the CIPT materials are marketed as valid mock tests for IELTS preparation (see Section 4.1), the findings presented in this chapter reveal that the vocabulary in the IELTS AR passages should be expected to vary remarkably in terms of frequency levels. This is important information for IELTS AR candidates, who should be prepared to deal with three very different texts from the point of view of their lexical

composition, particularly in terms of the balance between high- and mid-frequency vocabulary.

The data that results from the computation of the cumulative coverage percentages supplied by the different frequency levels provides what is likely to be the most significant finding about the vocabulary in IELTS AR passages. Figure 5.20 corroborates that the high- to mid-frequency levels provide the brunt of the lexical coverage in the CIPT texts. The graph clearly shows that the text coverage of the majority of the 75 passages is spanned by frequency levels K1 to K9, that is, squarely Schmitt and Schmitt's (2014) high- to mid-frequency levels. At the same time, the raw data presented in the graph reveals that the crucial 95- and 98% threshold coverage levels for comprehension identified by Laufer and Ravenhorst-Kalovski (2010) and Nation (2006) seem to be reached with roughly the same frequency bands as those determined by these authors, i.e bands K4-5 (95%) and K8-9 (98%).

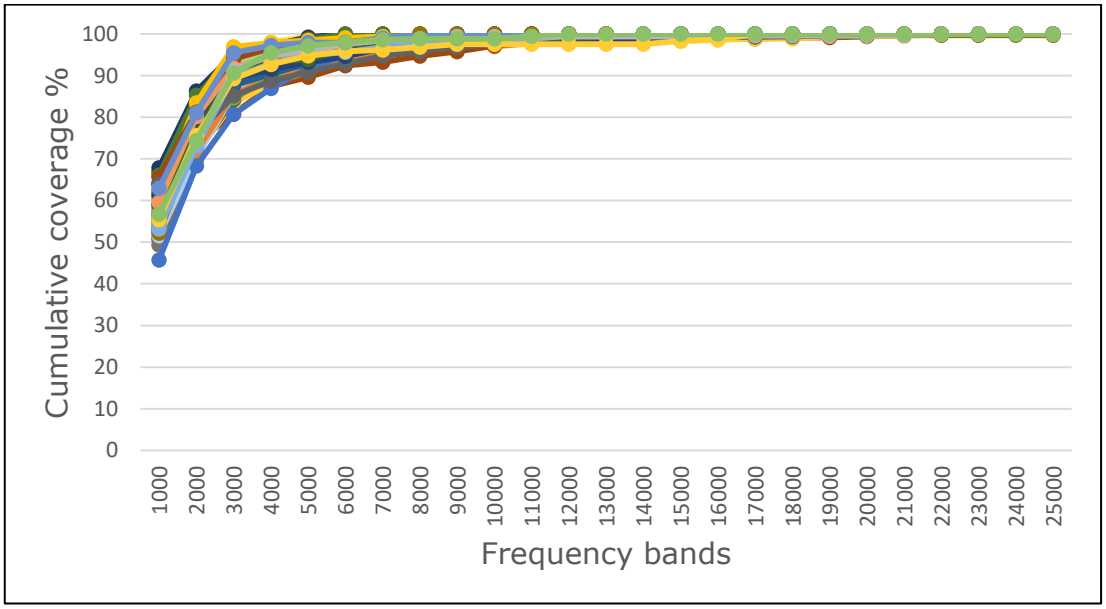



**Figure 5.20:** The percentages of text coverage provided cumulatively by the frequency levels present in the 72 CIPT AR passages.

If, however, the data is observed in terms of mean values, the points at which the 95- and 98% thresholds are reached changes slightly. Figure 5.21 shows that the two threshold points 95% and 98% are reached on average by the CIPT AR passages at the 5000 level and the 7000 level respectively. This means that the "adequate" or "unassisted" comprehension level afforded by 98% text coverage (Nation, 2006; Schmitt & Schmitt, 2014) is reached at a slightly lower level in the CIPT passages than in the real-world texts used by Nation in his study of 2006, where he established this level at the 8-9000 level. If, as this investigation hopes, these findings effectively apply to IELTS AR, they are good news for the IELTS candidate, as it might mean 1000 less word families to learn, an important saving for the time-stretched exam student.

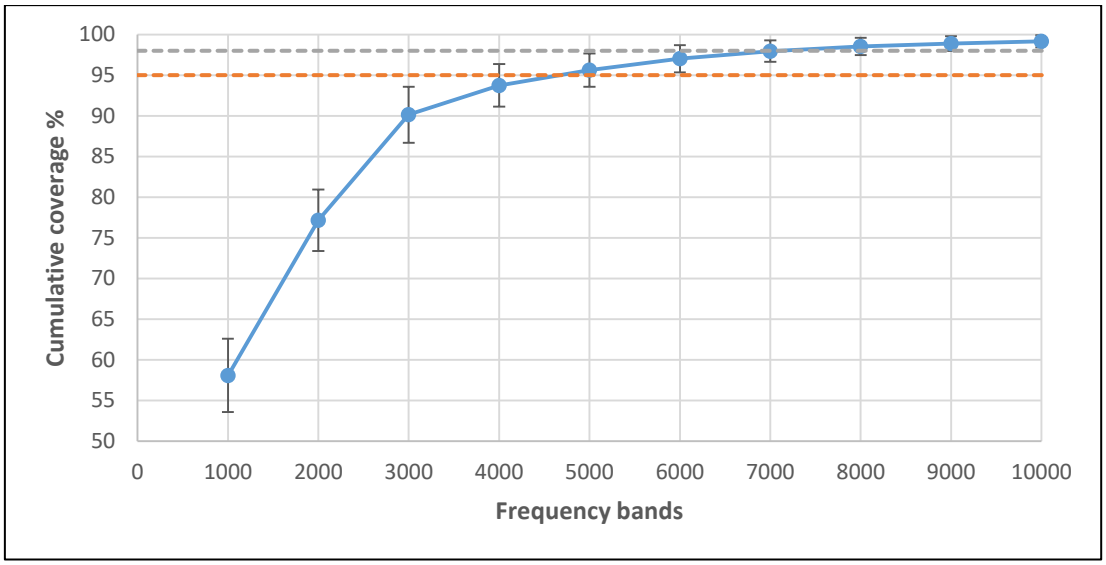



**Figure 5.21:** The mean percentages of text coverage provided cumulatively by the frequency levels present in the 72 CIPT AR passages, with the threshold comprehension levels 95% and 98% highlighted with a red and a black dotted line respectively. Standard deviation is also indicated for each frequency level.

High-frequency, but perhaps more significantly, mid-frequency vocabulary is therefore crucial to comprehension of the CIPT AR passages, corroborating Schmitt and Schmitt's (2014) claim as to the importance of mid-frequency vocabulary for 'authentic' reading. Although Chapters 3 and 4 have established that IELTS AR passages

are engineered texts, they are not graded texts, i.e., they are not specifically written using vocabulary within a specified frequency or knowledge level. This is one of the factors that brings them closer to 'authenticity', in the conventional sense of the term as discussed in Chapter 4. Perhaps the factor that that brings IELTS AR passages closest to Schmitt and Schmitt's notion of authenticity is the purpose of the candidates when they approach the passages. For Schmitt and Schmitt, "authentic purposes" for reading are reading for pleasure and for academic purposes. Although they do not address the issue of examination texts, their mention of textbook reading in English could conceivably be extended to include passages such as those in IELTS AR. In their discussion, the authors stress the fact that reading for academic purposes "requires a considerable progression into mid-frequency vocabulary" (Schmitt & Schmitt, 2014, p.496). The findings presented in Figure 5.21 show that mid-frequency vocabulary, that is, the vocabulary between frequency levels K4 and K9, affords crucial text coverage in the CIPT passages, as the threshold comprehension levels are reached between frequency levels K5 and K7 in these texts.

As discussed above for Figures 5.18 and 5.19, the standard deviation represented in Figure 5.21 reveals a high level of variability in terms of the lexical composition of the CIPT passages. Thus, exact cut-off points for the comprehension thresholds cannot be determined with high precision. Nonetheless, and much as is the case for the data presented in Figures 5.18 and 5.19, this variability particularly regards the high-frequency bands. Once mid-frequency is reached, the variability between texts decreases considerably, making it possible to more safely conclude that k-levels 5 to 7 effectively constitute a key area of vocabulary for successfully reading the CIPT passages analyzed in this thesis.

### 5.2.2. Results of the lexical profiling for frequency of formulaic units

Profiling the 72 CIPT AR passages using *Text Inspector* reveals that all the passages contain some PHRASE list MWUs, as can be seen in Figure 5.22. A full list of the MWUs that appear across the analyzed CIPT AR passages is provided in Appendix 10. Figure 5.22 also shows that, as with individual words, the frequency profile for MWUs varies greatly from one passage to another, confirming that the AR passages in the CIPT volumes present a disconcertingly high level of variability in terms of their lexical composition.

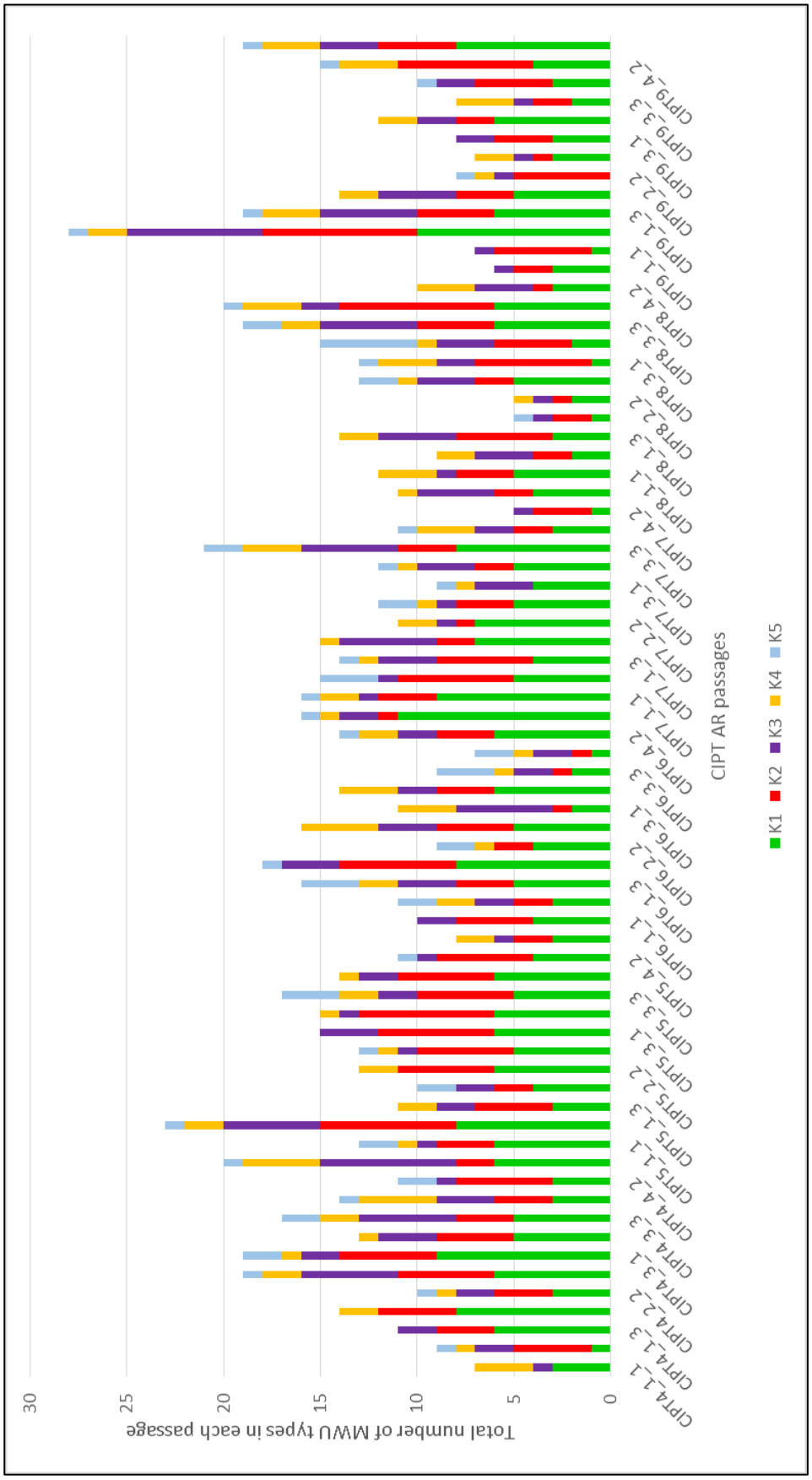



**Figure 5.22:** Number of PHRASE list MWUs in the 72 IELTS AR passages in CIPT 4 – 9, per frequency level (1k – 5k). Profiling tool used: Text Inspector (2017).

If the average presence of MWUs in each frequency level is considered, however, the profile of the formulaic units in the CIPT AR passages follows the standard decreasing trend from highest to lower frequency, as can be seen in Figure 5.23. Taken together, the findings represented in Figures 5.22 and 5.23 apparently suggest that the number of MWUs in any given CIPT AR passage is not very high. This impression is discussed in detail below, as are the other assertions made in this opening to the section.

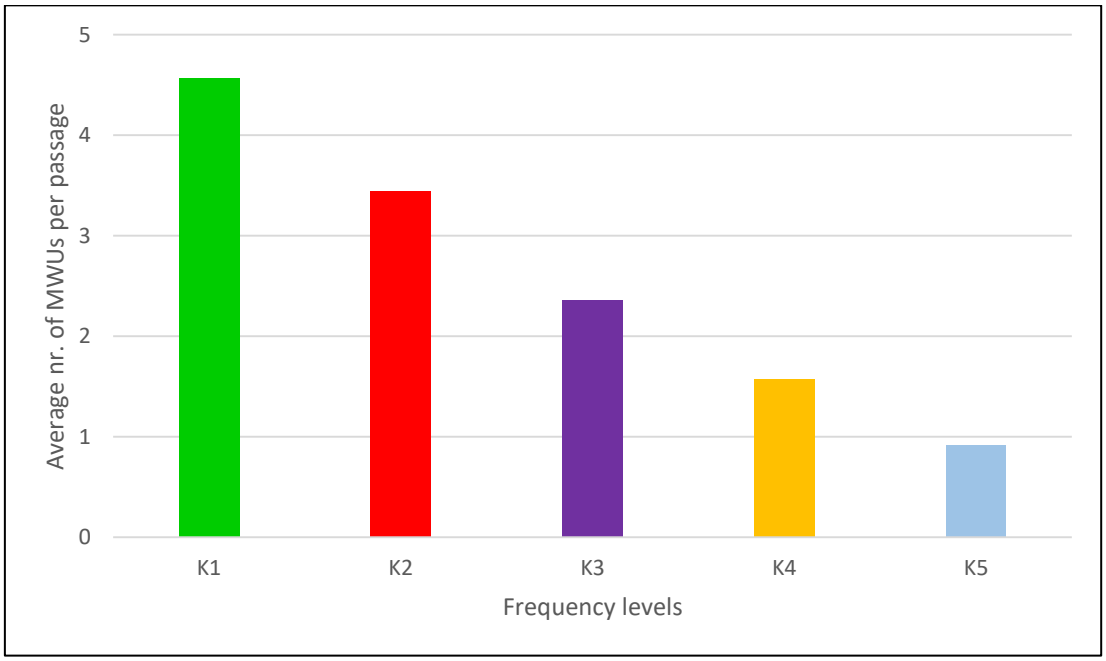



**Figure 5.23:** The average number of MWUs per passage for each frequency level K1 – K5.

The fact that all of the passages analyzed contain MWUs would be unsurprising in real-world, non-specialist texts, given that PHRASE list MWUs are an integral part of high- to mid-frequency vocabulary (Martinez & Schmitt, 2012), and as such should be expected to be present in any text. As Chapter 4 argued, however, the CIPT AR passages are not true real-world texts, but rather engineered versions of texts sourced from a variety of publications. In fact, as a result of the process of adaptation of the source material to suit the AR test, it is not always a straightforward matter to identify AR

passages as belonging to any conventional text genre (Weir et al., 2009). In fact, Green and Hawkey (2012) revealed that IELTS AR item writers strive to reduce the journalistic style of texts sourced from magazines and newspapers, with the intention of producing passages that are more neutral and academic-sounding. Conceivably, an unnatural absence of formulaic language could be an involuntary outcome of such modifications. However, the findings presented here show that this is not the case, as all the passages analyzed contain some MWUs (see Appendix 10 for a full list of all the MWUs found in the CIPT passages studied). In fact, the results of the profiling for formulaic units show that PHRASE list MWUs are present even in CIPT AR passages that are particularly factual and descriptive. Some examples of such texts are CIPT 5.2.1, CIPT 8.2.1, or CIPT 9.4.1. (see Table 5.1). Thus, an important outcome of this part of the lexical profiling process is the evidence that knowledge of PHRASE list MWUs is relevant for reading IELTS AR passages.

| **CIPT AR passage** | **title** | **source** |
|---|---|---|
| CIPT 5.2.1 | *Bakelite. The birth of modern plastics* | Clark, T. (1997). *Bakelite style. The Material of a Thousand Uses*. Edison, NJ: Chartwell Books Inc. |
| CIPT 8.2.1 | *Sheet glass manufacture: the float process* | unacknowledged |
| CIPT 9.4.1 | *The life and work of Marie Curie* | Encyclopaedia Britannica, 2012 |

**Table 5.1:** Three factual and descriptive CIPT AR passages.

On average, 3.2% of the CIPT AR passages are made up of MWUs (see Fig.5.24). This is far from the 50% formulaic composition of texts claimed by Erman and Warren (2000), but as explained at the beginning of this section, only PHRASE list MWUs are taken into

consideration here, and other formulaic sequences have been disregarded. These findings compare well with other investigations on the presence of opaque formulaic units in text. For instance, Hsu (2014) developed a list of non-transparent formulaic units from a multidisciplinary corpus of college textbooks. She found that her list afforded an average 2.08% coverage of her corpus. While she acknowledges that this amount of coverage can be considered small, Hsu argues that 2% unknown vocabulary can be "a critical benchmark for unassisted understanding of a text" (p.154), if 98% coverage is the minimum for adequate comprehension to be possible (Nation, 2006; Schmitt & Schmitt, 2014). Hsu further argues that lack of knowledge of the most frequent formulaic sequences may hinder comprehension of a text, much as Martinez & Murphy (2011) found. Martinez and Schmitt (2012) have convincingly argued that it is the non-literal, or opaque, formulaic units that are likely to cause difficulty in learner reading. Thus, a 3% average presence of MWUs in the CIPT AR passages is a relevant finding, that suggests that IELTS candidates would be well-advised to develop a good receptive knowledge of the MWUs in the PHRASE list in preparation for the AR test.

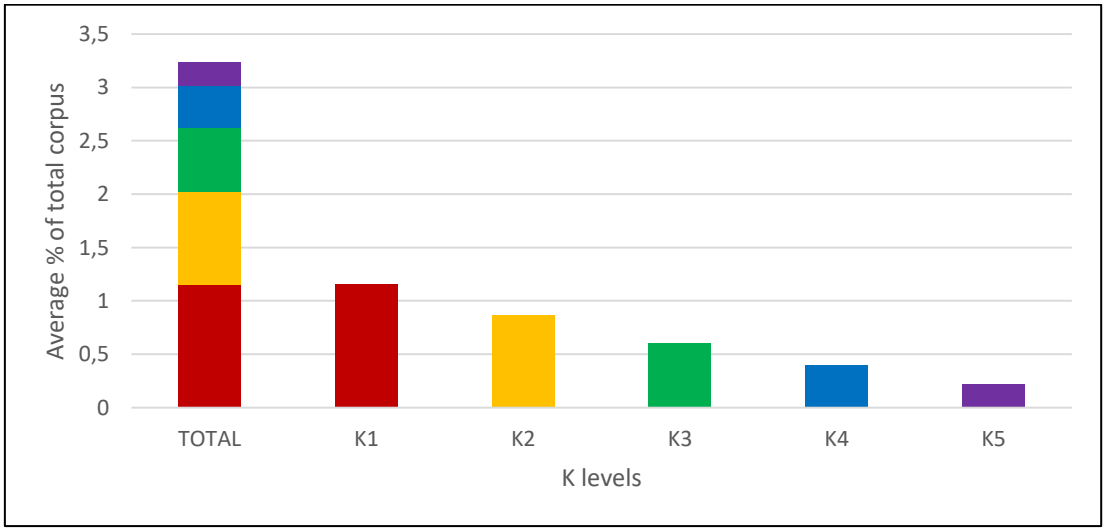



**Figure 5.24:** Average percentage of PHRASE list MWUs in the 72 IELTS AR passages in CIPT4 – 9, per frequency level (1k – 5k). Profiling tool used: Text Inspector (2017).

As explained at the beginning of Section 5.1.2, it is beyond the scope of the present investigation to analyze formulaic language in the CIPT AR passages beyond PHRASE list MWUs. However, careful inspection of any of the passages reveals that other formulaic language beyond MWUs is also present. This is unsurprising, as text in general tends to be composed to a high degree of more or less formulaic language (Erman & Warren, 2000; Laufer, 2022; Siyanova-Chanturia & Pellicer-Sánchez, 2019). What is surprising, however, is that some passages seem particularly formulaic and figurative: some examples of formulaic units found in four sample passages are listed in Table 5.2.

| **passage** | **examples of formulaic language** |
|---|---|
| CIPT 7.3.2 | *on sounder footing,*<br>*throw light on,*<br>*tie in with,*<br>*provide backing for* |
| CIPT 7.3.3 | *know no frontiers,*<br>*since the dawn of man,*<br>*a thinly scattered [population],*<br>*establish a framework for* |
| CIPT 6.2.2 | *beating a retreat,*<br>*on the downside,*<br>*the greying of America's population,*<br>*turns out to be,*<br>*right on target* |
| CIPT 8.3.1 | *roll in,*<br>*a round of golf,*<br>*a dice with death,*<br>*a stumbling block,*<br>*be in the offing,*<br>*at their fingertips* |

**Table 5.2:** Some examples of formulaic language in the CIPT AR passages, that is not included in the PHRASE list.

Occasionally, even passage titles can be noticeably idiomatic, revealing their journalistic origin. Table 5.3 shows some examples of highly formulaic titles.

| passage | title | source |
|---|---|---|
| CIPT 6.2.2 | *Greying Population Stays in the Pink* | New Scientist |
| CIPT 8.3.1 | *Striking back at lightning with lasers* | New Scientist |
| CIPT 8.4.1 | *Land of the rising sum* | Oxford Review of Education |
| CIPT 9.3.3 | *Information Theory -The Big Idea* | Focus Magazine |

**Table 5.3:** Some passage titles from the CIPT AR texts that use idiomatic language.

The formulaic sequences in Table 5.2 and Table 5.3 are not easy to classify. Some possible suitable categories could be found among those identified by Vilkaite (2016, pp. 32-34), such as collocations (*provide backing for, beat a retreat*), phrasal verbs (*tie in with, turn out to*), idioms and "lexical bundles" (*on sound footing, at [one's] fingertips*, (*dicing with death, on the downside*). However, in the present absence of pedagogical lists and user-friendly profiling tools for this sort of formulaic language, it was not considered useful to investigate these phrases further for the purposes of the present study. Nonetheless, it is likely that any of the phrases and titles in Tables 5.1 and 5.2 could pose difficulties for IELTS candidates, given their markedly figurative nature.

Figurative language can be a frequent source of difficulty for learners, as it is easily not understood or even misunderstood (Littlemore, 2001). A lack of awareness of this sort of language is

also a frequent cause of difficulty (Laufer, 1989; Martinez & Murphy, 2011). Metaphor in particular can be a major challenge at all levels of proficiency, although a number of studies (see Hoang, 2014) show that learners' metaphorical competence increases with the development of their vocabulary knowledge. Insufficient awareness of cultural conventions and connotations, together with a limited repertoire of L2 figurative language are all elements that Littlemore and Low (2006) identify as frequent causes of difficulty with metaphorical language. Furthermore, research has shown that knowledge of the individual components of the metaphor is no guarantee of comprehension of the figurative phrase (Littlemore, Chen, Koester & Barnden, 2011). In the example titles in Table 5.3, idiomatic language is used to produce puns, as in *Land of the rising sum*, the title of a passage about mathematics education in Japan (CIPT 8.4.1). It is unclear what less proficient candidates might make of these titles. Titles can be useful as an entry point into a text (Christofalos, Raney, Daniel & Demos, 2020; Wiley & Rayner, 2000) and IELTS training materials typically encourage candidates to use passage titles as an aid to comprehension (IDP IELTS, 2023)[66]. However, if idiomatic language is used in the titles, and this language proves cryptic for the candidates, it is possible that such titles will be ignored. If this is the case, the question arises as to the value of including titles such as these, which might only be accessible to very proficient candidates. Nonetheless, IELTS candidates should be made aware of the possible presence of figurative and metaphorical language in AR passages.

The results presented and discussed here show that all the CIPT AR passages contain PHRASE list MWUs and that therefore it is likely

[66] Suggestions for time-management during the IELTS AR test: https://ielts.idp.com/prepare/article-manage-time-in-ielts-reading?prep=true

that learning the PHRASE list should be a very useful endeavor with a view to passing IELTS AR successfully, in line with Hsu's (2014) arguments regarding the usefulness of knowing high-frequency opaque formulaic sequences. The criteria grounding the PHRASE list - opacity, high frequency and meaningfulness, i.e. that the MWUs realize a meaning, or linguistic function – (Martinez & Schmitt, 2012), together with its intended purpose of supporting receptive use of English especially, make the PHRASE list MWUs particularly appropriate for IELTS AR. At the same time, teachers and writers of materials for IELTS training should make sure to address the development of skills to recognize and deal with a broad range of formulaic language, including figurative and metaphorical sequences, as other formulaic language is also likely to be present in the AR passages.

To sum up, the findings discussed in this chapter suggest that in order to successfully read IELTS AR passages candidates would be advised to develop a good receptive knowledge of high- to mid-frequency vocabulary, including PHRASE list MWUs. The pedagogical implications of these findings are explored in greater depth in Chapter 6, which looks into possible ways of approaching teaching and learning the vocabulary identified as useful towards the IELTS AR test.

# 6. LEARNING VOCABULARY FOR IELTS AR

The findings reported in Chapter 5 revealed that the strategic coverage level of 98% is reached around frequency level 7k in the 72 CIPT AR passages analyzed. This suggests that a receptive vocabulary-learning goal of around 7000 word families should be an important contribution towards success in the IELTS AR test. Making this vocabulary target explicit and disseminating it among IELTS candidates and their teachers, as well as among materials writers, would be a much-needed move towards greater transparency with regard to the effective language demands of the test on the part of the IELTS organization. More importantly, it would greatly facilitate language development with a view to successfully passing IELTS. On

the one hand, it would help move away from an exam preparation model based mainly on exam strategy, as in the "cram school" style described by Trenkic and Hu (2019, 2021). On the other hand, knowledge of the 7k goal could inform the development of systematic and principled language components in IELTS study programs and pedagogical materials, overcoming the random approach to vocabulary that is characteristic of much IELTS training material (Serrano van der Laan, 2020).

Being informed of the target when learning vocabulary for IELTS AR should be very useful for exam candidates, particularly because it has been hitherto undisclosed. However, a 7000-word family vocabulary-learning program can be a daunting task, especially in view of the short-term study periods that are often typical for IELTS preparation, as is described in Chapter 2. Of course, it should be borne in mind that the real learning burden is likely to be smaller, since students attempting IELTS are unlikely to be beginners and typically already possess relatively large receptive English lexicons. Certainly, and as is discussed below, one of the first steps in a systematic vocabulary-learning program for IELTS AR should involve ascertaining the candidate's receptive vocabulary size through a test, in order to determine at which point of the 7000 word families they should start from.

In the context of IELTS, however, the 98% coverage threshold may be in need of reconsideration. On the one hand, it should be recalled that this percentage was identified as a result of studies of the amount of vocabulary necessary for pleasurable reading of fiction (Hirsch & Nation, 1992), news articles and fiction (Hu & Nation, 2000), and novels, newspapers and graded readers (Nation, 2006). Research that does not regard IELTS has since raised the issue of whether it is appropriate to assume that the same coverage

threshold holds also for other genres (Dang & Webb, 2014; Hsu, 2011; Schmitt, Cobb, Horst, & Schmitt, 2017). Chapter 4 showed that IELTS AR passages are not easily classifiable in terms of genre, but it is certainly clear that they are not read for pleasure, and purpose of reading plays an important role in reading comprehension (Alderson, 2000). On the other hand, it should be borne in mind that reaching the 7000-word family goal, that is, 98% coverage, would equate with nearly full comprehension of all the vocabulary in any AR passage. This would be likely to lead to very high scores, i.e. between 8.0 and 9.0 on the IELTS scale. Excellent though such scores would be, a large majority of candidates are well served with a score of 7.0, as this tends to be the entrance requirement in most HE institutions (see Chapter 2, Section 2.3). Very probably, then, the receptive lexicon that can help attain a 7.0 could be expected to be smaller.

Thus, knowing that the 98% coverage threshold is likely reached in IELTS AR with the 7000 most frequent word families in English is key towards learning vocabulary for the test, as it provides the complete picture of the vocabulary demands made by the paper. However, once it has been established *what* words are in the AR passages, the next key factor for the IELTS candidate is to know *how many* of these words are needed to pass IELTS AR successfully. The present chapter explores how many these words might be, and how they could be learnt.

## 6.1. How much vocabulary for IELTS AR?

Reading comprehension involves many more variables than only vocabulary knowledge (Alderson, 2000). Milton (2009) points out that vocabulary coverage and reading comprehension are two very closely related but not interchangeable concepts, as an array of other

factors are at play as well. Nonetheless, vocabulary knowledge is a key variable affecting reading comprehension (Alderson, 2000; Hu & Nation, 2000; Laufer, 1992; Milton, 2009; Nation, 2006). How much vocabulary is needed for reading comprehension is therefore a matter of great interest to researchers, teachers, learners and examination boards. As has been discussed in Chapter 1, the most influential figures so far are the 9000 word families put forth by Nation (2006), which he claims should grant 98% vocabulary coverage of a text. In their seminal paper, Schmitt and Schmitt (2014) reassessed the frequency levels needed for 98% text coverage to around 8000 word families, which, for students, implies a significant reduction of the learning burden. Although other studies have questioned the generalizability of these figures to domains outside of general English (Dang & Webb, 2014; Hsu, 2011; Schmitt, Cobb, Horst, & Schmitt, 2017), they currently stand as the accepted coverage threshold for reading comprehension.

From a different perspective and moving beyond the issue of vocabulary size and percentages of coverage, Schmitt, Jiang and Grabe (2011) argue that the amount of vocabulary knowledge necessary for unassisted, successful reading necessarily depends on the amount of text comprehension that is required. Further, Schmitt et al. (2017) propose transcending the more theoretical corpus-based discussion, to investigate the practical issue of what learners can effectively do with their vocabulary sizes. This perspective seems particularly suitable for the context of learning vocabulary for IELTS AR. Chapter 5 revealed that 7k, rather than 8k, is likely to facilitate 98% coverage in IELTS AR passages. However, 98% coverage may be an unnecessarily high goal in a test in which different amounts of text comprehension are required at the different band score levels. Therefore, once the question of *what* vocabulary is involved in IELTS AR has been answered (i.e. frequency level 7k+), the question most

relevant to passing the test successfully becomes *how much* of this vocabulary is necessary. This question is explored in the subsections that follow.

### 6.1.1. Exploring the frequency ranges needed: some hypotheses

The overall IELTS score currently required for admission into European universities seems to range between 6.5 and 7.0, as discussed in the Introduction and in Chapters 1 and 2; some examples of admission scores are provided in Table 2.1. This overall score is the average of the scores attained in each of the tests that IELTS is composed of (Listening, Reading, Writing and Speaking), and there can be significant differences between best and worst scores. Therefore, when preparing for the exam, candidates are likely well advised to dedicate particular attention both to their weakest and to their strongest test, in order to ensure that they reach their desired or required average score. In some cases, a given score is required in each of the subtests for admission into certain degree courses (see Table 2.1). Thus, as a general approach, candidates would probably do well to aim for the same score in each individual test as they need for their overall score. With a view to scoring a 7.0 in IELTS AR, what receptive vocabulary size might it be advisable for a candidate to possess?

From a purely theoretical point of view, and considering only vocabulary knowledge, it might be assumed that 100% vocabulary comprehension of an IELTS AR passage should grant full marks, that is, 40/40, or the maximum IELTS score (9.0). Pursuing this line of discussion, an IELTS AR score of 8.0 (35/40 – see Figure 6.1) would require 87.5% vocabulary comprehension, and achieving IELTS 7.0 (30/40) should involve 75% vocabulary comprehension.

| Academic Reading | |
|---|---|
| **Band score** | **Raw score out of 40** |
| 5 | 15 |
| 6 | 23 |
| 7 | 30 |
| 8 | 35 |

**Figure 6.1:** The average number of marks (raw score) required to achieve a particular band score in IELTS AR. Source: https://www.ielts.org/for-organisations/ielts-scoring-in-detail

Chapter 5 showed that, on average, 75% coverage in the CIPT AR passages is supplied by frequency levels 1 – 2k (see Fig. 5.21). This is an astonishing distance from the 7k level indicated by the results in Chapter 5 as being desirable for text comprehension. However, if this hypothesis should prove true, it would be of great significance to IELTS preparation, as it would reduce the learning load to high-frequency vocabulary, much of which IELTS candidates can be expected to know already. The verification of this hypothesis would also lend weight to the most extended IELTS preparation approach, described in Chapter 2, which focuses on skills development and far less on language development. However, the present chapter argues that it is often precisely high-frequency vocabulary that is lacking in many learners of English, whose schooling may have exposed them to comparatively larger amounts of lower-frequency lexis to the detriment of high- and mid-frequency vocabulary (Acosta Moncada et al., 2016; Demetriou, 2017; Lawley, 2010a; O'Loughlin, 2012).

To test the hypothesis that a score of 7.0 in IELTS AR could be attained with a receptive vocabulary knowledge limited to high-frequency, a small-scale experiment was carried out as a part of the present investigation. Two native English speakers (NS1 and NS2) took a modified IELTS AR test using a CIPT AR test in which the passages had been lexically altered to only allow comprehension of high-frequency vocabulary. The vocabulary in the test questions was altered in coherence with the altered passage. The modified test and

questions can be seen in Appendix 11. The two test-takers took the experimental test under IELTS AR conditions, that is, in 60 minutes, with no access to dictionaries or glossaries. The scores they obtained were used to assess the validity of the hypothesis put forward in this section.

The modified AR passages were created as follows. An AR test (CIPT 7.3) was randomly selected from the CIPT corpus and frequency profiled using *Compleat Web VP* (Cobb, 2022b). The resulting profiles (see Figure 6.2) revealed that 75% coverage of the three passages in CIPT AR 7.3 is reached at the 3k level on average.

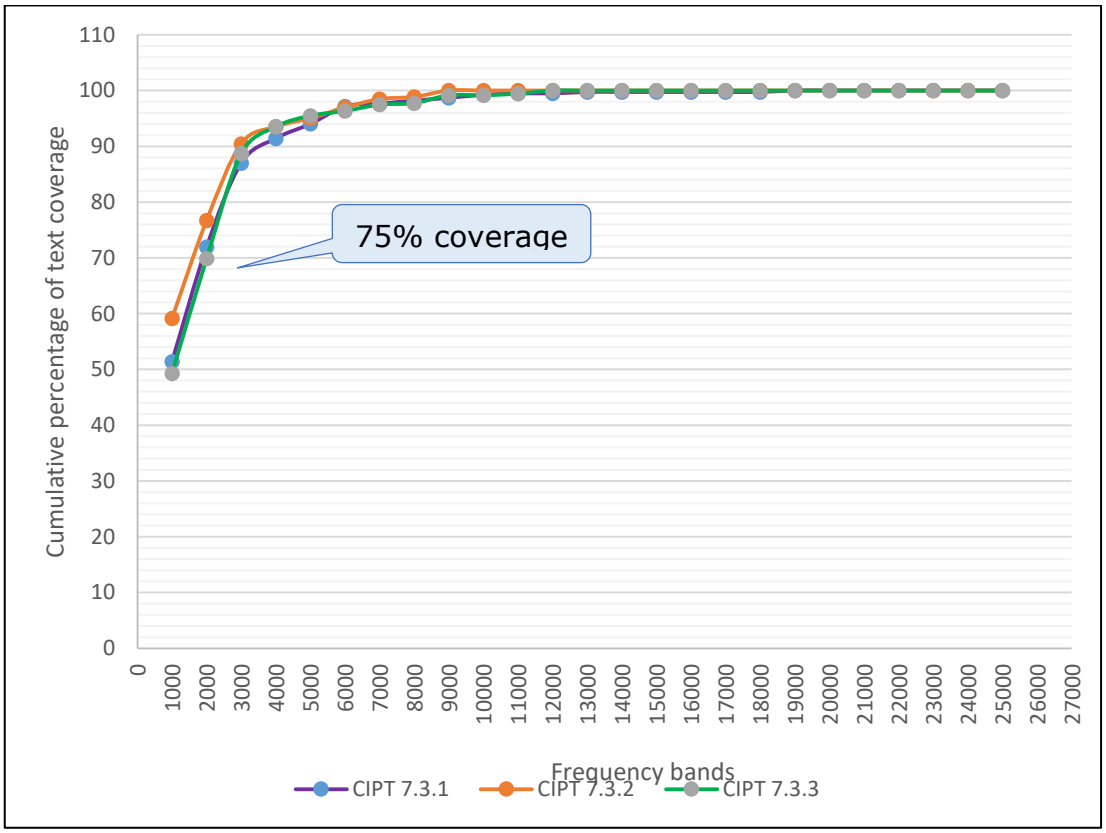
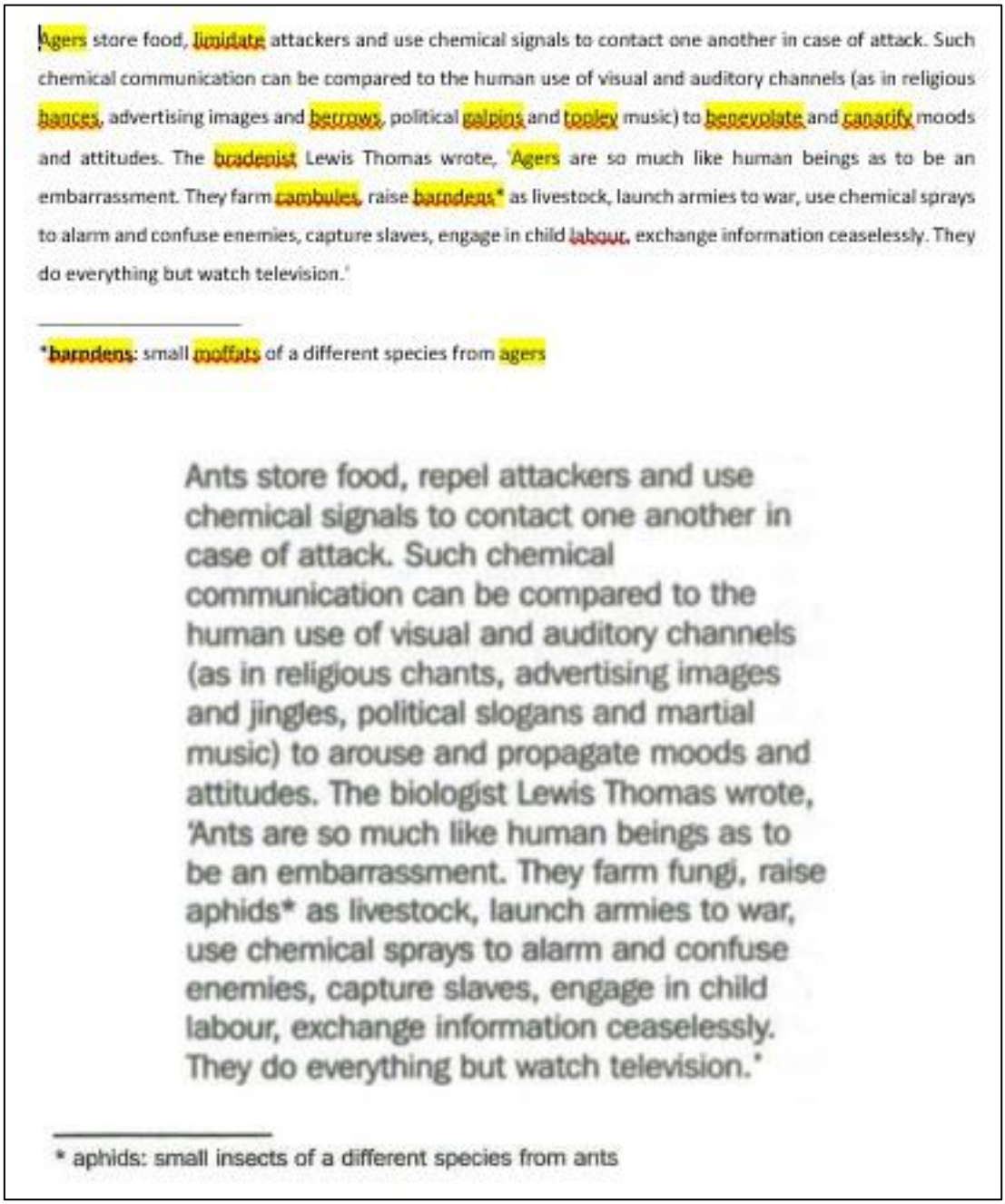



**Figure 6.2:** The cumulative percentages of text coverage provided by each subsequent frequency band in the three AR passages in CIPT 7.3.

On the basis of these coverage percentages, all the words from 4k and beyond in the passage and in the questions, i.e. all those identified as mid- to low frequency, were substituted by nonsense words taken from Meara (1992) to simulate lack of knowledge of

these items. All the nonsense words were inflected as appropriate in order to fit the text grammatically. The complete modified test can be seen in Appendix 11. Figure 6.3 compares an excerpt from modified passage CIPT 7.3.1 with its original counterpart, and Figure 6.4 shows the modified and original versions of Questions 1-6 for the same passage.



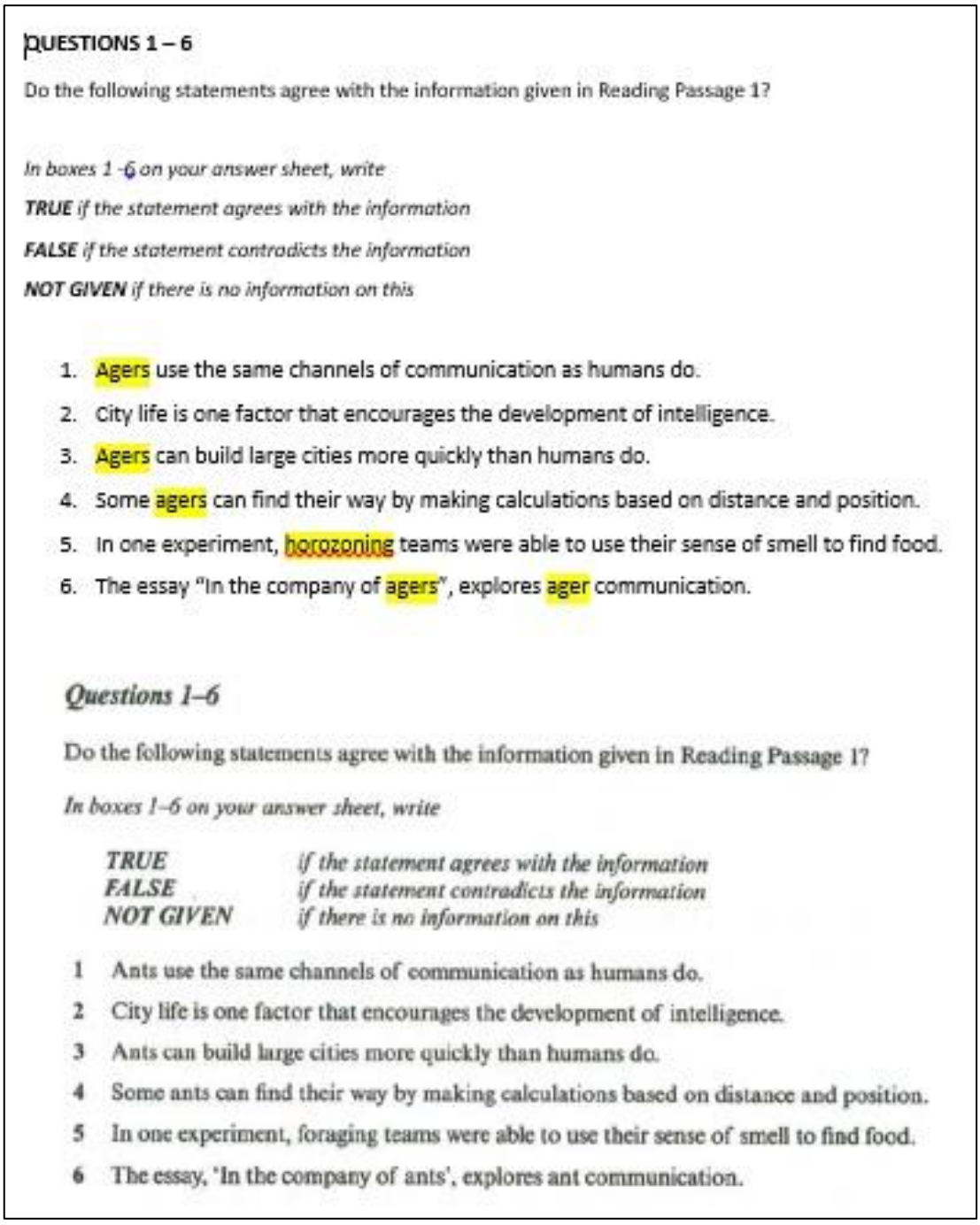
Agers store food, limidate attackers and use chemical signals to contact one another in case of attack. Such chemical communication can be compared to the human use of visual and auditory channels (as in religious hances, advertising images and berrows, political galpins and topley music) to benevolate and canarify moods and attitudes. The bradepist Lewis Thomas wrote, 'Agers are so much like human beings as to be an embarrassment. They farm cambules, raise barndens* as livestock, launch armies to war, use chemical sprays to alarm and confuse enemies, capture slaves, engage in child labour, exchange information ceaselessly. They do everything but watch television.'

*barndens: small moffats of a different species from agers

Ants store food, repel attackers and use chemical signals to contact one another in case of attack. Such chemical communication can be compared to the human use of visual and auditory channels (as in religious chants, advertising images and jingles, political slogans and martial music) to arouse and propagate moods and attitudes. The biologist Lewis Thomas wrote, 'Ants are so much like human beings as to be an embarrassment. They farm fungi, raise aphids* as livestock, launch armies to war, use chemical sprays to alarm and confuse enemies, capture slaves, engage in child labour, exchange information ceaselessly. They do everything but watch television.'

* aphids: small insects of a different species from ants

**Figure 6.3:** An extract from the modified CIPT 7.3.1 passage (above) and the original text (below). The nonsense words (from Meara, 1992) are highlighted in yellow in the modified text.



QUESTIONS 1 – 6

Do the following statements agree with the information given in Reading Passage 1?

*In boxes 1 -6 on your answer sheet, write*

***TRUE*** *if the statement agrees with the information*

***FALSE*** *if the statement contradicts the information*

***NOT GIVEN*** *if there is no information on this*

1. Agers use the same channels of communication as humans do.
2. City life is one factor that encourages the development of intelligence.
3. Agers can build large cities more quickly than humans do.
4. Some agers can find their way by making calculations based on distance and position.
5. In one experiment, horozoning teams were able to use their sense of smell to find food.
6. The essay "In the company of agers", explores ager communication.

*Questions 1–6*

Do the following statements agree with the information given in Reading Passage 1?

*In boxes 1–6 on your answer sheet, write*

| | |
|---|---|
| ***TRUE*** | *if the statement agrees with the information* |
| ***FALSE*** | *if the statement contradicts the information* |
| ***NOT GIVEN*** | *if there is no information on this* |

1 Ants use the same channels of communication as humans do.
2 City life is one factor that encourages the development of intelligence.
3 Ants can build large cities more quickly than humans do.
4 Some ants can find their way by making calculations based on distance and position.
5 In one experiment, foraging teams were able to use their sense of smell to find food.
6 The essay, 'In the company of ants', explores ant communication.

**Figure 6.4:** Modified and original questions 1-6 from CIPT 7.3.1. The nonsense words (from Meara, 1992) in the modified questions are highlighted in yellow.

The choice of resorting to native speakers of English as test takers in this experiment, rather than to learners of English, was grounded in two assumptions. The first was that native speakers would know all the words in frequency bands 1 to 3k. This could not be guaranteed if non-native speakers had been resorted to. Although learners tend to know more words in the high frequency bands than

in the lower frequency levels, they do not usually know all the word in each decreasing frequency band (Schmitt, Dunn, O'Sullivan, Anthony, & Kremmel, 2021). After all, the frequency bands are not usually acquired in a linear fashion from K1 through to K25. Instead, learners tend to build up a mix of high and low frequency vocabulary as a result of their sources of learning and their personal needs for expression (Barker, 2007; Gairns & Redman, 1986; Schmitt, D., 2013). The second assumption was that the influence on comprehension of other variables affecting reading, such as overall language proficiency, text topic, length, and difficulty, reading ability, inferencing ability and exposure to print (Alderson, 2000; Schmitt, Jiang & Grabe, 2011), would be less significant in native speakers than it might be if non-native speakers were used.

The two native speakers who participated in the experiment were both male, and were employed as English teachers at two different European universities. One of the participants was in his late 40s, while the other was in his early 60s. Both were professionally acquainted to the writer of this thesis, and took part in the experiment on a wholly voluntary basis, at the request of the author. One of the participants (NS1) had many years of experience teaching IELTS courses and was familiar with IELTS AR texts and with the strategies suitable for dealing with the different test questions. The other participant (NS2) had only limited knowledge and experience of IELTS, and claimed from the outset to find reading tests such as IELTS AR difficult in general. Both reported experiencing the experimental test as tough, as they found it frustrating and confusing to meet so many unknown words while trying to answer 40 comprehension questions in one hour.

The results obtained by the two test-takers are displayed in Table 6.1 and show that, in spite of the difficulties experienced, one test-taker (NS2) exactly achieved the target score of 7.0, while the other

test-taker (NS1) attained a score well above this, reaching IELTS Band 8.5. Thus, both test-takers were able to score at least 7.0 with a simulated receptive vocabulary knowledge of only high-frequency word-families. These results support the hypothesis that 75% coverage can allow the attainment of an IELTS band score of 7.0. In other words, the scores obtained by the test-takers suggest that it is theoretically conceivable that an IELTS AR test may be passed with at least a 7.0 with a receptive vocabulary knowledge of only the 3000 most frequent words in English.

The test skills available to the test-taker with the most experience of IELTS AR (NS1) were likely an important factor in his significantly better score, and this could be interpreted as support for the widespread exam-strategy training approach over a language-development approach to IELTS preparation. However, the fact that the test-taker with little experience of IELTS and a self-declared lack of ease with the test (NS2) was nonetheless able to achieve a 7.0 suggests that knowledge of high-frequency vocabulary plays a determining role in the successful completion of this test.

| Test-taker | RAW SCORE /40 | IELTS BAND score |
|---|---|---|
| NS1 | **37** | **8.5** |
| NS2 | **32** | **7.0** |
| average | **34.5** | **7.5** |

**Table 6.1:** Scores achieved in the modified CIPT 7:3 with all words from 4k onwards substituted by nonsense words. NS = Native Speaker.

Using native speaker test-takers' results as a prediction of potential results of non-native speaker test-takers is not, of course, straightforward. It should be assumed that native-speaker command of the language grants native speaker readers an advantage over readers for whom English is not their first language. The test-takers'

native knowledge of inflection, affixation and syntax could be an advantage over learner reading skills, the playing ground not levelled by the fact that mid- to low-frequency vocabulary had been substituted by nonsense words. Collocational phrases such as "so much…as to be", which appears in the sample of the text in Figure 6.3, are likely to cause difficulty to the non-proficient IELTS reader. Native-speaker knowledge and intuition of figurative and metaphorical language is inevitably a further advantage. Chapter 5 discussed the fact that comprehension of metaphor can be a major area of difficulty for learners at all levels of proficiency. As is the case of any text not written specifically for an L2 readership, and as is noted in Chapter 5, the CIPT passages are often fraught with metaphorical language. Some examples from CIPT 7.3 are shown in Table 6.2.

| | |
|---|---|
| CIPT 7.3.1 | *spring to mind,*<br>*more than a hint of,*<br>*come in for [considerable scrutiny],*<br>*the forcing house of [intelligence],*<br>*outstrip by far,*<br>*hail as masterpieces,*<br>*grow attached to* |
| CIPT 7.3.2 | *place [the study] on sounder footing,*<br>*the launching ground for [the first human colonizers],*<br>*a wave of migration, throw light on,*<br>*tie in with,*<br>*provide backing for* |
| CIPT 7.3.3 | *know no frontiers,*<br>*since the dawn of man,*<br>*a thinly scattered [permanent population]*<br>*establish a framework for* |

**Table 6.2:** Examples of metaphorical language in the AR passages in CIPT 7.3.

For the purposes of the present investigation, however, it was considered useful to exploit the possibility furnished by native-

speaker test-takers of excluding other comprehension difficulties beyond the nonsense mid- to low-frequency words. The mock test results suggest that the hypothesis that 75% text coverage can grant sufficient text comprehension as to facilitate the attainment of a score of 7.0 in IELTS AR may not be wholly unfounded. Clearly, the mini-experiment described here suffers from the dual limitation of its statistically irrelevant sample base (2 participants) and from the selected participants themselves, who were not real IELTS takers. The vocabulary size of some real IELTS takers and its relationship to their IELTS scores are discussed in the next sub-section.

### 6.1.2. Exploring the frequency ranges needed: empirical evidence

Among the few studies that have looked into the relationship between vocabulary size and IELTS AR (e.g. Chen & Liu, 2020; Milton et al., 2010), to date only Drummond (2018) has matched the different IELTS band scores with specific vocabulary sizes. Although the aims of Drummond's study are different from those of the present study, his investigation contains findings of great relevance for this thesis. Drummond sought to assess the suitability of the frequent practice of using IELTS scores as the basis for streaming international students into UK foundation programs, that is, preparatory language programs leading to undergraduate study. The assumption underlying this practice is that IELTS scores are reliable indicators of students' ability to use and understand English in an academic context. To test this assumption, Drummond analyzed the relationship between the overall and individual IELTS test scores attained by 205 international students on a foundation program, and the receptive vocabulary size of these students attested by their results in the Vocabulary Size Test (VST, Nation & Beglar (2007) –

this test is described and discussed in detail in Section 6.2.1 below). Drummond was particularly interested in ascertaining international students' effective ability to engage with undergraduate reading, which can be expected to be unabridged and required in large quantities from early on in UK university study. Therefore, his analysis focused particularly on the relationship between IELTS AR and vocabulary size. Drummond found a very wide range of vocabulary sizes within any one given IELTS band score, and concluded that scores from vocabulary size tests such as the VST were more suitable than IELTS scores for purposes of streaming into groups with homogenous language ability levels.

Drummond's (2018) study contains relevant insights into average receptive vocabulary at an IELTS band score of 7.0, which complement and support the findings in the present thesis. In his study, the participants with an overall IELTS score of 7.0 had a mean total receptive vocabulary of 8200 word families, as attested by the VST. This may be the first empirical evidence of vocabulary size in relation to IELTS scores, and as such is highly valuable. However, from the perspective of pedagogical usefulness, a total figure such as "8200 word families" has little utility unless some insight into the specific composition of this total is available. In other words, an IELTS candidate needs to know what words to learn, and "8200 word families" does not provide an answer. After all, the exact composition of a total vocabulary size can be expected to vary greatly even within a given level of overall language proficiency. The contents of widespread instructional programs may allow some prediction of the vocabulary known to learners at different stages of their language development (see for instance the English Profile project, described in Harrison and Barker (2015); further details are available on the

English Vocabulary Profile webpage[67]). However, a learner's total receptive vocabulary baggage is also strongly determined by their amount of exposure to English, as well as by their specialist interests and hobbies. A further important component of receptive vocabulary size is the amount of loanwords and cognates that exist in the learners' first language and in other languages they know (Schmitt, Dunn, O'Sullivan, Anthony, & Kremmel, 2021), where many cognates can act as facilitators for comprehension (Chacón-Beltrán, 2005, 2006). All of these elements contribute to making individual total receptive vocabulary size highly variable, even within the same band of overall language proficiency.

An aspect of vocabulary knowledge likely to prove more pedagogically powerful than total vocabulary size when probing reading ability is the text coverage afforded by a given receptive vocabulary lexicon. Knowing how much text coverage may be granted by a student's vocabulary knowledge makes it possible to inform them and their teachers as to what and how much further vocabulary to learn. Drummond (2018) examined this aspect of his test takers' vocabulary knowledge in the course of his investigation, but in the final outcome awarded it less importance than the relationship between IELTS scores and overall vocabulary size. For the purposes of the present thesis, however, Drummond's findings on text coverage affordance are the most relevant part of his study.

On the basis of VST scores, Drummond (2018) proposed a model of the possible text coverage percentages that might be afforded by the different overall IELTS scores. He averaged the scores obtained by his participants in each of the 14 frequency levels of the VST and

[67] The English Vocabulary Profile webpage: https://www.englishprofile.org/wordlists/compiling-the-evp

then weighted these mean scores according to Nation's (2006) threshold coverage level of 98%. By matching the resulting coverage percentages to the test-takers IELTS scores, Drummond proposed estimated text coverages that can be predicted for the different IELTS scores. Most relevantly for the present investigation, Drummond's model suggests that an overall IELTS score of 7.0 may involve a lexicon allowing an average text coverage of 90 - 92%. For the aims of his research, such a coverage percentage was insufficient, as his study considered 98% as the minimum level for adequate reading comprehension, following Nation (2006). For the present investigation, however, these coverage percentages are highly relevant, as they provide empirical evidence of successful IELTS candidates' average lexicon. It should be noted that Drummond analyzed overall IELTS scores, not AR scores, in relation to coverage percentages. Nonetheless, his findings can be considered of value for the purpose of identifying the vocabulary needed for success in IELTS AR.

The coverage percentage found by Drummond (2018) to characterize an IELTS 7.0 (90%) is considerably higher than the 75% coverage proposed in Section 6.1.1 of this thesis as the hypothetical threshold allowing a score of 7.0 in IELTS AR. It should be recalled, however, that the 75% coverage threshold was tested on native speakers, who were able to leverage their native-level knowledge of English syntax, as well as their reading skills in the language, to score 7.0 in spite of only being able to understand the high frequency vocabulary in the reading passage. This suggests that IELTS candidates, who can largely be expected to be non-native, would do well to build up a lexicon affording them more than 75% coverage, in order to compensate for any gaps in their syntactical knowledge and their reading skills in English. The fact that

Drummond found that students scoring 7.0 possessed a lexicon affording them a text coverage of 90% lends support to this idea.

Although the "90% coverage" insight is of great relevance towards a greater knowledge of what is involved lexically in managing IELTS texts at a band score of 7.0, it is only useful from a pedagogical point of view if the relationship of this percentage to a more or less clearly defined word frequency range is specified. In the current state of the art of coverage studies for general-purpose reading, 90% coverage is held to be afforded by high- frequency vocabulary, i.e. word families from band 1- to 3k (Vilkaitė-Lozdienė & Schmitt, 2020). After all, "high-frequency" vocabulary bears that name precisely because it is so recurring in discourse, to the point of accounting for the majority of the running words in any text. In relation to an "academic reading" test and an IELTS score (7.0) that is mapped to a CEFR level of C1, these frequency bands may come as a surprise. Yet the investigation of the IELTS AR passages in the CIPT volumes described in Chapter 5 revealed that 90% coverage of the 72 texts analyzed was reached with vocabulary up to frequency band 3k, and the theoretical experiment described in Section 6.1.1 suggested that it was possible to achieve an IELTS score of 7.0 in the AR test with a vocabulary knowledge limited to high frequency (i.e. levels 1-3k). It appears, then, that the findings about the vocabulary in IELTS AR passages presented in this thesis simply corroborate current knowledge about basic text coverage. The novelty introduced by the present thesis is that it relates this knowledge to an IELTS score extensively required for university admission (7.0).

It seems possible to claim, then, that knowledge of the first 3000 most frequent word families in English is necessary in order to attain a score of 7.0 in IELTS AR. It can be assumed that Drummond's (2018) students with IELTS 7.0 counted a sufficient amount of 3k

vocabulary in their total mean vocabulary size of 8000+ word families. However, their total vocabulary size indicates that the students were also significantly equipped with vocabulary from lower frequency levels, which doubtlessly played a key role in their success in the test. Unfortunately, Drummond did not make use of the VST feature that details the percentage of word families known in each frequency band 1k – 14k, and as a result he provides no data as to the composition of the total sizes he found for each IELTS band score in terms of knowledge of frequency levels. Nevertheless, his findings strongly suggest that it would be wise to advise IELTS candidates to be more ambitious than the 3k goal in their vocabulary development towards the AR test.

In order to provide candidates with clear learning objectives, the advice to learn vocabulary beyond the 3k level should be made specific, particularly so as to supersede vague indications such as those often issued by the official IELTS channels (see Chapter 2, Section 2.4). An obviously useful frequency area is mid-frequency vocabulary, identified by Schmitt and Schmitt (2014) as being particularly relevant for university study. This suggestion finds support in the VST results of some students with an overall IELTS score of 7.0 – 7.5, which were collected at Politecnico di Torino (Italy) in the course of an earlier, since abandoned, formulation of the present investigation, and can be seen in Table 6.3.

The three students in Table 6.3, two males and one female, were native Italian speakers and had sat IELTS in the same academic year in which the vocabulary test was taken (2016). At the request of the author of the present thesis, the students each took the VST online on *Lextutor* (Cobb, 2023)[68] in their own time and without supervision

[68] The online version of the VST (Nation & Beglar, 2007), divided into frequency k-levels: https://www.lextutor.ca/tests/vst/?mode=test

by the researcher, and subsequently submitted screenshots of their results. All three took the test on a purely voluntary basis, received clear instructions on how to proceed and signed informed consent forms prior to participating in the study. As can be seen in Table 6.3, their results range from 100% to 70% in the high- to mid-frequency bands (i.e. 1-3k and 4-8k, respectively), and only begin to drop under 70% once the low-frequency ranges are reached. It is unfortunate that Drummond (2018) did not include the breakdown of his test-takers' VST scores by frequency band, as this makes it impossible to compare results. Nonetheless, the VST scores in Table 6.3 seem to show a pattern that may well be characteristic of IELTS candidates who score 7.0 and slightly above. Mid-frequency vocabulary therefore seems a good target once 1-3k vocabulary has been solidly acquired.

| Frequency band | STUDENT 1 | STUDENT 2 | STUDENT 3 |
|---|---|---|---|
| | IELTS score: **7.5** | IELTS score: **7.0** | IELTS score: **7.0** |
| **1k** | 100% | 90% | 90% |
| **2k** | 90% | 90% | 90% |
| **3k** | 70% | 90% | 100% |
| **4k** | 100% | 80% | 90% |
| **5k** | 100% | 100% | 70% |
| **6k** | 70% | 80% | 70% |
| **7k** | 60% | 40% | 60% |
| **8k** | 100% | 80% | 100% |
| **9k** | 50% | 60% | 70% |
| **10k** | 50% | 50% | 70% |
| **11k** | 60% | 90% | 70% |
| **12k** | 80% | 60% | 60% |
| **13k** | 80% | 40% | 90% |
| **14k** | 80% | 70% | 80% |
| **TOTAL VST SCORE** | 109 | 102 | 111 |

**Table 6.3:** VST results of three Politecnico di Torino students with IELTS 7.0-7.5, by frequency band.

Although total vocabulary size seems to hold less pedagogical value than vocabulary size at specific levels, as discussed above, a noticeable difference between Drummond's (2018) findings and Table 6.3 is that the overall VST scores obtained by the Politecnico students (all above 100) were considerably higher than the mean VST score of Drummond's students with IELTS 7.0 and 7.5 (82 and 95, respectively). This may be explained by the influence of the test-takers' L1, which was Italian in the case of the Politecnico students, and Chinese, Turkish and Arabic in Drummond's study. Almost half of the items tested in the VST are Latinate cognates with Italian, and a further number of items are loanwords in Italian (*rouble, yoghurt, emir, pub, quiz, yoga, beagle*). The issue of cognates and loanwords

in vocabulary size tests is examined in the discussion of the VST in Section 6.2.1 below.

To sum up the discussion in this chapter so far, the vocabulary learning goals in order to score at least 7.0 in IELTS AR should be, foremostly, frequency bands 1-3k, followed by as much mid-frequency vocabulary as possible. It can generally be assumed that students at more advanced levels of proficiency should have acquired high-frequency vocabulary, and research has found this to be largely true in terms of whole frequency bands (Schmitt et al., 2021). Thus, it may seem futile to propose that IELTS candidates should particularly focus on the high-frequency bands. However, recent research shows that it cannot be assumed that students know all the words in each frequency band (Kremmel, 2016; Kremmel & Schmitt, 2016; Schmitt et al., 2021). This can be seen in Table 6.3, where the students did not consistently score 100% in each of the frequency bands 1-3k. As the findings in the present chapter and in Chapter 5 clearly identify the crucial importance of the first 3000 most frequent word families in English for IELTS AR, it cannot be sufficiently underlined that even students whose overall proficiency level suggests they already know these words should ensure they effectively do know them. The remaining part of this chapter looks into ways to do this.

## 6.2. Learning vocabulary for IELTS AR through self-study using frequency-based lists

Learning vocabulary is notoriously a complex task, requiring a significant investment of time and effort. One of the elements that most strongly influences the complexity of developing a vocabulary learning program is the difficulty of clearly defining task boundaries and learning goals. Typical questions that are often hard to answer

as a result of lack of information and pedagogical principle are where to start from, and how much is enough. Identifying the most efficient approach and the materials useful for its implementation are further difficult issues. Many answers have been proposed in the field, some of which are reviewed in Chapters 1 – 3. However, solutions found by research notoriously take a long time filtering through to busy practitioners, let alone to learners; unfortunately, pedagogical materials also seem to suffer from a disconnection from research findings (Borg, 2009; Schmitt, 2019; Thornbury, 2015; Ur, 2017). As a result, learners and practitioners alike are still often at a loss as to how best to approach acquiring vocabulary.

As is discussed in Chapter 1, there is an ongoing debate as to whether intentional or incidental vocabulary learning is more effective (Cobb, 2007, 2016; Hulstijn, 2001; Krashen, 1989; Lindstromberg, 2020; McQuillan, 2016, 2019a, 2019b, 2020; McQuillan & Krashen, 2008; Webb, 2020). However, the balance in the field today seems to be mostly weighted towards a combined intentional – incidental approach (Nation, 2007; Schmitt & Schmitt, 2020; Webb, 2020; Webb & Nation, 2017). In terms of implementing this approach, some crucial issues have yet to be more clearly defined, namely where and how to learn, and who bears the main responsibility for the learning. The classroom is widely held to be the main locus for vocabulary learning, with out-of-class learning and self-study viewed as important, albeit secondary (Gu, 2020; Lawley, 2010b; Nation, 2007; Newton, 2020; Schmitt & Schmitt, 2020; Webb & Nation, 2017). As a result of this view, the teacher tends to be awarded a key role in the vocabulary learning process, and textbooks are often the main materials used. Yet Chapter 1 argued that vocabulary learning for receptive purposes is likely to be most efficaciously learnt through self-study, and this is supported by recent literature (Nation, 2021). An exam class can doubtlessly play

a key role in the candidate's overall preparation, as it allows students to become familiar with the exam format and its marking criteria, learn useful strategies to tackle exam tasks, do supervised practice of exam-type questions and develop their language skills. What the exam class cannot provide, however, is enough time to acquire sufficiently large amounts of vocabulary. Homework is clearly not a solution, because the amount of learning that needs to take place is such that far more time is needed for it than can be expected of homework sessions. The vocabulary load calls for a dedication equal to or greater than the time devoted to classwork, and calls into question the balance usually granted to classwork and out-of-class work.

Fortunately, a vocabulary-learning program for IELTS AR may be more easy to outline than a program for more general purposes. In the first place, this thesis has identified the specific vocabulary target for success in the test: the first 3000 most frequent word families in English, including high-frequency MWUs (Martinez & Schmitt, 2012). The discussion in the first part of this chapter showed that it seems wise to also strive to learn as much mid-frequency vocabulary as possible, i.e. word families and phrases between frequency levels 4k and 8k (Schmitt & Schmitt, 2014). With regard to the best way to learn this vocabulary, given the limited time available to prepare for the exam that is characteristic of average IELTS candidates, intentional vocabulary learning seems the most expeditious and efficient approach. Although it is clear that a good balance of implicit and intentional learning is the optimal path to vocabulary learnig, this requires a major investment of time, which is unlikely to be available in the context of IELTS preparation, as discussed in Chapter 2. By contrast, it appears that intentional vocabulary learning alone can produce quite a large amount of learning in a relatively short space of time with regard to receptive knowledge, and particularly

for form-meaning recognition i.e. the essential vocabulary knowledge needed for reading (Nation, 2013; Schmitt, 2014, 2019; Sökmen, 1997; Webb, 2020; Webb & Nation, 2017). In terms of where the learning should take place, Chapter 1 argued that the classroom would not seem to be the optimal locus, given the limited amount of time typically available for IELTS preparation, together with the fact that much classroom time tends to be dedicated to exam practice and developing exam strategy. Rather, Chapter 1 argued that self-study is key, which shifts the focus of responsibility for learning to the learner, with the teacher in the role of guide rather than source of learning. Finally, Chapters 2 and 3 showed that existing IELTS training materials are largely inappropriate for effectively learning the vocabulary needed for success in the AR test. Other, more suitable materials are needed, and the outcome of Chapter 5 suggests that these are likely to be pedagogical word lists.

This section proposes a possible framework for learning vocabulary for IELTS AR on the basis of the findings in Chapter 5, taking into consideration the issues outlined above – defining the learning task and identifying the most efficient approach and pedagogical materials. The analysis and discussion of the vocabulary in the CIPT AR passages studied in this thesis indicate that in order to successfully read average IELTS AR texts it is necessary to be equipped with a solid receptive knowledge of the word families and MWUs in the high- to mid- frequency ranges. Chapters 2 and 3 evidenced that, to date, no pedagogical materials have been developed that meet this need. In reality, however, the "raw" materials already exist, although to the best of the author's knowledge they seem to be under-promoted in relation to learning vocabulary for IELTS: the BNC-COCA 1 – 25 word family lists created by Nation (2012a, 2016). IELTS candidates can freely access these

lists on the *Lexutor* website (Cobb, 2023a)[69], and work through the 1-3k lists, followed by lists 4k+. The list resource on *Lextutor* also provides tools for autonomously learning the lists, which students could profitably use. Alternatively to using this list-learning approach, the k-lists could be transferred to a digital flashcard application and learnt through word- or flash cards. A future path, that would require materials writers well-informed by research, would be to develop pedagogical materials around the k-lists for the purpose of learning vocabulary for IELTS. These different paths for using the frequency-based word lists are discussed in the next subsections.

### 6.2.1. Determining the starting point: a vocabulary size test

It is a broadly shared view that learners usually know more high-frequency than lower-frequency lexis (Kremmel, 2016; Schmitt et al., 2021). Indeed, IELTS candidates aiming for a score of 7.0 or more are likely to already know much of the vocabulary in frequency levels 1 – 8k, as suggested by the data from the successful Politecnico di Torino IELTS candidates in Table 6.3. Even students starting IELTS training from lower levels of proficiency are unlikely not to know quite a bit of this vocabulary, given its high- to mid-frequency. However, as Table 6.3 exemplifies, it is not a given that all the word families are known, much less all the word family members. Research shows that this seems to be the case particularly for derivative word forms (Schmitt et al., 2021). In fact, classroom experience confirmed by research (Lawley, 2010; Webb & Nation, 2017) suggests that many learners lack surprising amounts of high- and mid-frequency vocabulary. Thus, when learning vocabulary for IELTS AR it should be useful to first determine where to start from.

[69]The BNC-COCA lists with guidance and tools for learning them: https://www.lextutor.ca/list_learn/

One expeditious way of doing this could be taking a vocabulary size test.

The Vocabulary Size Test (VST - Nation & Beglar, 2007) is a meaning-recognition test that measures receptive vocabulary size by assessing receptive knowledge of frequency levels 1k to 14k using a multiple choice format. Screenshots of the first two levels (1k and 2k) of the VST test are shown in Figures 6.5 and 6.6 respectively. The test is freely available in the tests area on *Lextutor* (Cobb, 2022)[70] in both an online and a downloadable print version.

The VST aims to supply an idea of a test taker's vocabulary size by testing the receptive knowledge of ten headwords from each frequency level 1k to 14k, for a total of 140 target words. Each item in each k-level represents a 100-word family, as the test assumes that knowledge of the headword reflects knowledge of the entire family, i.e. a test-taker scoring 100% would be assumed to know all the word families 1-14k. Scores therefore need to be multiplied by 100 in order to obtain the effective total score.

[70] The VST can be accessed from this *Lextutor* page for vocabulary tests: https://www.lextutor.ca/tests/

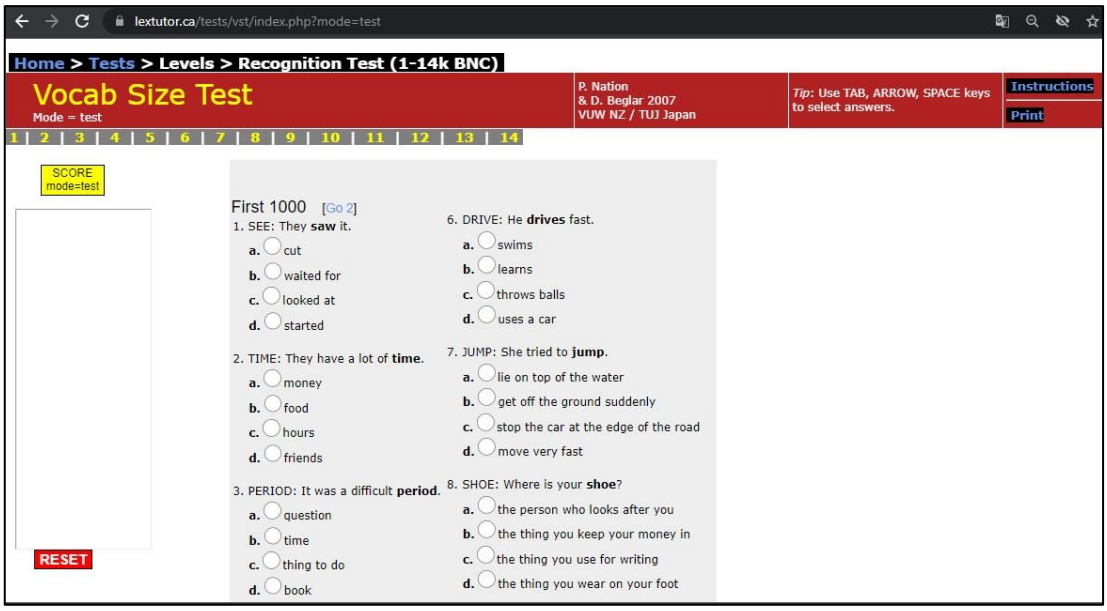



**Figure 6.5:** The beginning of level 1k on the online version of the VST (Nation & Beglar, 2007).

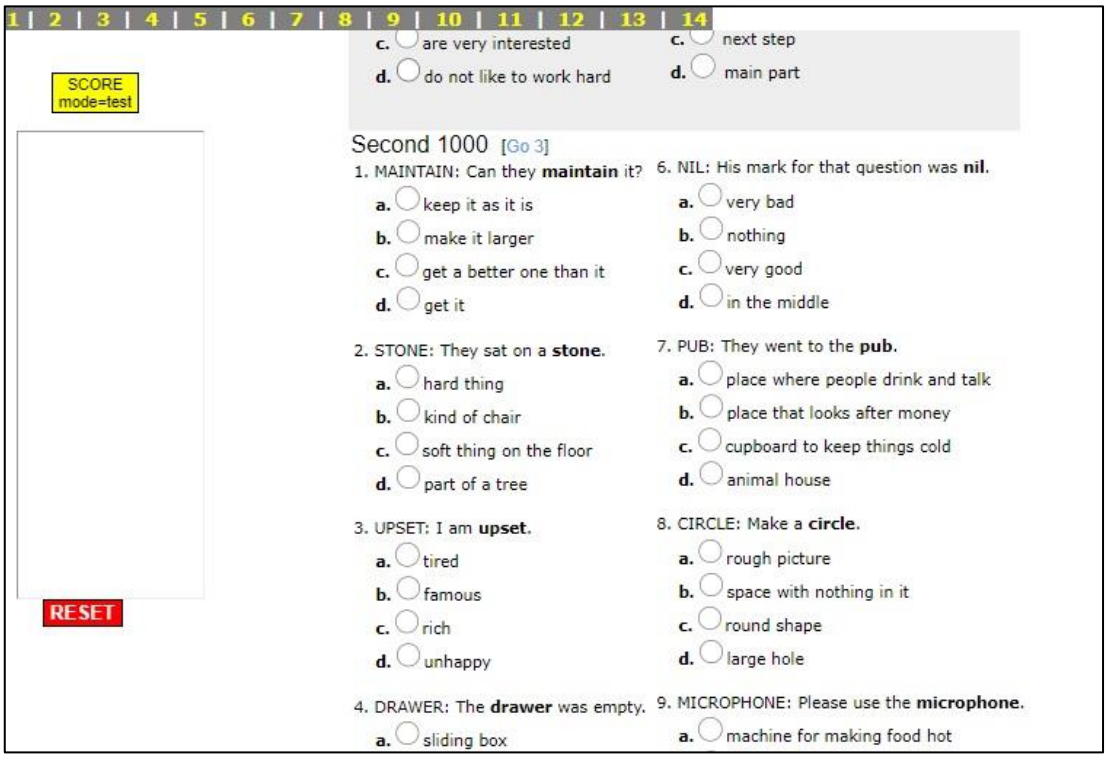



**Figure 6.6:** The beginning of level 2k on the online version of the VST (Nation & Beglar, 2007).

The VST reports both overall size and scores at each k-level, thus providing an indication of how well each k-level is known. However, the test specifications (Nation, 2012b) underline that the scores for

each k-level are not reliable measures of the degree to which the level is known, as not enough items are tested at each frequency band, and it is rather the total score that is relevant. By contrast, the instructions for the test, that can be found together with the test on Lextutor (Cobb, 2022)[71], seem to claim that the k-level scores can provide an estimate of the degree of knowledge of each level: "[the VST] will further give you an estimate of where it appears you should be working to expand your lexicon, on the basis of the highest level where you score <80%". Figure 6.7 shows how the scores are presented upon completion of the test. As can be seen in the figure, the results include a suggested level to start learning from, which again contradicts the caveat in the test specifications (Nation, 2012b) regarding the lack of reliability of the scores for each level.

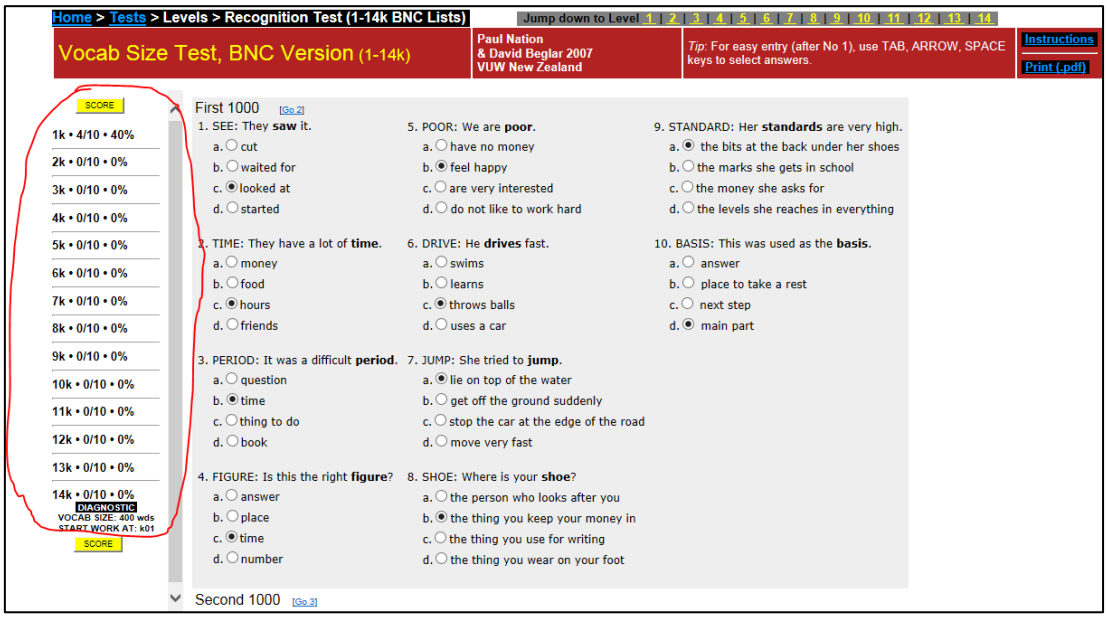



**Figure 6.7:** The scores obtained in a VST test, indicating the percentage attained in each k-level, the total vocabulary size, and the recommended k-level from which to start learning.

Each test item consists in a headword from the k-list tested (1k, 2k, 3k, etc.), followed by a short non-defining sentence that contains

[71] Test instructions for the VST: https://www.lextutor.ca/tests/vst/instructions.html

the word, as shown in Figures 6.5 and 6.6. The test specifications clarify that the words used in the example sentences are taken from the first 500 most frequent words in English (Nation, 2012b). These example sentences have the combined purpose of indicating the target word's part of speech, disambiguating possible homographs or cases of polysemy, and providing an example of use (Nation, 2012b). The four multiple-choice options consist in possible definitions or (near) synonyms of the target word, and test takers need to choose the option that best captures the meaning of the target word from this list of four. The test specifications explain that the words used for the choices in levels 1 – 2k are taken from the first 1000 words in the GSL (West, 1953), while those used for the options in levels 3k and beyond are taken from the first 2000 words in the GSL (Nation, 2012b).

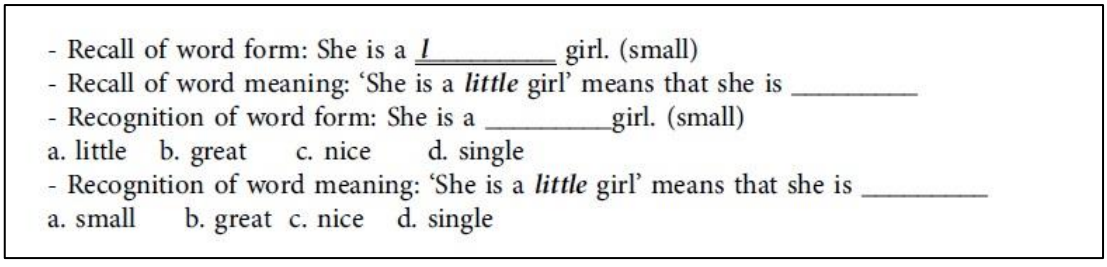
The VST is a test of single words, and therefore does not include compounds or MWUs. In order to obtain a more complete picture of vocabulary a learner's vocabulary size, it would be advisable to also take the Phrasal Vocabulary Size Test (PVST - Martinez, 2011). This test can provide an indication of the number of PHRASE List MWUs (Martinez & Schmitt, 2012) a test taker knows, and is freely available in the tests area on *Lextutor* (Cobb, 2022)[72]. The PVST is constructed along the same lines as the VST and tests 10 items for each of the five frequency bands that make up the PHRASE List. A view of the test is provided in Figure 6.8.

[72] The PVST (Martinez, 2011) can be accessed from this *Lextutor* page for vocabulary tests: https://www.lextutor.ca/tests/


**Figure 6.8**: A view of the first questions in the online PVST (Martinez, 2011).

The VST could be a suitable test to determine where to start an IELTS AR vocabulary-learning program for a number of reasons. The main reason is that it provides a breakdown of vocabulary size by k-level, evidencing which k-levels seem to be known better or worse. The starting point for a vocabulary learning program could be based on the less-well known k-levels evidenced by the test.

A second important reason for suitability is that the VST demonstrates a high level of psychometric unidimensionality (Beglar, 2010): that is, it tests one feature only – receptive vocabulary size through meaning recognition. This is a characteristic that distinguishes the VST from other authoritative vocabulary size tests, such as CATSS (Aviad-Levitzky, Laufer & Goldstein, 2019)[73]. In contrast with the VST, CATSS tests both receptive and productive vocabulary size, as it requires recalling the target words as well as recognizing them. Furthermore, CATSS separately tests knowledge of meaning and form, through test items that include one-letter prompts (for form recall) or require a one-word definition (for meaning recall), or multiple-choice (for recognition of form and meaning). Some example test items from CATSS can be seen in Figure 6.9.


- Recall of word form: She is a *l*_____ girl. (small)
- Recall of word meaning: 'She is a ***little*** girl' means that she is _____
- Recognition of word form: She is a _____girl. (small)

a. little b. great c. nice d. single

- Recognition of word meaning: 'She is a ***little*** girl' means that she is _____

a. small b. great c. nice d. single

**Figure 6.9:** Some examples of CATSS test items and their assessment purposes (Aviad-Levitzky, Laufer & Goldstein, 2019).

[73] The CATSS test (Laufer & Aviad-Levitzky, Laufer & Goldstein, 2019) can be accessed from this *Lextutor* page for vocabulary tests: https://www.lextutor.ca/tests/

Meara and Jones' (1990) Yes-No test, another popular vocabulary size test, assesses only receptive knowledge through a simple check format, where test-takers check all the words they feel they know, leaving all unknown words unchecked. Figure 6.10 shows the first questions in the version of this test available on Lextutor (Cobb, 2022)[74]. A longer version developed by Meara and Mirlapeix (2015) can be accessed on the *_lognostics* website (Meara, 2022). A screenshot from this version can be seen in Figure 6.11.

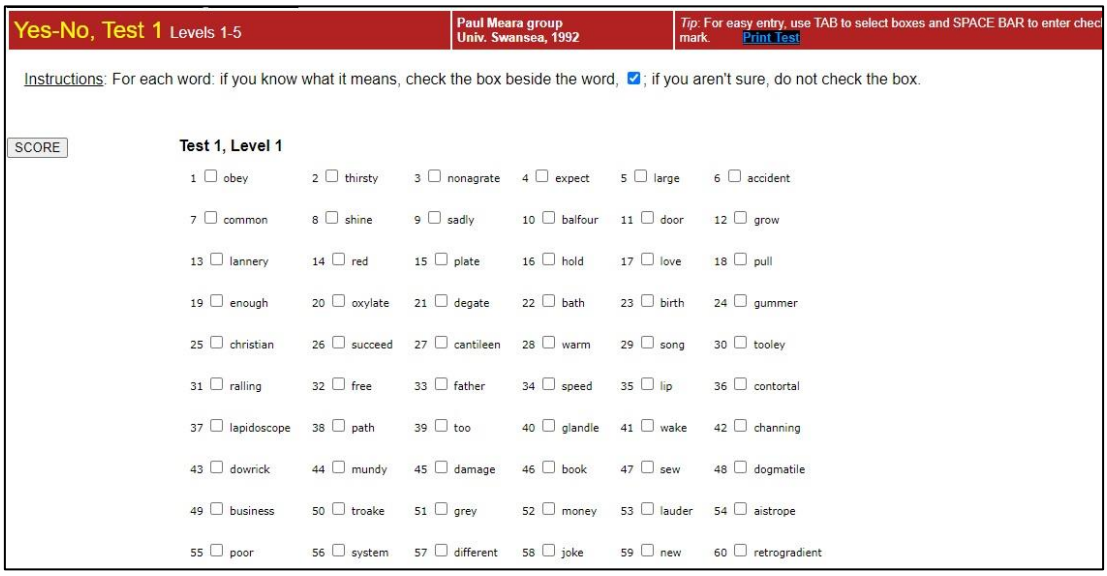



**Figure 6.10:** A view of the first questions in the Yes-No test (Meara & Jones, 1990) on Lextutor (https://www.lextutor.ca/tests/).

[74] The Yes-No test on *Lextutor* can be accessed here: https://www.lextutor.ca/tests/

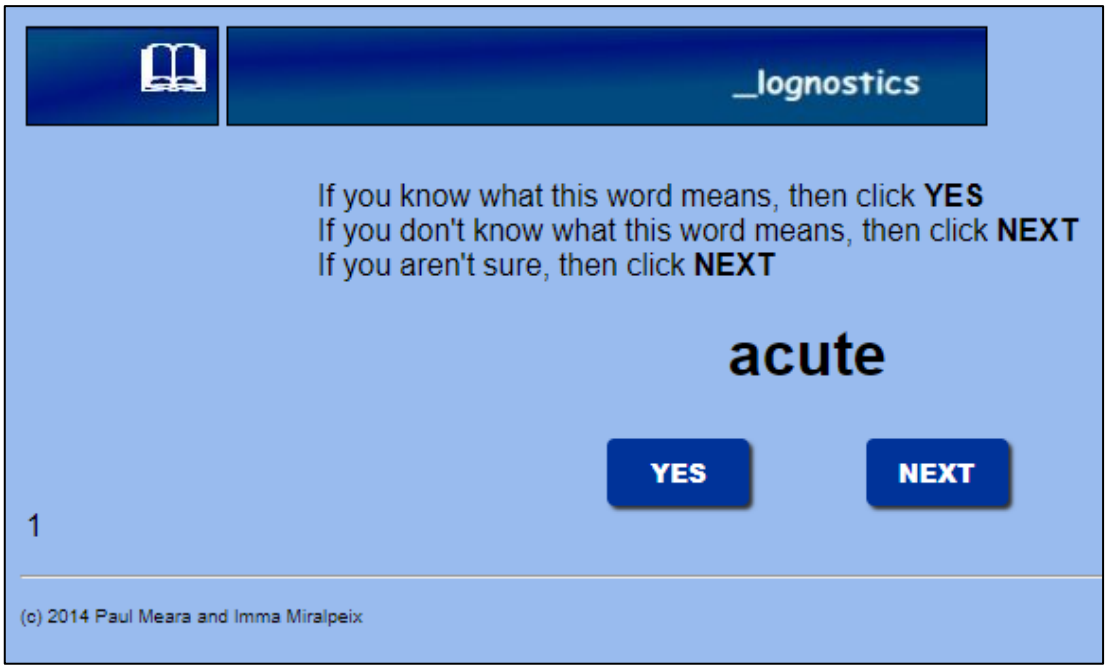



**Figure 6.11:** The first item on the Yes-No test (Meara & Miralpeix, 2015), available on _lognostics (https://www.lognostics.co.uk/tools/index.htm).

It should be noted that the Yes-No test was developed from Hindmarsh's (1980) *Cambridge English Lexicon* and therefore this test cannot be used in combination with the BNC-COCA lists. As a result it would be less straightforward to use it for the purposes of learning vocabulary for IELTS AR as outlined in the present investigation.

Further reasons for the suitability of the VST are that it is simple to use - the instructions and score reporting are clear and simple, and the test is straightforward; it is web-based and therefore does not require laborious paper-based procedures; it is available free of cost online on *Lextutor*, which does not require registration. Finally, the VST has been validated by research (Beglar, 2010).

It is appropriate to note here that the VST has received important criticism in the literature over the past few years. Kremmel and Schmitt (2016) question the validity of existing vocabulary size tests in general because, they point out, these tests are not able to

provide demonstrable evidence of what the test taker can actually do with the items correctly identified. Rather, the authors sustain, these tests are based on tradition and are in need of empirical validation. Kremmel (2016) is critical of the use of the word family as the counting unit in vocabulary knowledge tests, as the VST does. He argues that research has proven that knowledge of word families is often less solid than the results of size tests based on this unit would attest. Knowledge of the headword of a word family does not guarantee knowledge of all the family members, particularly with regard to derivatives, as shown in Kremmel and Schmitt (2016) and Schmitt and Zimmerman (2002). He further argues, with Schmitt (2010a), that psycholinguistic findings suggest that the links between the members of a word family may not be as strong in the L2 as in the L1 (Silva & Clahsen, 2008). Instead, Kremmel (2016) advocates the use of the lemma for testing purposes. A lemma consists in a base word (e.g. teach) and its inflected forms (teaches, teaching, taught), while a word family includes all the semantically related forms of the base word, as well as its inflected forms. Thus, a lemma is a smaller cluster than a word family, and as such may allow for more reliable testing.

Kremmel (2016) also criticizes the choice of 1000-word bands for the various frequency levels, articulating and carrying forwards the doubts already formulated by Schmitt (2010a), who pointed out the lack of empirical research reassessing the utility of frequency clustering for testing. Kremmel questions the validity of using 1000-word bands across the frequency continuum, suggesting that a different grouping of these levels might be more appropriate in the light of existing research. Namely, he holds that smaller bands could be more informative of a test-taker's knowledge of vocabulary at the high-frequency end, while larger bands of several thousand lemmas together might be more useful for low-frequency vocabulary.

Gyllstad, Vilkaite and Schmitt (2015) take issue with the test format used in the VST (multiple choice), which they view as a major distorting factor that has been overlooked by research so far. They underline that it is well-known that the multiple-choice format carries with it the risk of overestimating scores due to guessing on the part of the test-takers. Secondly, they consider that it is not clear that the number test items (10 per frequency band, for a total of 140 sample words, each item representing 100 word families in the frequency band) is sufficient to represent an accurate sample of the words in the frequency bands each item purports to test. They performed a case study that showed that, as it stands, the VST seems only able to provide a very rough estimate of vocabulary size. For greater precision, they found that it would be necessary to increase the number of items for each frequency band. Overall, and as a result of the two problems discussed, Gyllstad, Vilkaite and Schmitt (2015) conclude that the VST tends to overestimate test-takers' vocabulary size. In relation with this, Szabo (2016) considers that in general, vocabulary size tests tend to overestimate test-takers' vocabulary size when they are used on speakers of Romance languages due to the high number of cognates with English.

In response to some of these criticisms, Nation (2016) reaffirms the validity of the word family as a suitable counting unit for receptive testing purposes, while he recognizes that the lemma might be more suited for productive testing purposes. He argues that knowledge of the main word-building devices in English morphology, together with context clues, should normally be sufficient for a learner to understand derived forms. As different word forms typically require different collocations and syntax, the more restricted lemma counting unit is likely to be more appropriate for testing productive knowledge.

The issue of overestimation of vocabulary size in speakers of Romance languages is countered by Nation (2012b) in the test specifications for the VST. Nation claims that "loanwords and cognates are a legitimate part of a learner's second language vocabulary size", and as such should not be removed from the test, as this would misrepresent the results. The high total VST scores achieved by the three Italian IELTS candidates discussed in Section 6.1.2 can therefore be seen as a realistic reflection of the advantage afforded by these students' L1 in IELTS AR. In fact, the reading passages in this test may contain as much as 85% of words of Greco-Latin origin. This is exemplified in Figure 6.12, which shows the percentages of Greco-Latin words in a selection of CIPT passages. These sample percentages tally with figures of Greek/Latin-origin words in English advanced in the literature, namely around 60% in general English and up to 80 - 90% in academic English (Green, 2014; Minkova & Stockwell, 2009).

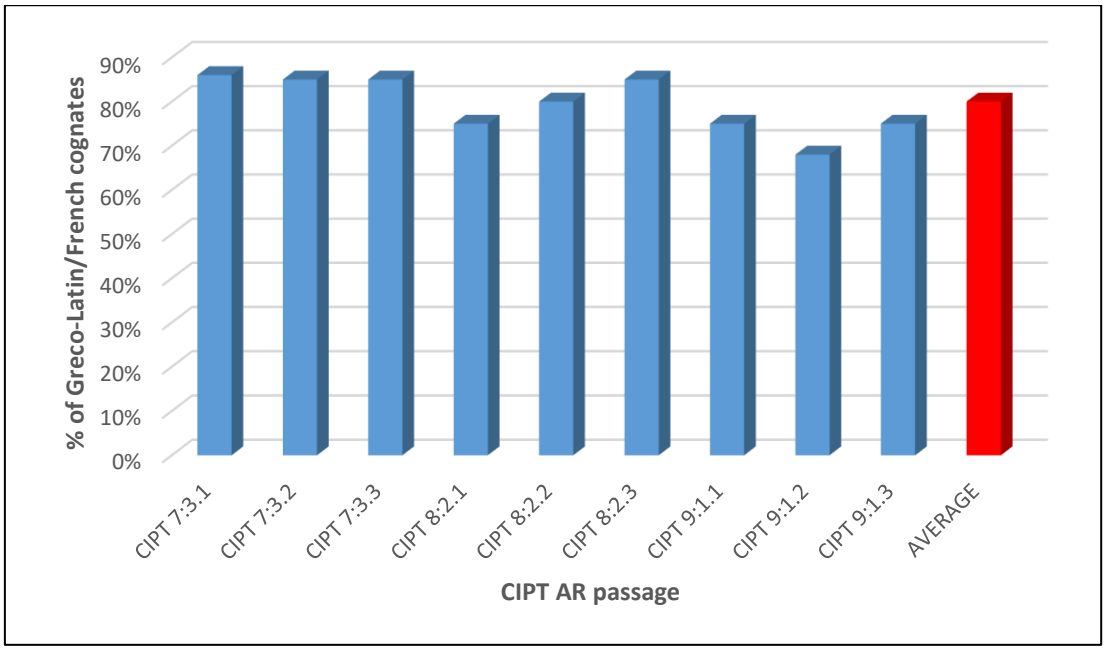



**Figure 6.12:** Percentage of Greco-Latin/French cognates in a sample of CIPT AR passages, obtained using *Web VP Classic* (Cobb, 2022), available at https://www.lextutor.ca/vp/eng/.

Although the critical studies discussed above bring to light some important issues regarding the test that undoubtedly need to be addressed by the research, none of them deny the ability of the VST to provide an estimate of vocabulary size. Therefore, this thesis argues that the criteria for choosing the VST over other existing vocabulary tests to determine a starting point for learning vocabulary for IELTS AR is not invalidated by the field's criticism of the test. Ultimately, to begin learning vocabulary for IELTS AR it is necessary to first determine what is already known and what is not, and the VST seems to be able to supply this information in a pedagogically useful way. Thus, it is felt that the VST is a suitable tool in the vocabulary learning program towards IELTS AR outlined by this thesis.

### 6.2.2. Learning the k-lists

Once the individual starting point has been established, one immediately available approach to learning vocabulary for IELTS AR is to directly learn, through self-study, the k-lists identified in this thesis as useful towards success in the test. The explicit learning of word lists has been shown to be a quick and efficient way to learn large amounts of vocabulary (Laufer & Shmueli, 1997; Sonbul & Macis, 2022). List-learning lends itself well to self-study, and there are numerous references in the literature that stress the efficacy of self-study over classroom study, especially with regard to vocabulary learning for receptive purposes (Lawley 2013; Nation, 2021; O'Keefe, McCarthy & Carter, 2007; Schmitt, 2000). At the same time, and as is argued in Chapter 1, if self-study is a fundamental component of vocabulary learning in general (Nation, 2021), in the case of IELTS preparation it becomes essential, given that precious classroom time is far better spent on interactive aspects of skills- and exam strategy development.

The BNC-COCA word lists are readily available for self-study on *Lextutor* (Cobb, 2022) in the *ListLearn*[75] resource. Figure 6.13 shows the home page of this cost- and registration-free resource. The tool proposes learning the words in the lists using the various tools on the resource, as described below.

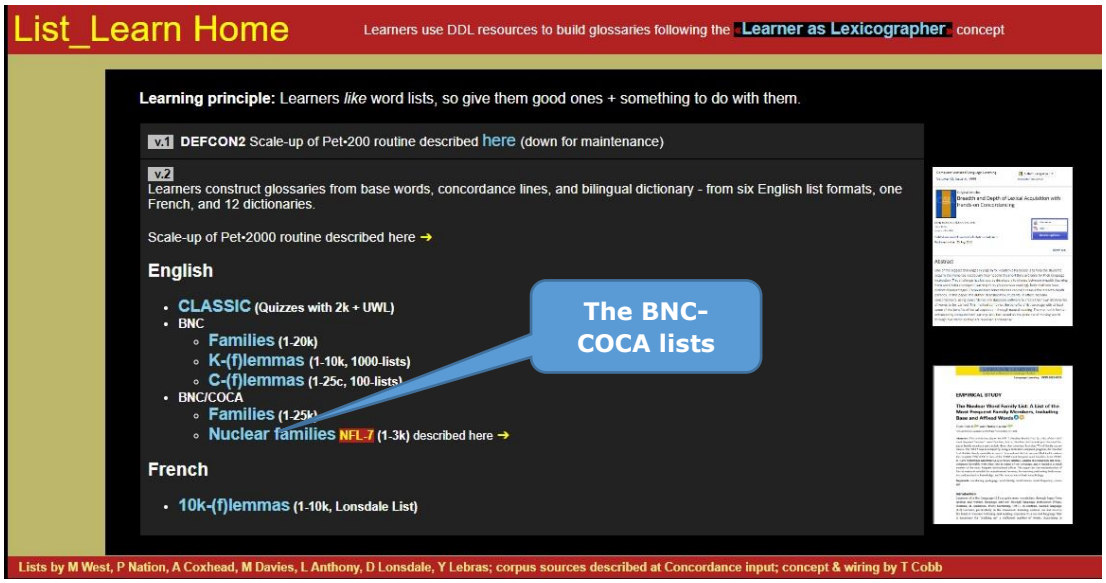



**Figure 6.13:** The home page for ListLearn (*Lextutor*, Cobb, 2022, https://www.lextutor.ca/list_learn/). The BNC-COCA 1-25 word lists are among the lists available here.

Once "BNC-COCA families" has been clicked on from the home page, the following interface opens (Figure 6.14):

[75] The home page of the *Lextutor ListLearn* resource (Cobb, 2022): https://www.lextutor.ca/list_learn/

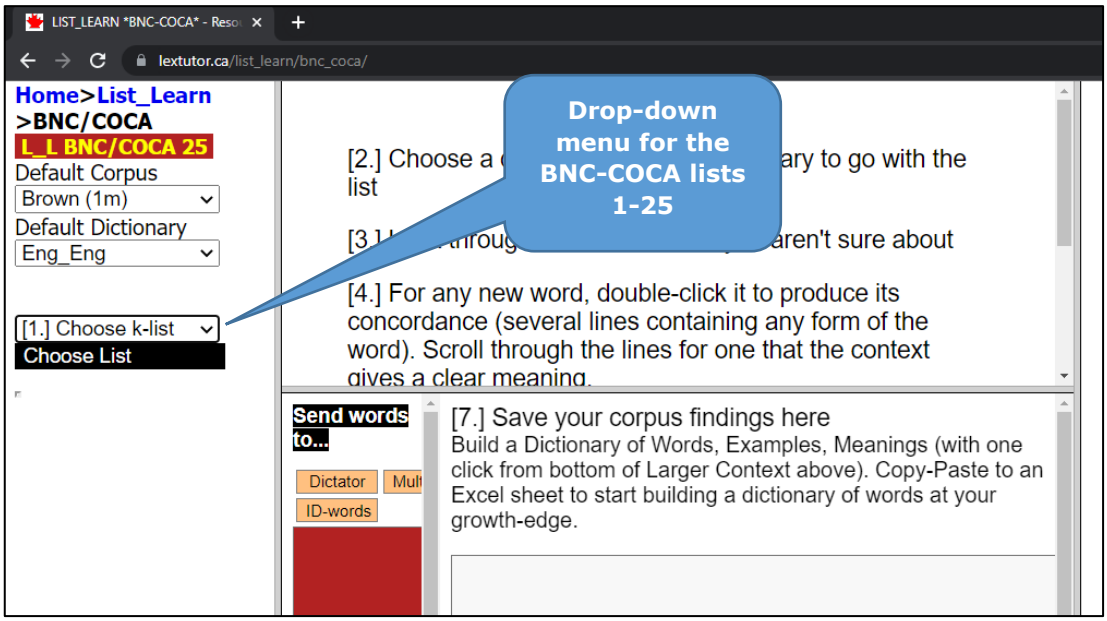



**Figure 6.14:** The user interface on ListLearn (Cobb, 2022, https://www.lextutor.ca/list_learn/bnc_coca/). The BNC-COCA word lists can be accessed from the area highlighted.

Clicking on "[1]Choose k-list" (see Figure 6.14) opens a drop-down menu containing all 25 frequency lists. Clicking on one of these lists opens the full 1000-word- family list, which is presented in alphabetical order. Figure 6.15 shows the drop-down menu opened for the 3k list as an example. The tool suggests working through one list at a time, identifying any unknown or poorly-known words.

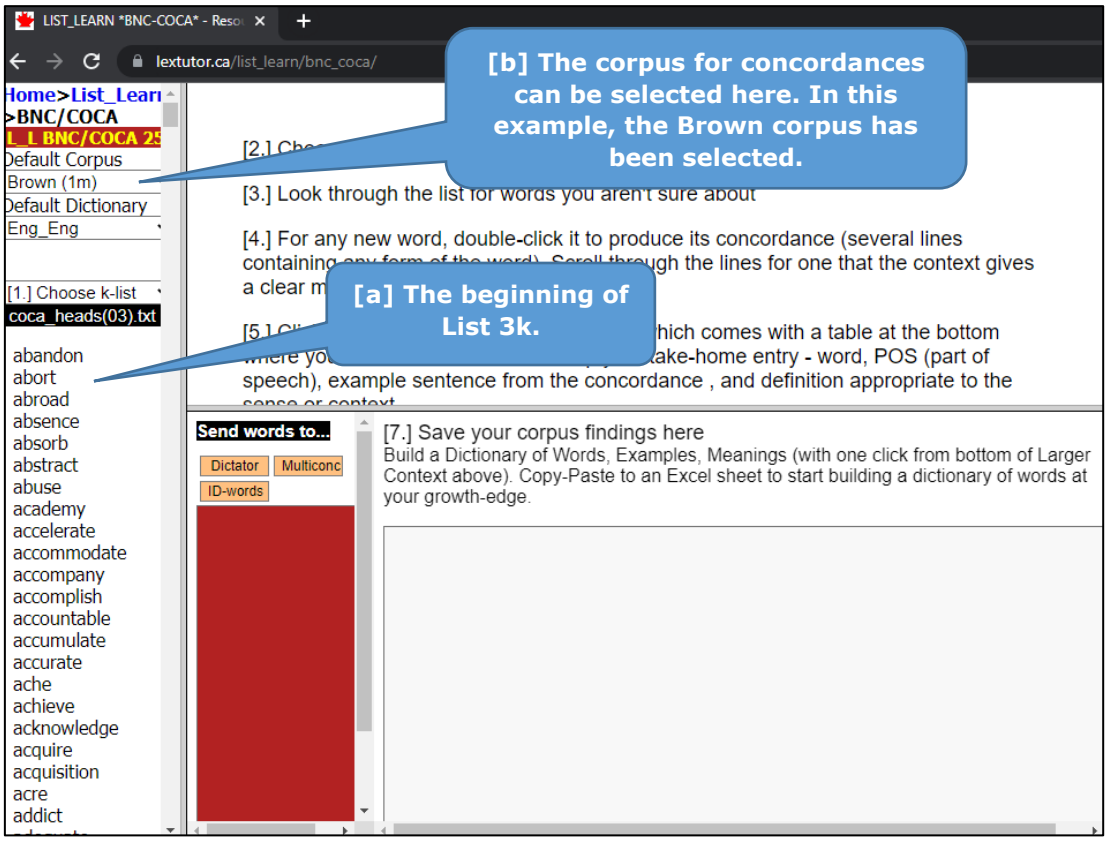



**Figure 6.15:** A view of *ListLearn* BNC-COCA families showing [a] the 3k list, [b] the support corpus selection feature. (https://www.lextutor.ca/list_learn/bnc_coca/)

A number of different tools are available to help learn the words. A language corpus can be selected in the top left-hand corner of the screen (identified with the letter [b] in Fig. 6.15). A double click on any word in the selected k-list will produce KWIC (Key Word In Context) concordance lines for that word from the chosen corpus. Figure 6.16 shows an example of some of the concordance lines generated for the word *accommodate* using the corpus *BNC – Written*.

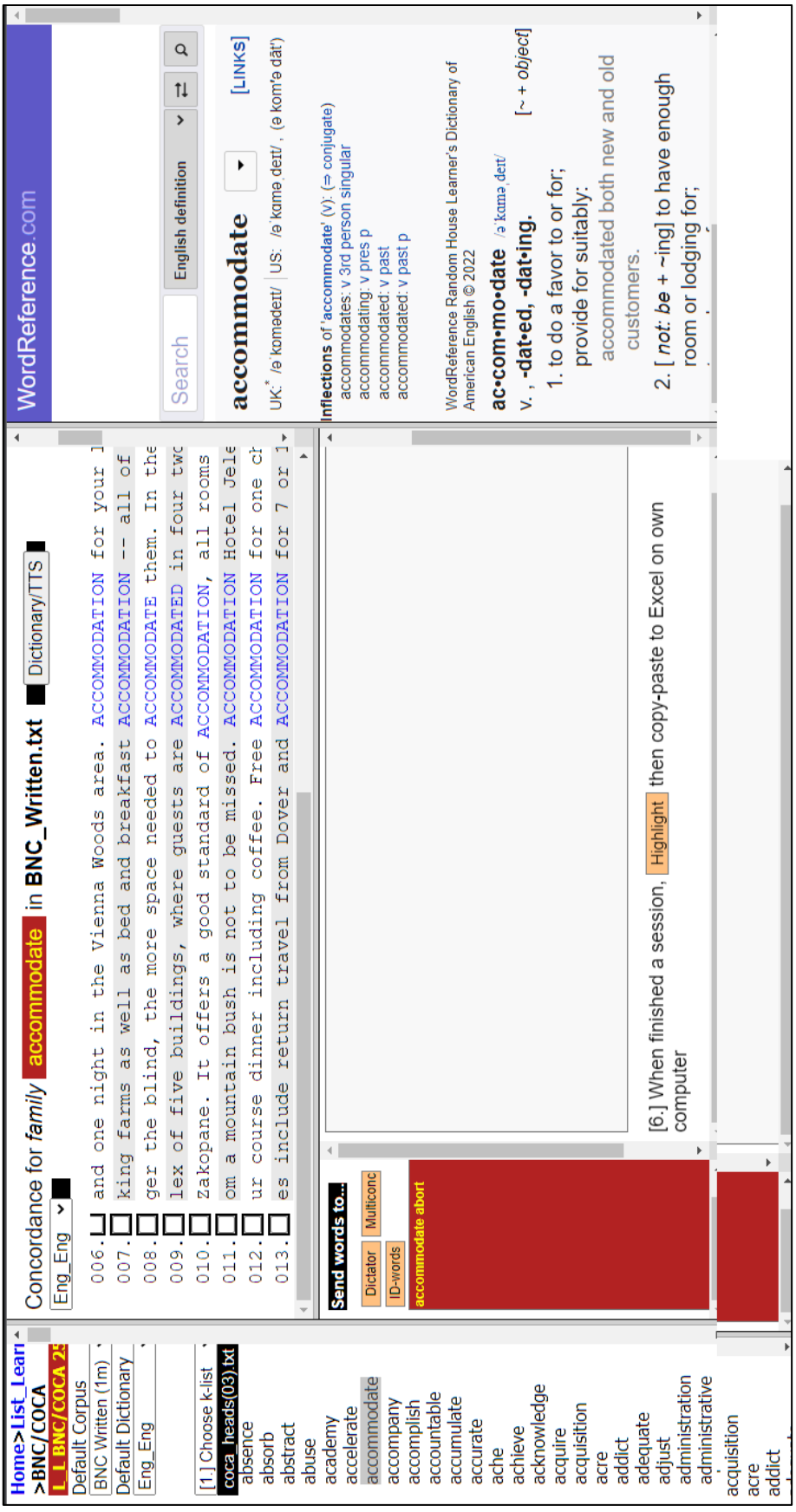



**Figure 6.16:** A screenshot of the concordance list and dictionary support provided for ACCOMODATE on https://www.lextutor.ca/list_learn/bnc_coca/.

A double click on the target word in any concordance line will open up more context for that example, as shown in Figure 6.17.

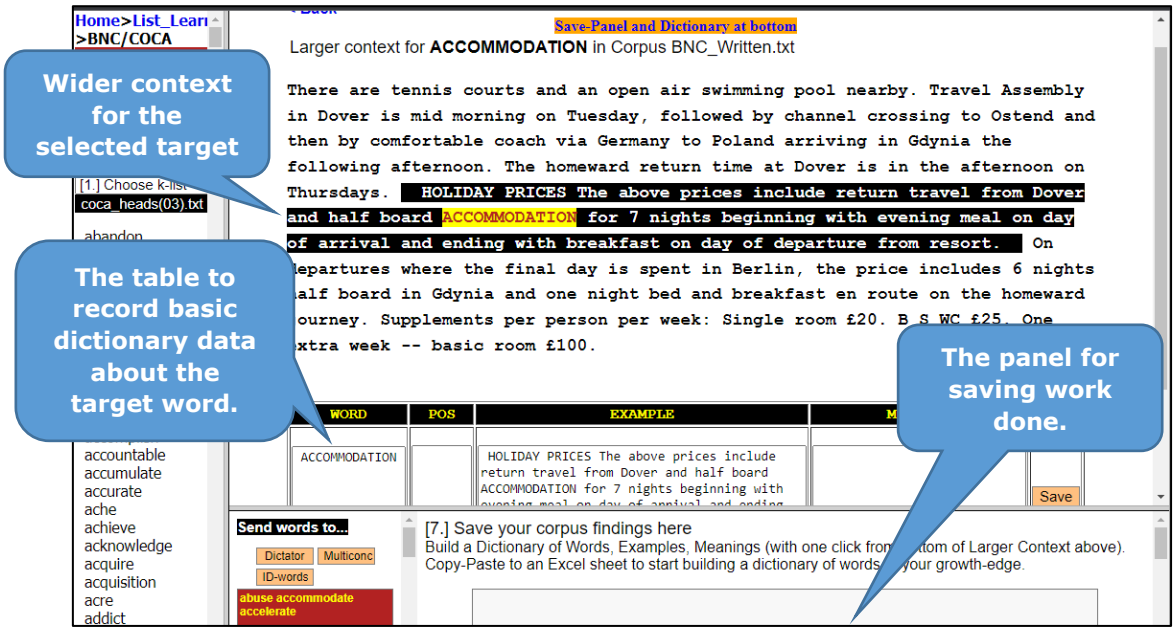



**Figure 6.17:** An example of larger context for the word ACCOMMODATION using the BNC Written corpus on ListLearn https://www.lextutor.ca/list_learn/bnc_coca/.

A table under the wider context allows the learner to record some basic information about the target word, with an example sentence from the corpus already provided. The learner needs to fill out the cells for part of speech and meaning, for which they can find help using the dictionary resource to the right of this area. A dictionary can be activated for translation into a variety of languages or English-English can be used. An example of the dictionary definitions for the word *accommodate* can be seen in Figure 6.16, where the English-English dictionary has been chosen. The table shown in Figure 6.17 can be filled-out and saved into a panel (marked with the number [7] in the figure), from where all the data collected can smoothly be copied and saved into an Excel sheet on the learner's own electronic device. This allows keeping the work done and developing a personalized, annotated word list that can be worked with at a later time, independently of *Lextutor*.

### 6.2.3. Learning from word cards

Not everybody enjoys learning vocabulary from lists, and some learners may not be comfortable using a tool such as *Lextutor's ListLearn*. In this case, a different option for learning the vocabulary in the k-lists could be to use digital word cards, or flashcards. The benefits of the flashcard technique for learning vocabulary have been outlined by the literature (e.g. Ballance & Cobb, 2020; Hulstijn, 2001; Nakata, 2020; Nakata & Webb, 2016), as discussed in Chapter 1. One popular flashcard tool available on internet is *Quizlet* (https://quizlet.com/). The free basic version of this tool allows users to upload lists of words and phrases, which are automatically recorded onto individual flashcards. The BNC-COCA lists could be uploaded as a set of cards which show the word or phrase on one side, whereas the student will need to insert a definition, example sentence or translation on the other side. An example flashcard with a headword from the 1k list is shown in Figure 6.18.

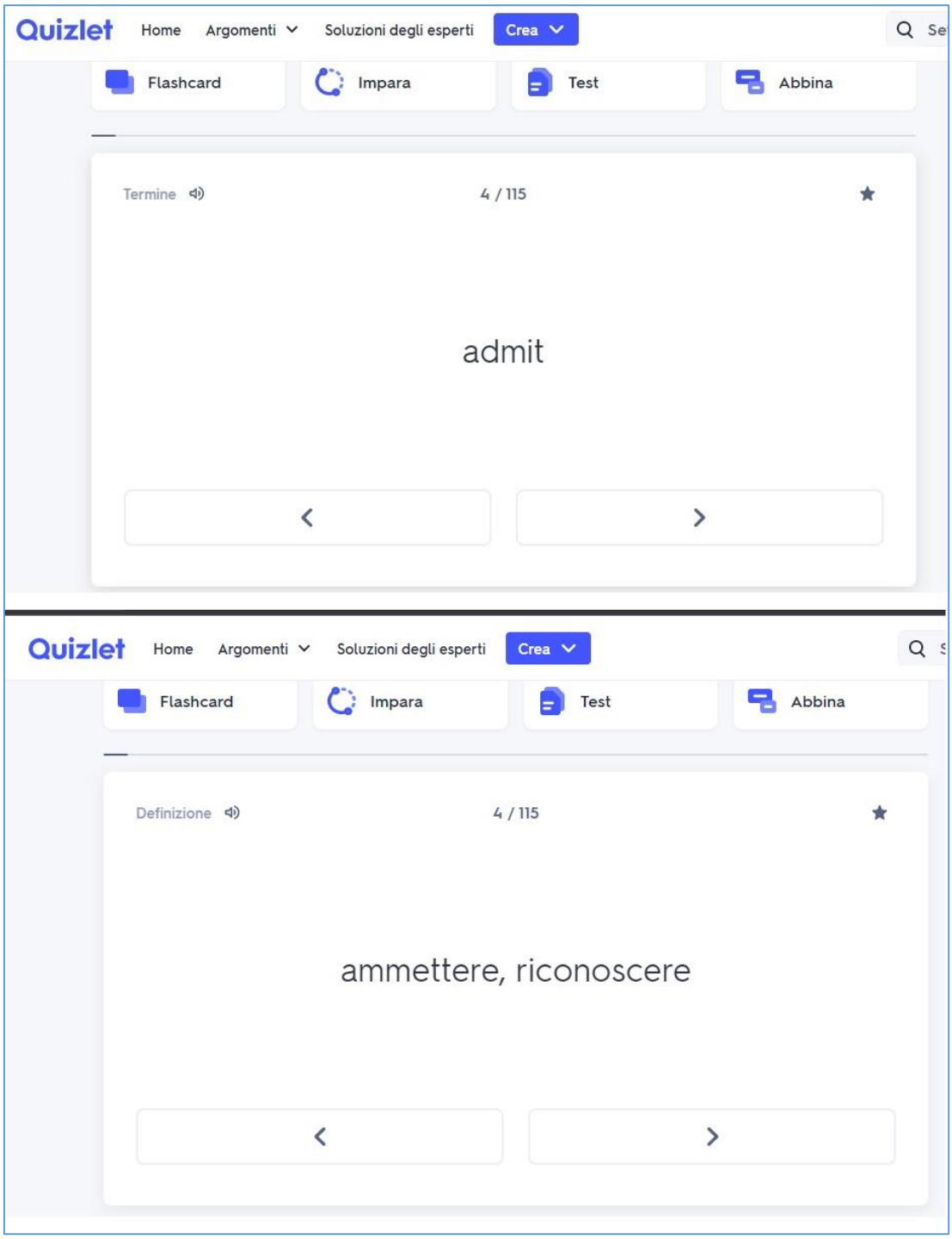



**Figure 6.18:** A Quizlet flashcard with a 1k word on one side (above) and an Italian translation on the other side (below).

A variety of word-learning tools are available on *Quizlet*, including tests, games and audio. The words can be learnt by simply working through the cards, testing memory. Checking can be performed by flipping cards over to reveal the definition or translation, if going from target word to meaning; the reverse approach is also possible,

to develop productive knowledge. Alternatively, the "Learn" mode can be selected, where a word from the list is provided together with four possible meanings, in the format recorded on the flashcard (i.e. definition, translation, example sentence). The correct meaning needs to be selected for each word that appears (see Figure 6.19). The tool immediately provides feedback indicating that the answer is correct, or showing the correct answer if a mistake has been made.

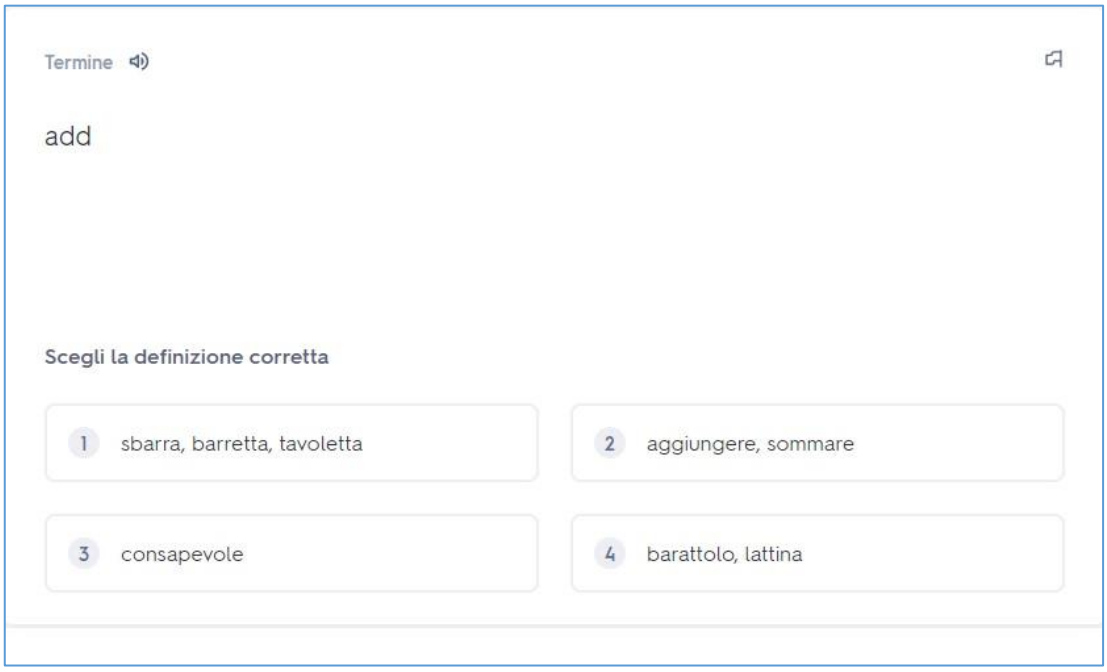



**Figure 6.19:** An example of the "Learn" mode on Quizlet. The correct Italian translation needs to be selected among the four choices at the bottom.

In "Learn" mode, another productive option is the dictation feature, where the learner must correctly write the target word heard by clicking an audio button (see Figure 6.20). Here too immediate feedback is provided, and progress is tracked with a simple progress bar in the margin.

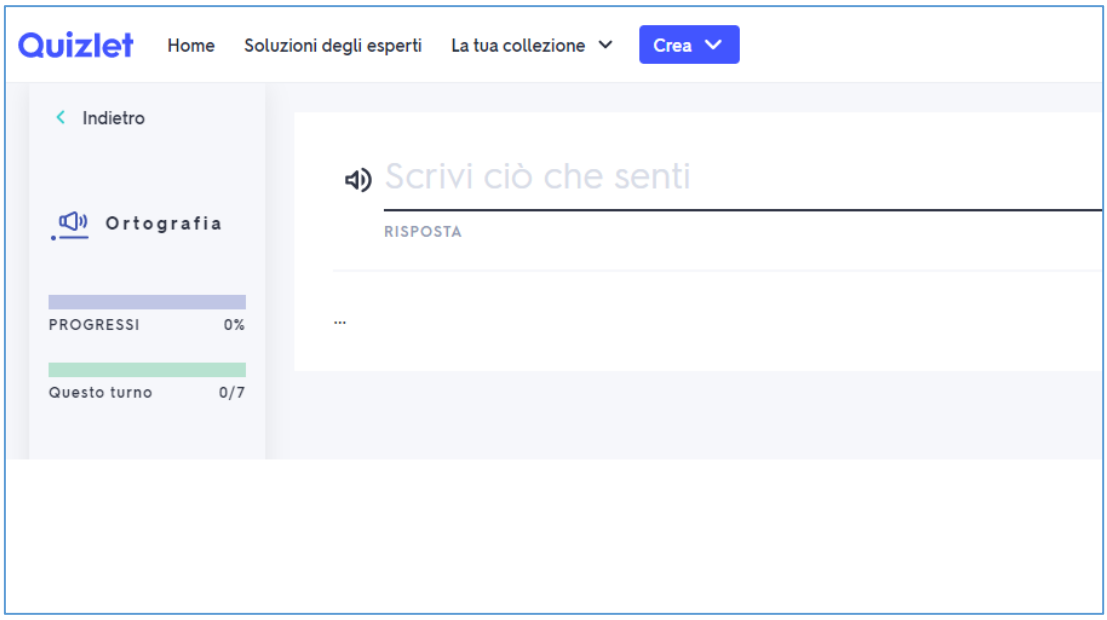



**Figure 6.20:** The dictation tool in the "Learn" mode on Quizlet. The tool dictates a target word which the learner needs to write correctly on the line provided. The score is recorded in the margin.

The "Test" mode uses a variety of activities such as translations, matching, multiple-choice and true/false questions. Here feedback is provided at the end of each test, rather than immediately after each test item. Some examples of different test activities are provided in Figures 6.21 and 6.22.

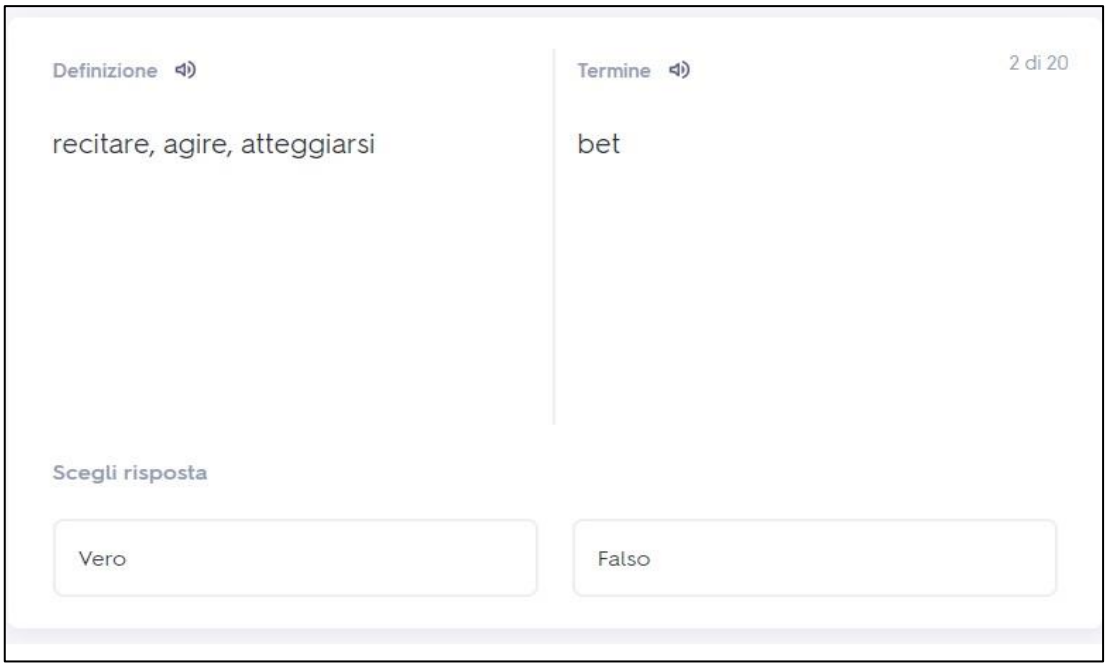



**Figure 6.21**: A True/False test item in the Quizlet "Test" mode. The learner needs to decide whether the Italian translation on the left is correct for the target word on the right, clicking the True (*Vero*) or False (*Falso*) button at the bottom.


**Figure 6.22:** A Matching test item in the Quizlet "Test" mode. The correct target word needs to be dragged and dropped next to its correct Italian translation.

Currently, the free basic version of *Quizlet* only seems to include one game in the "Play" mode, although a recent review of the tool mentions three different games as being available (Sippel, 2022). *Match* is a timed game in which learners need to drag a target word

and its translation or definition on top of each other. Correct matches will make the pair disappear. An example of a *Match* game is shown in Figure 6.23.


**Figure 6.23:** A *Match* game on *Quizlet* "Play".

As can be seen, *Quizlet* is a simple, user-friendly tool that is easy to use for self-study. It has the ability to suit different preferred learning styles (e.g. rote memorizing, testing, and gaming) and can support translation into 18 different languages. It provides a variety of feedback (indicating correct or incorrect answers, supplying correct answers, tracking progress) and attempts to promote motivation through encouraging phrases and messages such as those shown in Figure 6.24.


**Figure 6.24:** An example motivational message that appears on conclusion of a *Match* game. The Italian text reads "You're ready for the challenge! Keep going to beat your record. Give it one more try and beat your record of 21,3 seconds!"

A further advantage is that *Quizlet* can be used on a computer or a mobile phone, thus leveraging the portability afforded by cell phones, facilitating the anytime-anywhere learning that these devices allow (Daly, 2022; Chinnery, 2006). *Quizlet* has received largely positive reviews in the literature in terms of its effectiveness for memorization purposes, its perceived usefulness and its reception and uptake by learners (Aksel, 2021; Cunningham, 2017; Daly, 2022; Dizon, 2016; Sippel, 2022; Tran, 2016; Wright, 2016). This tool therefore seems a good means through which to learn the vocabulary in the BNC-COCA lists with a view to success in IELTS AR.

### 6.2.4. Developing textbooks around the word lists

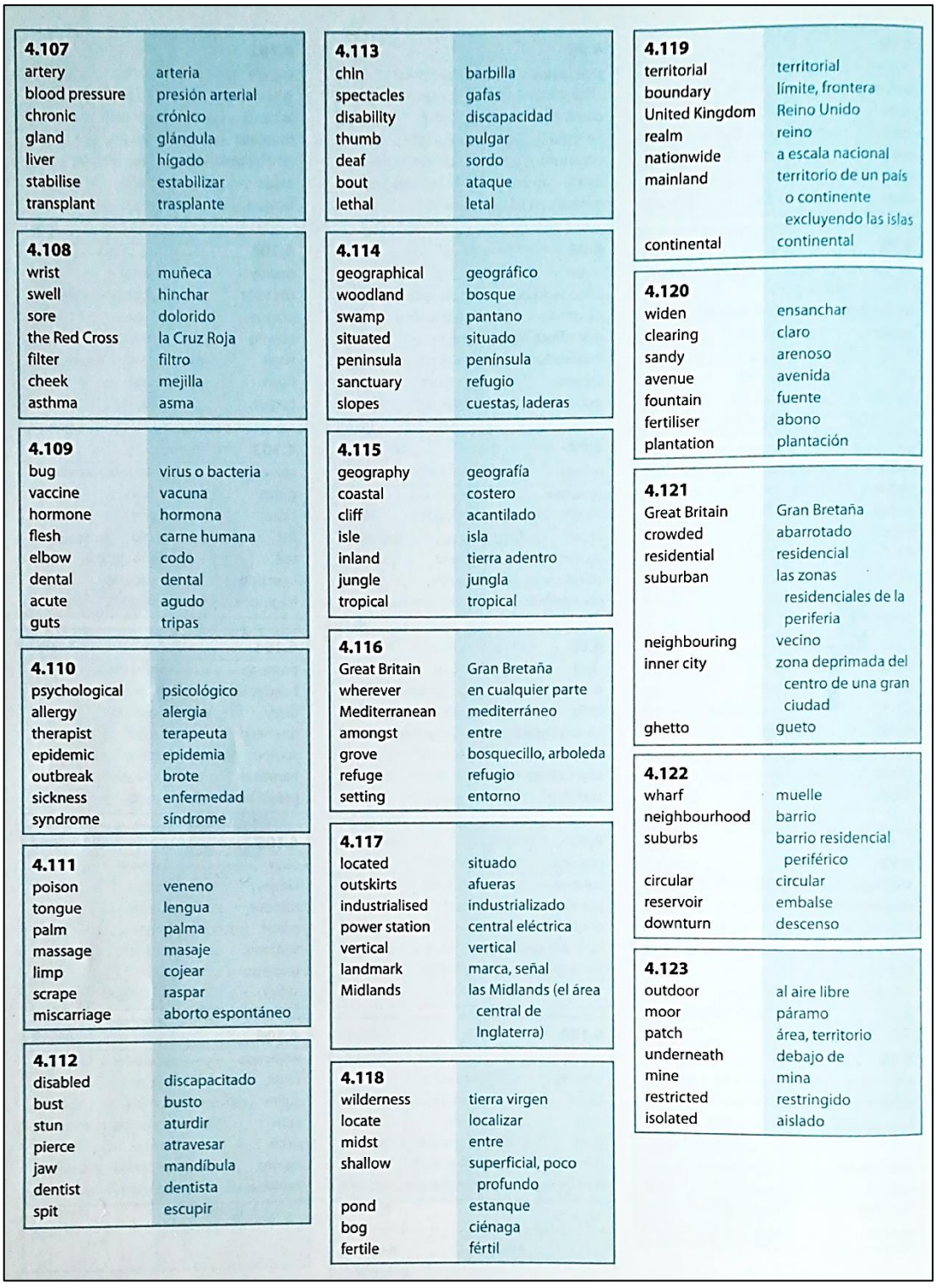
The task of learning large numbers of words is a daunting, or even an off-putting, task. Although research has shown that memorizing words has high learning value (File & Adams, 2010; Laufer & Shmueli, 1997; Van Benthuysen, 2002), not everyone is drawn to or even cut out for this type of learning. Moreover, self-study does not come easily to all learners, as a result of individual preference but also, importantly, as an outcome of instructional cultures that do not foster learner autonomy. Consequently, further paths need to be explored if realistic, comprehensive proposals are to be made for learning the vocabulary identified in this thesis as useful towards IELTS AR. This subsection considers some types of pedagogical materials that could be developed around the BNC-COCA wordlists, that could more easily be used in a classroom context.

Learning lists is admittedly dry work, and learning alphabetically ordered lists can understandably seem particularly dry, mainly due to the lack of context for the words. Organizing the lists thematically could facilitate the learning task. Thematic organization means that a massive list is cut down into more manageable portions, and provides a comprehensible connection for the words grouped together. It seems that learners tend naturally to group words as a way of organizing their vocabulary learning (Schmitt, 2000), and recent research suggests that learners are likely to learn lists better if some form of context is facilitated (Sonbul & Macis, 2022). Grouping words into themes might provide minimal context to help recall. Thematic rather than semantic grouping has been found to aid learning (Hashemi & Gowdasiaei, 2005; Tinkham, 1997). Semantic grouping involves groups of semantically related words that are often also syntactically related (e.g. the nouns *pineapple, papaya, mango, guava, leechee*). Research has found that this can make learning more difficult as such grouping can lead to confusion

due to cross-association of meaning between one element and another (Tinkham, 1997; Webb & Nation, 2017). Thematic grouping, by contrast, involves organizing words into groups according to their membership in certain shared schemata, e.g. *frog, pond, hop, swim, green* and *slippery* (Tinkham, 1997, p.141). That is, thematically grouped words are cognitively rather than linguistically related, and thus avoid the interference caused by syntactic proximity (Tinkham, 1997).

Although not aimed at IELTS, a fine example of a thematically grouped word list can be found in the coursebook *English Skills for Independent Learners, C1* (Lawley & Senra Silva, 2011). Here, 2,300 words identified by the authors as belonging to the level of frequency immediately after the 4000 most frequent words in English are grouped into sets of 7 – 8 words that can be seen to belong to the same theme (see Fig. 6.25). Published for the Spanish university market, the word lists are bilingual English-Spanish. As can be seen in the sample page in Figure 6.25, no title is provided for each set of words, leaving the topic of the set open to interpretation. This seems an excellent solution to the difficult problem of classifying words originally selected on the basis of their level of frequency rather than by their fit into pre-determined topics. The association between the words in the groups in Lawley and Senra Silva (2011) is easily recognizable and acceptable. Arguably, words listed in a given cluster could also be in other clusters: for instance, on the example page in Figure 6.25 the words *acute* and *guts* in list 4.109 also fit with the words in list 4.107. In other cases, groups contain words that would seem to be possible in a variety of other themes, e.g. *filter*, in group 4.108 (Fig. 6.25). Nonetheless, classification decisions had to be made, and overall, the organization chosen seems acceptable and the groups largely work thematically.

The choice of providing the lists with translations is another felicitous decision. Learning words in bilingual sets has been demonstrated to be expeditious and efficient, particularly for recognition, or receptive, purposes (Griffin & Harley, 1996; Laufer & Shmueli, 1997; Lee & Macaro, 2013; Mondria, 2003; Schmitt, 2010; Sonbul & Macis, 2022; Webb, 2007). The words in Lawley and Senra Silva (2011) are listed with a one-to three word translation, allowing for short, visually tidy lists of words that aid quick and straightforward learning.



| 4.107 | |
|---|---|
| artery | arteria |
| blood pressure | presión arterial |
| chronic | crónico |
| gland | glándula |
| liver | hígado |
| stabilise | estabilizar |
| transplant | trasplante |

| 4.108 | |
|---|---|
| wrist | muñeca |
| swell | hinchar |
| sore | dolorido |
| the Red Cross | la Cruz Roja |
| filter | filtro |
| cheek | mejilla |
| asthma | asma |

| 4.109 | |
|---|---|
| bug | virus o bacteria |
| vaccine | vacuna |
| hormone | hormona |
| flesh | carne humana |
| elbow | codo |
| dental | dental |
| acute | agudo |
| guts | tripas |

| 4.110 | |
|---|---|
| psychological | psicológico |
| allergy | alergia |
| therapist | terapeuta |
| epidemic | epidemia |
| outbreak | brote |
| sickness | enfermedad |
| syndrome | síndrome |

| 4.111 | |
|---|---|
| poison | veneno |
| tongue | lengua |
| palm | palma |
| massage | masaje |
| limp | cojear |
| scrape | raspar |
| miscarriage | aborto espontáneo |

| 4.112 | |
|---|---|
| disabled | discapacitado |
| bust | busto |
| stun | aturdir |
| pierce | atravesar |
| jaw | mandíbula |
| dentist | dentista |
| spit | escupir |

| 4.113 | |
|---|---|
| chin | barbilla |
| spectacles | gafas |
| disability | discapacidad |
| thumb | pulgar |
| deaf | sordo |
| bout | ataque |
| lethal | letal |

| 4.114 | |
|---|---|
| geographical | geográfico |
| woodland | bosque |
| swamp | pantano |
| situated | situado |
| peninsula | península |
| sanctuary | refugio |
| slopes | cuestas, laderas |

| 4.115 | |
|---|---|
| geography | geografía |
| coastal | costero |
| cliff | acantilado |
| isle | isla |
| inland | tierra adentro |
| jungle | jungla |
| tropical | tropical |

| 4.116 | |
|---|---|
| Great Britain | Gran Bretaña |
| wherever | en cualquier parte |
| Mediterranean | mediterráneo |
| amongst | entre |
| grove | bosquecillo, arboleda |
| refuge | refugio |
| setting | entorno |

| 4.117 | |
|---|---|
| located | situado |
| outskirts | afueras |
| industrialised | industrializado |
| power station | central eléctrica |
| vertical | vertical |
| landmark | marca, señal |
| Midlands | las Midlands (el área central de Inglaterra) |

| 4.118 | |
|---|---|
| wilderness | tierra virgen |
| locate | localizar |
| midst | entre |
| shallow | superficial, poco profundo |
| pond | estanque |
| bog | ciénaga |
| fertile | fértil |

| 4.119 | |
|---|---|
| territorial | territorial |
| boundary | límite, frontera |
| United Kingdom | Reino Unido |
| realm | reino |
| nationwide | a escala nacional |
| mainland | territorio de un país o continente excluyendo las islas |
| continental | continental |

| 4.120 | |
|---|---|
| widen | ensanchar |
| clearing | claro |
| sandy | arenoso |
| avenue | avenida |
| fountain | fuente |
| fertiliser | abono |
| plantation | plantación |

| 4.121 | |
|---|---|
| Great Britain | Gran Bretaña |
| crowded | abarrotado |
| residential | residencial |
| suburban | las zonas residenciales de la periferia |
| neighbouring | vecino |
| inner city | zona deprimada del centro de una gran ciudad |
| ghetto | gueto |

| 4.122 | |
|---|---|
| wharf | muelle |
| neighbourhood | barrio |
| suburbs | barrio residencial periférico |
| circular | circular |
| reservoir | embalse |
| downturn | descenso |

| 4.123 | |
|---|---|
| outdoor | al aire libre |
| moor | páramo |
| patch | área, territorio |
| underneath | debajo de |
| mine | mina |
| restricted | restringido |
| isolated | aislado |

**Figure 6.25:** Part of a vocabulary page from *English Skills for Independent Learners, C1* (Lawley & Senra Silva, 2011, p.72). The words are grouped into loose themes, in a sequence of short bilingual lists.

*English Skills for Independent Learners, C1* (Lawley & Senra Silva, 2011) could be a useful model on which to build a textbook focusing on vocabulary for IELTS AR. The first part of this self-study book is

dedicated to developing the four skills and includes grammar input – this could easily be adapted into development of reading skills and IELTS AR training. IELTS candidates who are uncomfortable with list-learning and flashcard approaches such as those proposed in Section 6.2.3 might be more at ease with a textbook that could provide more structured guidance for their vocabulary learning.

Lawley and Senra Silva (2011) is a carefully designed self-study textbook. Notoriously, however, many students are unhappy or ill-equipped for self-study. Although this thesis argues that self-study is the most expeditious approach to acquiring vocabulary for IELTS AR, classroom contexts should be taken into consideration in a realistic outlook for promoting vocabulary learning for the test. A very well-designed textbook that provides a fine example of how to learn a word list is *Essential Academic Vocabulary. Mastering the complete Academic Word List* (Huntley, 2006). This book was designed to teach the AWL (Coxhead, 2000) in a classroom context, but its general approach could easily be adapted to learning vocabulary for IELTS. Huntley (2006) divided the AWL (570 word families) into 16 thematically organized chapters, thus making the list more manageable. Each chapter begins with a sublist of 30 to 40 thematically-related words, which students are expected to learn before attending each lesson (see Figure 6.26).

# ECONOMICS

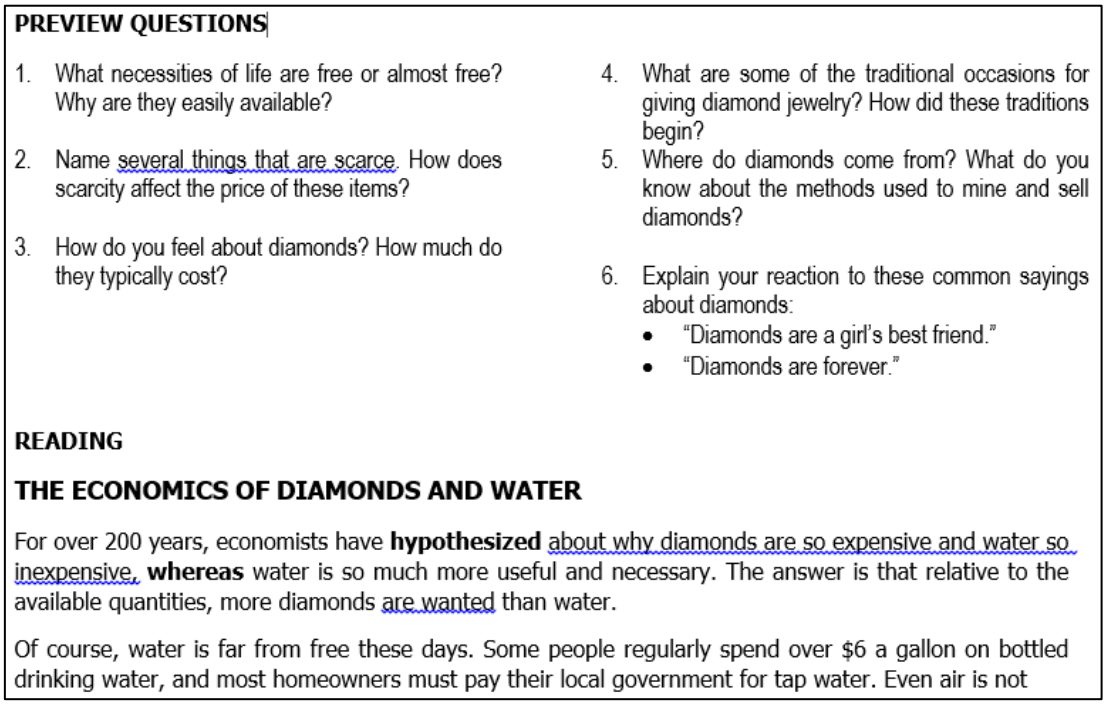
## WORD LIST

| Noun | Verb | Adjective | Adverb | Conjunction |
|---|---|---|---|---|
| attitude | decline | adequate | precisely | whereas |
| behalf | generate | chemical | temporarily | |
| challenge | grant | obvious | | |
| commitment | hypothesize | occupational | | |
| compound | monitor | prior | | |
| convention | predict | symbolic | | |
| currency | retain | valid | | |
| dimension | | | | |
| entity | | | | |
| image | | | | |
| investigation | | | | |
| mechanism | | | | |
| option | | | | |
| parameter | | | | |
| regime | | | | |
| revenue | | | | |

**Figure 6.26**: A sample vocabulary page from *Essential Academic Vocabulary. Mastering the complete Academic Word List* (Huntley, 2006, p.91).

Work on each sublist begins with some "preview questions" to activate the learners' background knowledge through group discussion around the chapter topic (see Fig.6.27). This is followed by a variety of reading activities which allow the students to meet the target words in context and to test that they understand their meaning, as well as to check overall text comprehension. Vocabulary activities cover dictionary skills, word forms, collocation, word parts and vocabulary in context exercises. An example of these activities is provided in Figure 6.28. Every chapter includes writing activities that involve both an academic writing task and a personal (written) response to the topics in the chapter (see Fig. 6.29 for some

examples). Finally, speaking activities range from pairwork, to group work, to role play activities in which to use the target vocabulary (see Fig. 6.30). In this way, the book allows for the development of Nation's (2007) "four strands" of meaning-focused input and output (i.e. the reading, writing and discussion activities), and language-focused learning (the list-learning and depth-development activities) and fluency (the writing and speaking activities). The book is supplemented with online material for students and teachers, including glossaries and flashcards.



**PREVIEW QUESTIONS**

1. What necessities of life are free or almost free? Why are they easily available?
2. Name several things that are scarce. How does scarcity affect the price of these items?
3. How do you feel about diamonds? How much do they typically cost?
4. What are some of the traditional occasions for giving diamond jewelry? How did these traditions begin?
5. Where do diamonds come from? What do you know about the methods used to mine and sell diamonds?
6. Explain your reaction to these common sayings about diamonds:
   - "Diamonds are a girl's best friend."
   - "Diamonds are forever."

**READING**

**THE ECONOMICS OF DIAMONDS AND WATER**

For over 200 years, economists have **hypothesized** about why diamonds are so expensive and water so inexpensive, **whereas** water is so much more useful and necessary. The answer is that relative to the available quantities, more diamonds are wanted than water.

Of course, water is far from free these days. Some people regularly spend over $6 a gallon on bottled drinking water, and most homeowners must pay their local government for tap water. Even air is not

**Figure 6.27:** An example of "preview" (warm-up discussion) questions and an extract of a reading passage from *Essential Academic Vocabulary. Mastering the complete Academic Word List* (Huntley, 2006, p.92).

**4B Word Forms in Sentences**

Reread "The Economics of Diamonds and Water". Complete the summary of the reading with the following words. Make sure that each word fits grammatically and meaningfully.

| | | | |
|---|---|---|---|
| challenge<br>commitment<br>decline | image<br>investigation<br>monitored | monopoly<br>parameters<br>precisely | regime<br>whereas |

For the last 200 years, the buying and selling of diamonds has been carefully (1) _____ by the Central Selling Organization, which manages the supply of diamonds so (2) _____ that prices rarely (3) _____. De Beers, a South African company, has a (4) _____ on the diamond trade that is operated by the Central Selling Organization. However, monopolies are not legal in every country. De Beers

**Figure 6.28**: An example of vocabulary work in *Essential Academic Vocabulary*. *Mastering the complete Academic Word List* (Huntley, 2006, p.96).

**7B Paragraph Writing**

Write a response to one of the following topics. Include at least **six to eight vocabulary words** in your paragraph.

1. A monopoly is defined as a market structure for a specific product that is controlled by one company with no outside competition. In reference to De Beers and its monopoly on the marketing of diamonds, what do you think have been the positive and negative effects for the consumer?

2. What is your personal opinion and personal experience regarding the convention of giving or receiving a diamond engagement ring? What does a diamond ring mean to you? What othe symbols of love and commitment might replace a diamond?

**Figure 6.29:** A writing activity in *Essential Academic Vocabulary*. *Mastering the complete Academic Word List* (Huntley, 2006, p.99).

**8. Speaking**

**8A Group Project: Oral Summaries**

As a small group, investigate a topic related to diamonds. Topics could include the following:

- the De Beers company
- the central selling organization
- diamond mining
- the lives of diamond miners
- diamond formation
- the diamond pipeline
- the manufacture of diamond jewelry
- traditions associated with diamonds

Search the Internet for an interesting article about the topic your group has chosen. Take notes on the main ideas and supporting details. Use these notes to give an oral summary of the article's content to your group. Discuss any issues or questions that arise from the summaries. Finally, combine your group's information to give a short summary to the class about your group's topic.

**Figure 6.30:** A speaking activity in *Essential Academic Vocabulary*. *Mastering the complete Academic Word List* (Huntley, 2006, p.100).

Experienced materials writers should be able to adapt the framework of this well-designed textbook to IELTS without great difficulty, substituting the AWL with the BNC-COCA lists. A decision would need to be made as to how many frequency levels to include in the book - perhaps two volumes could be envisaged, to avoid overload. The pre-lesson word lists might need to be longer than those in Huntley (2006), and each chapter could be based around a selection of words from this list, rather than the whole list. Huntley's book includes two review chapters; the adaptation to IELTS AR vocabulary could involve short progress tests instead, in which the full pre-lesson lists could be tested. This might require the development of a teacher's book with supplementary materials, or of online material accessible through links or codes provided with the textbook.

To sum up this section dedicated to outlining possible approaches and materials for learning vocabulary for IELTS AR, the 'raw' materials exist – the BNC-COCA frequency lists – and can be used as they are thanks to *Lextutor* (Cobb, 2022). Alternatively, with minimal effort, the lists can be transferred to a flashcard program such as *Quizlet*. A more enterprising move would be to develop textbooks. This would require the involvement of materials writers, publishers and teachers, and would doubtlessly be a step in the direction of achieving the "strong and active contributions from all four members of [the] learning partnership" (Schmitt 2008, p.333) – i.e. learners, teachers, researchers and materials writers. This subsection has discussed some existing textbooks that could act as inspiring examples for the production of new materials. What is needed now is for practitioners, learners and publishers to buy into the notion of using research-based pedagogical word lists for IELTS training.

# 7. CONCLUSIONS

The aim of this thesis was to identify and define the body of vocabulary that should be useful towards success in IELTS AR, for the purpose of informing the preparation of IELTS candidates and their teachers. 'Success' in IELTS AR was understood to mean attaining at least a 7.0 on the IELTS scale. This seemed a wise objective given that the cut-off score is 6.5 for admission into most university degree courses requiring IELTS for entry, and that the overall score in IELTS is the average of the scores attained in each of the four tests that make up the exam. The investigation set out from the viewpoint that there is little official IELTS information or advice with regard to vocabulary learning towards the exam, and

that what the organization disseminates tends to be vague and fragmentary. As a washback effect, this lack of information and clarity leads to poor IELTS textbook content with regard to lexical development, and insufficient vocabulary learning among candidates preparing for the exam. The present investigation aimed to contribute to redressing this situation by outlining a clearly defined vocabulary-learning program based on the lexical profiles of a significant number of past-paper IELTS AR passages, and suggesting possible ways of learning this vocabulary.

This thesis has shown that preparing for IELTS generally tends to consist in skills development and training in exam technique, with far less attention devoted to language development. This approach is likely to be induced, on the one hand, by the type of information and preparation advice published by the IELTS organization. On the other hand, the nature of IELTS, which is a test of language skills, lends itself to centering attention on skills development only. Finally, as with any exam, but particularly in the case of high-stakes tests such as IELTS, developing exam technique is a priority (Trenkic & Hu, 2019, 2021). This thesis has argued that this approach to preparing for IELTS is likely to be appropriate in those cases in which candidates are at or around the level of proficiency needed to obtain the score they require. If, however, candidates are distant from their desired score, or if the standard, skills-based approach repeatedly does not bring about the desired results, more attention to language development is likely to be necessary. Given its determining role in language proficiency and development, and in reading in particular, vocabulary seems a relevant area to focus on when preparing for the AR test. The role of vocabulary in reading comprehension has been solidly ascertained by research (Alderson, 2000; Hu & Nation, 2000; Laufer, 1992; Milton, 2009; Schmitt, Jiang & Grabe, 2011; Stahl, 1983), and the relative speed with which it seems possible to

increase receptive, orthographic, knowledge of vocabulary (Laufer & Shmueli, 1997; Nation, 2013; Schmitt, 2014; Sonbul & Macis, 2022) suggests that dedicating efforts to building vocabulary knowledge towards the IELTS AR test should be a worthwhile investment. IELTS statistics show that AR tends to be one of the IELTS tests in which candidates globally perform better (IELTS.org, 2023)[76]; investing in a test that can rapidly and successfully improve overall scores seems a worthy endeavor.

Based on these premises, the research questions this thesis sought to answer were:

- What vocabulary appears in the IELTS AR test?
- How much of this vocabulary is needed for success in the test?

Vocabulary is understood here to include both individual words and multiword units (MWUs), on the basis of the research-proven fact that language is built up of both types of vocabulary (Laufer, 2022), and that highly frequent individual words in particular have a strong tendency to be parts of larger, frequent, lexical units. This phenomenon may in fact be an important reason behind the high frequency of these words (Martinez & Schmitt, 2012).

In order to provide an answer to its research questions, this thesis sought to identify the lexis in 72 CIPT AR passages by characterizing it in terms of frequency and 'academicness', as well as in terms of the possible amount of vocabulary that might be involved. Frequency is probably the most relevant characteristic of vocabulary for pedagogical purposes, as the frequency of a word determines the likelihood of meeting or needing it when using a language, and thus

[76] IELTS performance statistics for the AR test can be seen here: https://www.ielts.org/for-researchers/test-statistics/test-taker-performance

can inform prioritization when learning vocabulary (Vilkaite-Lozdienė & Schmitt, 2020). Determining whether it is appropriate to label the vocabulary in the AR passages 'academic' is particularly relevant in connection with IELTS. The very name of the test can lead to the assumption that its content must be somehow academic. In fact, it is not infrequent for published and online exam preparation materials to refer students to academic vocabulary lists such as the AWL, claiming that they are useful for IELTS. Yet as this investigation has discussed, IELTS does not declare that the test is academic, and the available literature about the AR test reveals that there are important differences between IELTS texts and real-world undergraduate reading material (Weir et al., 2009). More generally, the notion of a separate, 'academic' body of vocabulary has been the subject of extensive debate in the literature over recent years (Coxhead, 2000, 2012; Durrant, 2014; Eldridge, 2008; Gardner & Davies, 2014; Granger & Paquot, 2009; Hyland & Tse, 2007; Neufeld & Billuroğlu, 2006). This being the situation, it seemed necessary to ascertain whether it was appropriate to focus on academic vocabulary to prepare for IELTS AR. Finally, gaining an awareness of the amount of vocabulary that may be involved in IELTS AR passages is fundamental for learners and teachers. Knowing the extent of the learning task is key in order to be able to develop a principled learning program with clear and attainable goals (Dörnyei, 2001). Providing IELTS candidates and their teachers with a clearly defined, finite body of vocabulary that is useful towards the exam seemed a valuable goal for this investigation.

To answer the research questions that drive this thesis, all the AR passages from five different volumes from the CIPT series, for a total of 72 passages, were lexically profiled against Nation's (2012a) BNC-COCA frequency lists, using Cobb's (2023b) *Compleat Web VP* software. The BNC-COCA lists were chosen as the reference list

because they were considered the most comprehensive, principled, general usage pedagogical word lists currently available, as they include both British (BNC) and North American (COCA) English, and comprise 25 decreasing frequency bands. A further determining reason for the choice of these lists was that they can be freely accessed online, thus facilitating self-study, which is a crucial part of vocabulary learning. *Compleat Web VP* (Cobb, 2023b) was chosen as the profiling tool because it returns clear, easy-to-use k-profiles of the vocabulary present in any text inputted, which facilitates the task of the researcher. Furthermore, it is a free software and is largely uncomplicated to use. As the BNC-COCA lists only include individual words, MWUs in the CIPT AR passages were identified and profiled with reference to the PHRASE list (Martinez & Schmitt, 2012), using the *Text Inspector* vocabulary analysis tool (Bax, 2017). Although the PHRASE list is included among the profiling routines available on *Compleat Web VP, Text Inspector* provides MWU profiles that are more complete and relevant for the purposes of the present investigation.

Prior to the analysis of the vocabulary, the CIPT AR passages were studied, in order to better understand the context of the vocabulary in the test. The passages were examined from the point of view of their length, discourse patterns and topics. In order to establish the extent to which it was suitable to consider AR passages 'authentic', the sources of the texts were identified and where possible, the original texts were compared to their CIPT versions. The findings were contrasted with the official descriptions of the AR passages published on the IELTS websites.

The official information about the test seems to be deliberately broad and unspecific, and as a result it was found that it largely fit the passages in the CIPT volumes studied. However, a close analysis of

the CIPT AR passages brought to light some differences. One of the most relevant differences was that most passages are sourced from books and magazines, with a prevalence of science magazines, and only to a minimal proportion from other sources mentioned in the official descriptions. Only four passages are sourced from academic publications, although some of the source books could well be used for university reading, even though they are not textbooks. This finding once more cast a doubt as to the likelihood of the vocabulary used in the texts being academic, and agrees with existing literature on IELTS that found important differences between the texts in the test and real-world university reading (Moore, Morton & Price, 2012; Weir et al., 2009). Another important difference found between the official description of the AR texts and the CIPT passages was that the practice texts seem to be mostly factual and expository or discursive, while the websites claim that passages are also argumentative and narrative; however, it was difficult to identify examples of these last discourse patterns in the CIPT passages.

Contrasting the practice test passages to their source texts afforded the greatest insights into AR text characteristics and made it possible to gain some preliminary impressions regarding the vocabulary in these texts. On the whole, it was found that the differences between the two versions of the passages involved mostly minor modifications in length and style in order to produce passages that met IELTS requirements. A variety of lexical modifications were noticed: in some cases, the CIPT passages had been rendered more formal by reducing the 'journalese' language of many original texts, and introducing more academic-sounding alternative. This included reducing the amount of formulaic language, which was often substituted by one-word equivalents. By contrast, in other cases the original vocabulary had been simplified, with high-frequency word choices preferred over the original lower-frequency terms. As a

result of the alterations made to the original texts, the CIPT passages are somewhat neutral-sounding, and are problematic to place in terms of genre. In any case, taking into consideration the modifications described, it is difficult to claim that the CIPT AR passages are 'authentic', as IELTS would have it (IELTS, 2019b).

Having examined the context of the vocabulary in the CIPT AR passages, the vocabulary itself was analyzed. The overall results revealed a distribution of frequency levels that was similar to the average vocabulary profile identified for texts in general by Nation (2006), which was later confirmed by Schmitt and Schmitt (2014). That is to say, up to 90% of the individual words in the CIPT AR passages were in the high-frequency range, with mid-frequency vocabulary bridging the gap to reach the 98% coverage threshold identified by Nation (2006) as the minimum necessary for adequate comprehension of a text. In accordance with Schmitt and Schmitt (2014), *high-frequency* and *mid-frequency* are assumed to comprise the first three frequency levels (1k-3k) and the next five (4k – 8k), respectively. In terms of presence of MWUs, the passages also proved to be aligned with findings regarding average text profiles (Martinez & Schmitt, 2012) in that MWUs were found in every passage, in declining numbers from high- to mid-frequency. Overall, MWUs accounted for approximately 3% of the CIPT AR passages, which is similar to the MWU presence found in a study of college textbooks (Hsu, 2014). The most evident conclusion that can be drawn from these findings is that IELTS candidates would be well served if they possessed a good receptive knowledge of the word families and MWUs in frequency levels 1- 8k, as these should afford the text coverage necessary for unassisted reading (Schmitt & Schmitt, 2014) of IELTS AR passages.

A second important conclusion suggested by the findings is that it should not be necessary to learn a separate, academic vocabulary for IELTS AR, as the vocabulary in the CIPT passages is sufficiently covered by knowledge of general 1-8k frequency levels. In fact, it could be detrimental to learn only "academic" vocabulary, as learners would risk not adequately covering the general usage high- and mid-frequency vocabulary that makes up the AR passages. This once more calls into question the extended, although unsubstantiated, practice of encouraging the use of an academic word list such as the AWL (Colovic-Markovic, 2018; see also Fig. 1.3) to prepare for IELTS, when this list only includes a small proportion of the vocabulary effectively identified in the CIPT AR passages, that is, of high- and mid-frequency vocabulary (Neufeld & Billuroğlu, 2006).

A more detailed inspection of the vocabulary profiles returned for the individual words in the CIPT AR passages revealed some features that detract from the average profile outlined by Nation (2006) and Schmitt and Schmitt (2014). On the one hand, it was found that the high-frequency vocabulary was more evenly spread across the three k-levels than in the average profile, where the highest percentages of vocabulary tend to be concentrated in frequency level 1k. While the profile of average texts tends to involve a steep decline from frequency level 1k to 2k (from 80% to 8% respectively), the coverage provided by high-frequency vocabulary in the CIPT AR passages dropped more gradually from the first to the second level (58% to 19% respectively). This even spread of high-frequency vocabulary seemed confirm the IELTS AR item-writing policy described by Green and Hawkey (2012) of deliberately including vocabulary across this frequency range in the passages. Thus, whereas knowledge of vocabulary at level 1k will support basic comprehension of texts in general to a very high degree, reading

IELTS AR passages seems to require knowledge of all three high-frequency bands (1-3k) for a similar level of comprehension. Another difference noted between the profiles of the CIPT AR passages and Nation (2006) and Schmitt and Schmitt (2014) was that the point at which values went below 0% was arrived at earlier in the AR texts (7k) than in the average text profile (10k). The implication for IELTS candidates is therefore that they should be able to deal with the test passages with less mid-frequency vocabulary than in typical real-world texts. This is confirmed by the findings regarding the cumulative coverage provided by the decreasing frequency levels, which showed that the 98% threshold for "adequate" comprehension (Nation, 2006) was reached at band 7k in the studied texts, as opposed to bands 8-9k in texts in texts in general.

A surprising finding brought to light by the lexical profiling of the CIPT AR passages was the high degree of variability between passages in terms of vocabulary profiles. Passages differ remarkably in terms of frequency band distribution across the 72 texts studied. Differences were also evident between the three passages that made up each AR test, but a discernible pattern was not evident. This finding was particularly noticeable with regard to the high-frequency bands. Given that this investigation was independent of the IELTS organization, it was not possible to determine whether this variability is deliberate or whether it might reveal a flaw in test design. In either case, this finding raises questions of test validity and fairness in IELTS AR, as it is unclear how it can be guaranteed that all test-takers will be "treated in essentially the same way, that they take the same test or equivalent tests, under the same conditions or equivalent conditions" (definition of test validity and fairness in Kane (2010), p.178) if the AR passages can be so different in terms of their lexical composition.

To summarize the findings regarding the lexical composition of the CIPT AR passages and the coverage provided by the different frequency levels present, this investigation has found that, as with texts in general (Masrai, 2019; Schmitt & Schmitt, 2014), knowledge of high- and mid-frequency vocabulary was fundamental in order to be able to read these texts. More specifically, the results of this study show that all three high-frequency bands are important in the CIPT AR texts, although with a less evident prevalence of the 1k level than is the case for non-IELTS texts (Schmitt & Schmitt, 2014). Mid-frequency vocabulary is crucial to supply the further distance to 98% coverage, a threshold which is reached at 7k on average across the passages studied. Knowledge of PHRASE list MWUs is likely to be determining, as up to 3% of the passages is made up of this type of formulaic unit, and their opacity can impede adequate comprehension of the texts.

It would seem that the main pedagogical implication of the findings discussed so far is that a systematic approach is needed for teaching and learning high- to mid-frequency vocabulary, including the PHRASE list MWUs, in the context of training for IELTS AR. This thesis has evidenced that extensively used approaches and pedagogical materials for preparing for IELTS tend to be, at best, unsystematic in dealing with vocabulary. Moreover, it does not appear that the vocabulary that is effectively useful towards success in the test, which this thesis has identified, is covered by these approaches and materials. Thus, improved collaboration would be needed between Schmitt's (2008) "four partners" – learners, teachers, materials writers and researchers – in order to ensure that the vocabulary necessary for the IELTS AR test can be learnt.

Yet the findings discussed so far regard a vocabulary knowledge that would afford comprehension of nearly 100% of the words in any CIPT

AR passage. Such a level of lexical coverage would of course be a great advantage, as it would be likely to facilitate a very high level of comprehension of the texts, given the key role of vocabulary knowledge in reading comprehension (Alderson, 2000; Hu & Nation, 2000; Laufer, 1992; Milton, 2009; Nation, 2006). However, this thesis has pointed out that total, or even near-total, comprehension of the AR passages is not a necessity for most IELTS candidates. Plausibly, total comprehension would lead to top scores in the test, i.e. 9.0 on the IELTS scale, while the score most targeted by candidates is likely to be closer to 6.5 - 7.0, as these tend to be the IELTS scores required for admission to university courses. Therefore, this thesis contends that uncovering the lexical profile of IELTS AR passages is a useful and necessary finding, as it can – and should - inform pedagogical decisions and materials development for IELTS preparation. However, a further useful contribution made by this investigation is that it also advances a possible minimum amount of the vocabulary identified it should be necessary to know in order to reach the scores most typically desired by candidates (i.e. 6.5-7.0).

Determining how much vocabulary is necessary is strongly aligned with the idea put forth by Schmitt, Jiang and Grabe (2011) that it is the amount of text comprehension required which determines the amount of vocabulary knowledge needed. This thesis has argued that in the context of learning vocabulary for IELTS AR, it is unlikely for it to be appropriate to consider as an absolute goal Nation's (2006) text coverage threshold of 98%, for two main reasons. On the one hand, Nation identified this threshold for the purpose of reading for pleasure, which clearly does not apply to reading in IELTS AR. On the other hand, making it a goal to be able to understand almost all the vocabulary in texts is likely to be overly ambitious for many IELTS candidates, who frequently need to bridge an overall language proficiency gap in a short span of time in order to reach

their required score, and may therefore need to aim for a more attainable minimum. In fact, although it obviously would be an asset to possess a receptive lexical knowledge allowing 98% text coverage, this may simply not be necessary. Near-complete text comprehension can reasonably be expected to lead to full, or near-full, marks, i.e. IELTS 9.0. This is clearly not needed, as most universities do not require scores above 7.0 for admission.

The investigation of how much of the vocabulary identified by the lexical profiling of the CIPT AR passages is the minimum necessary for success in IELTS AR revealed that the answer may lie essentially within the boundaries of high-frequency vocabulary. The literature has established the importance of high-frequency vocabulary in text coverage in general (Nation, 2006; Schmitt & Schmitt, 2014), but the findings in this thesis suggest that its role may be particularly relevant towards scoring 7.0 in IELTS AR. The results of a small-scale experiment performed in the course of this investigation suggest that it is possible to score at least 7.0 in IELTS AR with a receptive knowledge limited to high-frequency vocabulary only. The experiment involved native speaker participants and consisted in a mock IELTS AR test in which the passages had been altered so that all words at frequency levels beyond 3k had been substituted by nonsense words. This made it possible to experimentally replicate the experience of non-native IELTS test-takers with limited knowledge of lexis beyond the high-frequency level. In spite of the lexical limitations artificially imposed, the participants were nonetheless able to achieve scores at band 7.0 or higher. From the point of view of text coverage, scoring 7.0 knowing only high-frequency vocabulary means that the test takers successfully completed the test with only 75% coverage. This aligns well with the lexical profiles of the CIPT AR passages, which show that frequency bands 1-3k supply 75% text coverage across the corpus.

Although this thesis contends that 98% coverage is unlikely to be necessary in order to score a 7.0, only 75% coverage seems alarmingly far from the minimum threshold for adequate comprehension established by the literature. Given that other factors are also at play beyond vocabulary in reading (Alderson, 2000; Milton, 2009), it would seem advisable to aim at a slightly higher text coverage. A coverage slightly above the minimum should be a safeguard in a challenging test as is IELTS AR, as this vocabulary knowledge can act as a counterweight for the potential difficulties posed by factors such as syntax, text length, time management or exam reading skills. Thus, empirical data was explored in order to identify the coverage levels displayed by IELTS candidates who attain a 7.0. On the one hand, Dutton (2018) found that students with an overall IELTS score of 7.0 seemed to possess a receptive vocabulary knowledge affording them a text coverage around 90%. Research has shown that 90% text coverage in reading in general is supplied by frequency bands 1-3k (Vilkaitė-Lozdienė & Schmitt, 2020). Therefore, the data in Dutton correlates well with the findings in the present thesis and lend support to the idea that a 7.0 can be attained in IELTS AR with knowledge of high-frequency vocabulary. Unfortunately, Dutton does not provide a breakdown of the total coverage percentages displayed by his students in terms of frequency bands known, and instead provides an overall vocabulary size for his test takers. The fact that his students with IELTS 7.0 had a mean total vocabulary size of around 8000 word families clearly indicates that these students knew more vocabulary than only the first 3000 most frequent words, and this knowledge was doubtlessly an important factor in their success. In order to explore what frequency levels these further words might belong to, the VST (Nation & Beglar, 2007) results of a small sample of students who had recently achieved 7.0 or more in IELTS were examined in the context of the present investigation. The VST is a vocabulary size

test that provides a broad picture of the amount of receptive knowledge a test taker may have of each frequency level. The results of the test showed that the participants overall knew vocabulary up to, and including, mid-frequency lexis (i.e. 4-8k), with percentages only dropping significantly after that. Thus, although it should theoretically be possible to attain a 7.0 in IELTS AR with a vocabulary knowledge limited to high-frequency, these findings suggest that candidates scoring 7.0 are likely to also possess a good knowledge of mid-frequency lexis. The pedagogical implications are that developing a good receptive knowledge of mid-frequency vocabulary, as well as of high-frequency, should be a goal in any training program for IELTS AR.

High- to mid-frequency vocabulary as a learning goal for IELTS AR may not seem a great challenge, as it could be assumed that IELTS candidates should possess sufficient knowledge of these frequency bands when facing the exam. Yet this thesis has argued that the obstacles between many IELTS candidates and success in the test is, in many cases, a lack of language knowledge. In relation to the AR test, an increase in vocabulary knowledge may make an important contribution towards filling that gap. In fact, research shows that it is not a given that learners know all the words in each frequency band (Kremmel, 2016; Kremmel & Schmitt, 2016; Schmitt et al., 2021), and classroom experience bears evidence of surprising gaps in the knowledge of very frequent vocabulary. IELTS candidates are therefore likely to benefit from investing in learning high-to mid-frequency vocabulary in order to prepare for IELTS AR. However, systematic approaches to teaching and learning vocabulary seem rare in widely extended IELTS training practice (Green, 2007; Trenkic & Hu, 2019, 2021). Pedagogical materials aimed at the exam also seem poorly informed about the effective lexical demands posed by the AR test, and their vocabulary-learning

content tends to be haphazard and insufficient (Serrano van der Laan, 2020). This thesis has outlined some possible approaches to the learning of the vocabulary identified by this investigation as useful towards IELTS AR in an informed and systematic way.

It is a contention of this thesis that a principled, learner-centered vocabulary-learning program for IELTS AR requires facilitating access to the complete body of vocabulary that is useful for the test, so that the learner can gain an awareness of the task ahead and set goals. It has been pointed out here that the target vocabulary is readily available in the pedagogical word lists developed by Nation (2012a), who systematized the 25,000 most frequent word families in the BNC and the COCA into frequency-based, 1000-word family lists for use by learners, teachers and researchers. These lists can be accessed freely on the learning and research website *Lextutor* (Cobb, 2023a), where they can be learnt using the list-learning tools on the *ListLearn* page of the website in self-study sessions. This thesis has also argued that a useful way to approach learning the lists is to first determine a starting point or identify the parts of the lists that are less well known, as learners will set out with different degrees of knowledge of the words in each frequency level. One possible means to discover where to start is to take the VST (Nation & Beglar, 2007), which determines overall receptive vocabulary size but also reports how much of each frequency level 1-14k is known by the test-taker. The learner could subsequently tackle the word lists at the points indicated by the VST as less-well known.

List-learning has been shown by research to be a highly-efficient means to quickly acquiring receptive vocabulary (Balance & Cobb, 2020; Elgort, 2011; Laufer & Shmueli, 1997; Sonbul & Macis, 2022), and frequency-based word lists in particular have been found to scaffold precise learning goals and support vocabulary development

(Dang, 2020). In line with literature on effective vocabulary learning (Lawley, 2010b; Nation, 2021; Webb & Nation, 2017), this thesis has argued that the most efficient approach to learning the word in the word lists is through self-study, as classroom time is usually needed for skills development and training in exam technique. *Lextutor* facilitates self-study as it provides both the lists and tools to learn them, although the website can also be used in a classroom situation. Learners who do not enjoy list-learning could instead learn the vocabulary in the lists using a digital flashcard tool such as *Quizlet*. A relevant body of literature has found the word- or flashcard technique highly conducive to vocabulary learning (see Ballance & Cobb, 2020, and Nakata, 2020, for some recent discussions). *Quizlet* has received overridingly positive reviews (see Aksel (2021), Daly (2022), or Sippel (2022) for some very recent appraisals) and is mentioned as useful in the literature on flashcards for vocabulary learning (Nakata, 2020).

Although this thesis has argued for the validity of learning vocabulary lists, directly or using flashcards, this approach to learning is not always the preferred, or even a possible, option. Therefore, this investigation has also explored possible paths for the development of textbooks able to effectively teach the vocabulary identified here as useful towards IELTS AR. Producing textbooks that teach vocabulary for IELTS AR requires the involvement of publishers and trained and experienced materials writers, and it is doubtlessly ambitious to propose pursuing this path. However, given the very extended recourse to, and preference for, textbooks among learners, teachers and academic authorities (Brown, 2014; Guerretaz & Johnston, 2013; Harwood, 2013; Thornbury; 2015), it seems a path worth following. Two outstanding existing vocabulary textbooks were described that could inspire future textbooks on vocabulary for IELTS AR. Neither of the two target IELTS, but they each provide

two different, excellent models of well-designed, principled vocabulary list learning, which it should be possible to replicate for IELTS vocabulary. *English Skills for Independent Learners, C1* (Lawley & Senra Silva, 2011) is a self-study textbook that proposes an alternative to pure list-learning by grouping the words in the book's target word list into loose thematic groups. Thematic grouping has been upheld by part of the literature as helpful for learning vocabulary (Hashemi & Gowdasiaei, 2005; Tinkham, 1997), as it aids retrieval by grouping, without the risks of cross-association caused by semantic grouping. The high- and mid-frequency vocabulary in the BNC-COCA 1-25 lists could be organized in a similar way, and activities could be developed in the textbook around these thematic groups. *Essential Academic Vocabulary. Mastering the complete Academic Word List* (Huntley, 2006) is a carefully designed classroom textbook to learn the AWL (Coxhead, 2000). The book organizes the AWL into broad topics, and dedicates a unit to each topic, in which a variety of exercises and activities help learn the vocabulary following Nation's (2007) "four strands". In a hypothetical IELTS AR version of this textbook, where the main objective would be to develop receptive knowledge, some of Nation's (2007) meaning-focused output and fluency activities (i.e. the writing and speaking activities) could be reduced to the benefit of the meaning-focused input (reading) and language-focused learning (i.e. learning the list vocabulary).

Clearly, the source material for developing vocabulary knowledge towards IELTS AR – i.e. the high- to mid-frequency word lists - is available, as are some good tools for learning these lists – i.e. *ListLearn*, on *Lextutor* (Cobb, 2023). Other tools designed for vocabulary learning in general, such as *Quizlet*, can easily and efficiently be used for the specific purpose of learning vocabulary for IELTS AR. Current IELTS textbooks have proven largely lacking when

it comes to vocabulary learning (Serrano van der Laan, 2020), but some excellent existing non-IELTS materials could be replicated for IELTS AR vocabulary. What is needed now is to persuade IELTS candidates, their teachers and IELTS materials writers of the benefits of learning the lists identified in this thesis with a view to preparing for the AR test. This is no minor endeavor, as it may require something of a paradigm shift for many of the "learning partners" involved (Schmitt, 2008). Removing the centrality of the teacher and the classroom, handing over the source of knowledge and the tools to acquire it to the learners, and thus devolving to them the main responsibility for learning, may constitute a major transformation of the way the teaching-learning relationship is often conceived. Yet this thesis has argued that the particular conditions that usually characterize IELTS study make the study of word lists, ideally through self-study, an optimal way to quickly increase receptive vocabulary size with a view to success in IELTS AR. It is an aspiration of this thesis to light a first candle along the path towards more efficient, principled vocabulary learning for IELTS.

IELTS candidates and their teachers would benefit greatly from being informed of what and how much vocabulary to know for the exam. This thesis has attempted, for the first time, to determine a minimum level of receptive vocabulary knowledge that should help attain a score of 7.0 in IELTS AR. The evidence collected suggests that this minimum lexicon largely involves high-frequency vocabulary although knowledge of mid-frequency vocabulary would be an additional, strongly advisable, security. To the best of the author's knowledge, no published or otherwise publicly disseminated work has so far proposed a principled and attainable vocabulary-learning target such as this for IELTS AR. The findings in this thesis make it possible to disseminate this knowledge to the relevant stakeholders – IELTS candidates and their teachers, as well as writers of

pedagogical materials – and to contribute to dispelling some of the myths around what is required by the test in terms of vocabulary knowledge. There seems to be an extended belief that lower frequency, academic vocabulary should be necessary for success in IELTS AR, borne out by common classroom- and independent study practice, as well as by a variety of IELTS training materials. This notion is disproved by the findings in the present thesis. Thus, this thesis may be the first pedagogically orientated study to advance a concrete, attainable and principled vocabulary-learning program for IELTS candidates.

A limitation of this investigation is that it analyzed the vocabulary in published past IELTS AR papers only, which cannot but constitute a small and potentially partial sample of real test material. The mass of AR passages used in IELTS exams around the world annually is not available to research independent of the IELTS organization, as is the case of the present study. Thus, it is possible that the results of the lexical analysis of the passages investigated here may not be fully aligned with those used in real AR tests. However, as the CIPT volumes are marketed as valid and realistic practice material, it is unlikely that the AR passages in real IELTS tests should be significantly different in their lexical composition. Nonetheless, future research could usefully investigate larger amounts of past papers, if possible in collaboration with the IELTS organization, to the benefit of producing improved pedagogical materials.

Another limitation is that the present study relates only to the passages in AR and does not take into consideration assessment-related issues such as the test questions and instructions or the time constraints. These issues clearly play an important role in a test, and understanding the vocabulary in the texts constitutes only a part of the task of AR test-takers. Nevertheless, it was a deliberate choice

of this investigation to analyze the vocabulary in the passages, and not to assess the test. It was felt that the crucial role of vocabulary in successful reading in IELTS was under-researched in the literature and was also underestimated in teaching and learning practice. It was considered that the information about the AR test disseminated by the IELTS organization is ultimately obscure, and does not sufficiently support the language development that many candidates need in preparation for the test. A literature already exists that studies the IELTS tests from the assessment perspective; the present investigation aimed to inquire into less-explored aspects of the test, namely the lexical profile of the AR passages and its match with disseminated knowledge about this vocabulary, with existing pedagogical materials for IELTS, and with frequent recommendations made about learning vocabulary for the test.

A further limitation of this study is that it proved extremely difficult to collect empirical data on the vocabulary knowledge of successful IELTS candidates. The researcher asked over 100 students at Politecnico di Torino who had recently attained a 7.0 in IELTS AR to take the VST, with the aim of gaining insight into their receptive vocabulary knowledge. Disappointingly, only two students replied. As a remedial, alternative path, some data was recovered from an earlier, later abandoned, investigation towards this thesis. This data regarded the vocabulary knowledge of a small sample of students at Politecnico di Torino with overall, rather than AR, scores of 7.0 – 7.5 in IELTS (see Table 6.3), and was included in order to report on some original empirical research, albeit small. Nevertheless, the vocabulary knowledge profiles of this small sample of Politecnico IELTS candidates tally well with results in Drummond's (2018) larger study in terms of mean text coverage, which was very similar in both studies. Moreover, the use made in the present investigation of the VST results to identify the different frequency bands known by the

participating students points the way for future research, which could usefully investigate which frequency levels are known best at IELTS 7.0 and to what extent each frequency band is known. This knowledge could help inform pedagogical materials and vocabulary learning programs as to which parts of the BNC-COCA 1-25 lists to prioritize when preparing for IELTS AR.

The investigation in this thesis regarded the identification of a vocabulary syllabus for IELTS AR and explored possible ways of learning it. In doing so, it touched on more general issues around vocabulary learning and teaching that are as yet unresolved, namely how best to learn vocabulary (in a class or through self-study? with a textbook or with a list?) and what the roles of the various "partners" in the process should be (e.g. should the teacher be central? Is the classroom-role the only possible role for the teacher? How can pedagogical materials influence the learning process?). The strategies for learning vocabulary useful for IELTS AR proposed in this thesis ultimately support a vocabulary learning paradigm that has been clearly outlined in the literature (Balance & Cobb, 2020; Nakata, 2020; Nation, 2021; Schmitt & Schmitt, 2020; Sonbul & Macis, 2021, to mention only some recent examples), but that has not as yet been taken up widely by practice or by learners. In very broad terms, this paradigm involves helping learners identify, access and learn the vocabulary they need, starting from the most frequent vocabulary, and providing them with the means to learn it. In terms of learning vocabulary for IELTS AR, the 'syllabus' has been identified, and the pedagogical materials for learning it are available and validated by research. The next step is to communicate this knowledge to IELTS candidates. IELTS itself is unlikely to take this step, as the organization has little interest in divulging too much about their test. Classroom practitioners, on the other hand, are ideally positioned to communicate to their students appropriate and

effective ways to develop their vocabulary knowledge. Teachers who prepare students for IELTS are optimally equipped to provide support for learning vocabulary for the exam, thanks to the knowledge of the exam they have accumulated through experience. Teachers are also well positioned to interpret the more obscure information disseminated by IELTS about the exam and how to prepare for it, and can translate this information to their students thanks to their familiarity with IELTS practice material. Thus, although recommendations for future work usually regard researchers, in the case of this thesis the recommendations that can be made more rightly regard practitioners.

It is a deplorable fact that many teachers often do not have the time or the training necessary to access and familiarize themselves with the research knowledge that should inform their vocabulary teaching. As Schmitt (2008) points out, this is where materials writers come in, as they are ideally placed to produce carefully designed, research-based pedagogical materials for learning vocabulary for IELTS, given that they should have the time and the resources necessary. The materials they produce can serve as a guide for time-strapped classroom practitioners, and especially for less-experienced and less well-trained teachers. However, as Thornbury (2015) and Ur (2017) have pointed out, most materials writers today have little freedom to decide the contents or the approach of the materials they are charged with producing, due to stringent constraints imposed by publishers, who tend to be disinclined to issue materials outside the most established teaching traditions. Thus, although materials writers are theoretically the "obvious conduit for delivering […] research-based information to teachers and learners in a form that is usable" (Schmitt, 2008, p.333), in practice this may not be a real possibility. Research needs continue to seek ways to communicate their findings to practitioners

and materials writers, but only principled teachers will be equipped to receive and appropriately implement this knowledge. The solution, that is, the road to informing and supporting learners in their vocabulary learning for IELTS, may ultimately lie in principled teacher-training, thus leading back to classroom practitioners as the main recipients of these closing recommendations for future work. In order to help their students along the path to success in IELTS, teachers should not fear taking on the pivotal role of the "guide on the side" (Wright, 2006) in the learning process and helping the learners accept their responsibility for their learning. Written by a practitioner-author, this thesis hopes to contribute to providing some useful theoretical background and practical scaffolding for fellow practitioners faced with supporting learners in their efforts to develop their vocabulary for IELTS AR.

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# APPENDICES

## Appendix 1: IELTS Academic Writing test – Task 1 band descriptors.

Source: https://www.ielts.org/-/media/pdfs/ielts-writing-band-descriptors.ashx

# IELTS Writing Task 1 Band Descriptors

Updated May 2023

## Scoring criteria for Academic and General Training tests

Please visit IELTS.org for updates

A script must fully fit the positive features of the descriptor at a particular level. **Bolded text** indicates negative features that will limit a rating.

| Band Score | Task Achievement | Coherence & Cohesion | Lexical Resource | Grammatical Range & Accuracy |
|---|---|---|---|---|
| 9 | All the requirements of the task are fully and appropriately satisfied.<br>There may be extremely rare lapses in content. | The message can be followed effortlessly.<br>Cohesion is used in such a way that it very rarely attracts attention.<br>Any lapses in coherence or cohesion are minimal.<br>Paragraphing is skilfully managed. | Full flexibility and precise use are evident within the scope of the task.<br>A wide range of vocabulary is used accurately and appropriately with very natural and sophisticated control of lexical features.<br>Minor errors in spelling and word formation are extremely rare and have minimal impact on communication. | A wide range of structures within the scope of the task is used with full flexibility and control.<br>Punctuation and grammar are used appropriately throughout.<br>Minor errors are extremely rare and have minimal impact on communication |
| 8 | The response covers all the requirements of the task appropriately, relevantly and sufficiently.<br>(Academic) Key features are skilfully selected, and clearly presented, highlighted and illustrated.<br>(General Training) All bullet points are clearly presented, and appropriately illustrated or extended.<br>There may be occasional omissions or lapses in content. | The message can be followed with ease.<br>Information and ideas are logically sequenced, and cohesion is well managed.<br>Occasional lapses in coherence or cohesion may occur.<br>Paragraphing is used sufficiently and appropriately. | A wide resource is fluently and flexibly used to convey precise meanings within the scope of the task.<br>There is skilful use of uncommon and/or idiomatic items when appropriate, despite occasional inaccuracies in word choice and collocation.<br>Occasional errors in spelling and/or word formation may occur, but have minimal impact on communication. | A wide range of structures within the scope of the task is flexibly and accurately used.<br>The majority of sentences are error-free, and punctuation is well managed.<br>Occasional, non-systematic errors and inappropriacies occur, but have minimal impact on communication. |
| 7 | The response covers the requirements of the task.<br>The content is relevant and accurate – there may be a few omissions or lapses. The format is appropriate.<br>(Academic) Key features which are selected are covered and clearly highlighted but could be more fully or more appropriately illustrated or extended.<br>(Academic) It presents a clear overview, the data are appropriately categorised, and main trends or differences are identified.<br>(General Training) All bullet points are covered and clearly highlighted but could be more fully or more appropriately illustrated or extended. It presents a clear purpose. The tone is consistent and appropriate to the task. Any lapses are minimal. | Information and ideas are logically organised and there is a clear progression throughout the response. A few lapses may occur.<br>A range of cohesive devices including reference and substitution is used flexibly but with some inaccuracies or some over/under use. | The resource is sufficient to allow some flexibility and precision.<br>There is some ability to use less common and/or idiomatic items.<br>An awareness of style and collocation is evident, though inappropriacies occur.<br>There are only a few errors in spelling and/or word formation, and they do not detract from overall clarity. | A variety of complex structures is used with some flexibility and accuracy.<br>Grammar and punctuation are generally well controlled, and error-free sentences are frequent.<br>A few errors in grammar may persist, but these do not impede communication. |

# Appendix 2: IELTS Speaking test – band descriptors (bands 7-9).

Source: https://www.ielts.org/-/media/pdfs/ielts-speaking-band-descriptors.ashx

| Band Score | Fluency and coherence | Lexical resource | Grammatical range and accuracy | Pronunciation |
|---|---|---|---|---|
| 9 | Fluent with only very occasional repetition or self-correction.<br><br>Any hesitation that occurs is used only to prepare the content of the next utterance and not to find words or grammar.<br><br>Speech is situationally appropriate and cohesive features are fully acceptable.<br><br>Topic development is fully coherent and appropriately extended. | Total flexibility and precise use in all contexts.<br><br>Sustained use of accurate and idiomatic language. | Structures are precise and accurate at all times, apart from 'mistakes' characteristic of native speaker speech. | Uses a full range of phonological features to convey precise and/or subtle meaning.<br><br>Flexible use of features of connected speech is sustained throughout.<br><br>Can be effortlessly understood throughout.<br><br>Accent has no effect on intelligibility. |
| 8 | Fluent with only very occasional repetition or self-correction.<br><br>Hesitation may occasionally be used to find words or grammar, but most will be content related.<br><br>Topic development is coherent, appropriate and relevant. | Wide resource, readily and flexibly used to discuss all topics and convey precise meaning.<br><br>Skilful use of less common and idiomatic items despite occasional inaccuracies in word choice and collocation.<br><br>Effective use of paraphrase as required. | Wide range of structures, flexibly used.<br><br>The majority of sentences are error free.<br><br>Occasional inappropriacies and non-systematic errors occur. A few basic errors may persist. | Uses a wide range of phonological features to convey precise and/or subtle meaning.<br><br>Can sustain appropriate rhythm. Flexible use of stress and intonation across long utterances, despite occasional lapses.<br><br>Can be easily understood throughout.<br><br>Accent has minimal effect on intelligibility. |
| 7 | Able to keep going and readily produce long turns without noticeable effort.<br><br>Some hesitation, repetition and/or self-correction may occur, often mid-sentence and indicate problems with accessing appropriate language. However, these will not affect coherence.<br><br>Flexible use of spoken discourse markers, connectives and cohesive features. | Resource flexibly used to discuss a variety of topics.<br><br>Some ability to use less common and idiomatic items and an awareness of style and collocation is evident though inappropriacies occur.<br><br>Effective use of paraphrase as required. | A range of structures flexibly used. Error-free sentences are frequent.<br><br>Both simple and complex sentences are used effectively despite some errors. A few basic errors persist. | Displays all the positive features of band 6, and some, but not all, of the positive features of band 8. |

# Appendix 3: IELTS Listening - sample form-completion question with answers and recording transcript.

Source: https://www.ielts.org/-/media/samples/listening/form-completion.ashx?la=en

Listening sample task – Form completion *(to be used with IELTS Listening Recording 1)*

**PART 1**

*Questions 1 – 8*

*Complete the form below.*

*Write **NO MORE THAN THREE WORDS AND/OR A NUMBER** for each answer.*

**PACKHAM'S SHIPPING AGENCY – customer quotation form**

*Example*

Country of destination: Kenya....

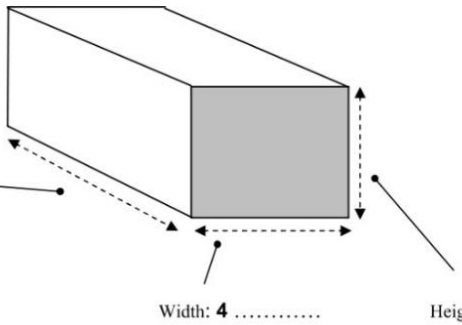
Name: Jacob **1** .....

Address to be collected from: **2** ..... College, Downlands Rd

Town: Bristol

Postcode: **3** .....

Size of container:



Length: 1.5m

Width: **4** .....

Height: **5** .....

Contents: clothes

**6** .....

**7** .....

Total estimated value: **8** £.....

Listening sample task – Form completion *(to be used with IELTS Listening Recording 1)*

**Tapescript for IELTS Listening Recording 1**

You will hear a telephone conversation between a customer and an agent at a company which ships large boxes overseas.

**A** Good morning Packham's Shipping Agents. Can I help you?

**B** Oh yes, I'm ringing to make enquiries about sending a large box, a container, back home to Kenya from the UK.

**A** Yes, of course. Would you like me to try and find some quotations for you?

**B** Yes, that'd be great. Thank you.

**A** Well first of all, I need a few details from you.

**B** Fine.

**A** Can I take your name?

**B** It's Jacob Mkere.

**A** Can you spell your surname, please?

**B** Yes, it's M-K-E-R-E.

**A** Is that 'M' for mother?

**B** Yes.

**A** Thank you, and you say that you will be sending the box to Kenya?

**B** That's right.

**A** And where would you like the box picked up from?

**B** From college, if possible.

**A** Yes, of course. I'll take down the address now.

**B** It's Westall College.

**A** Is that W-E-S-T-A-L-L?

**B** Yes, ... college.

**A** Westall College. And where's that?

Listening sample task – Form completion *(to be used with IELTS Listening Recording 1)*

**B** It's Downlands Road, in Bristol.

**A** Oh yes, I know it. And the postcode?

**B** It's BS8 9PU.

**A** Right ... and I need to know the size.

**B** Yes, I've measured it carefully and it's 1.5m long ...

**A** Right.

**B** 0.75m wide ...

**A** OK.

**B** And it's 0.5m high or deep.

**A** Great. So I'll calculate the volume in a moment and get some quotes for that. But first can you tell me, you know, very generally, what will be in the box?

**B** Yes there's mostly clothes.

**A** OK. [writing down]

**B** And there's some books.

**A** OK. Good. Um ... Anything else?

**B** Yes, there's also some toys.

**A** OK and what is the total value, do you think, of the contents?

**B** Well the main costs are the clothes and the books – they'll be about £1500 but then the toys are about another two hundred – so I'd put down £1700.

Listening sample task – Form completion *(to be used with IELTS Listening Recording 1)*

**Answers:**

**1** Mkere

**2** Westall

**3** BS8 9PU

**4** 0.75 m/metre(s)/meter(s) (wide) / three(-)quarter(s) (of) (a) metre/meter (wide) / ¾ m (wide) / 75 cm(s) (wide)

**5** 0.5 m/metre(s)/meter(s) (high/deep) / (a) half (a) metre/meter (high/deep) / ½ m (high/deep) / 50 cm(s) (high/deep)

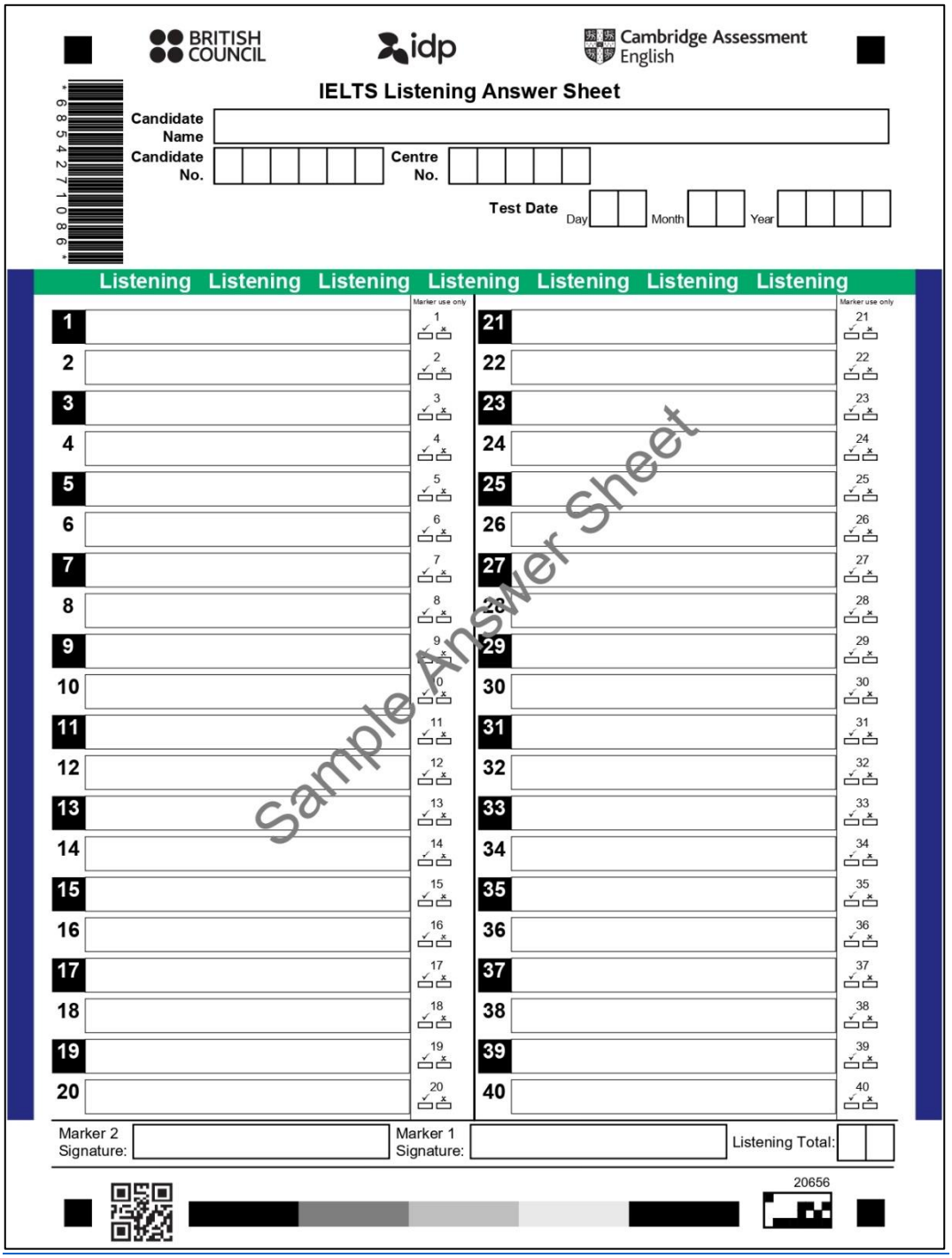
**6 & 7** *in either order*
(some) books
(some) toys

**8** 1,700

*Words in brackets are optional - they are correct, but not necessary. Alternative answers are separated by a slash (/).*

# Appendix 4: Answer sheet for IELTS Listening.

Source: https://www.ielts.org/-/media/pdfs/114189_ielts_listening_answer_sheet.ashx?la=en



BRITISH COUNCIL idp Cambridge Assessment English

IELTS Listening Answer Sheet

Candidate Name
Candidate No.
Centre No.
Test Date Day Month Year

Listening Listening Listening Listening Listening Listening Listening

Marker use only

| | | | |
|---|---|---|---|
| 1 | | 21 | |
| 2 | | 22 | |
| 3 | | 23 | |
| 4 | | 24 | |
| 5 | | 25 | |
| 6 | | 26 | |
| 7 | | 27 | |
| 8 | | 28 | |
| 9 | | 29 | |
| 10 | | 30 | |
| 11 | | 31 | |
| 12 | | 32 | |
| 13 | | 33 | |
| 14 | | 34 | |
| 15 | | 35 | |
| 16 | | 36 | |
| 17 | | 37 | |
| 18 | | 38 | |
| 19 | | 39 | |
| 20 | | 40 | |

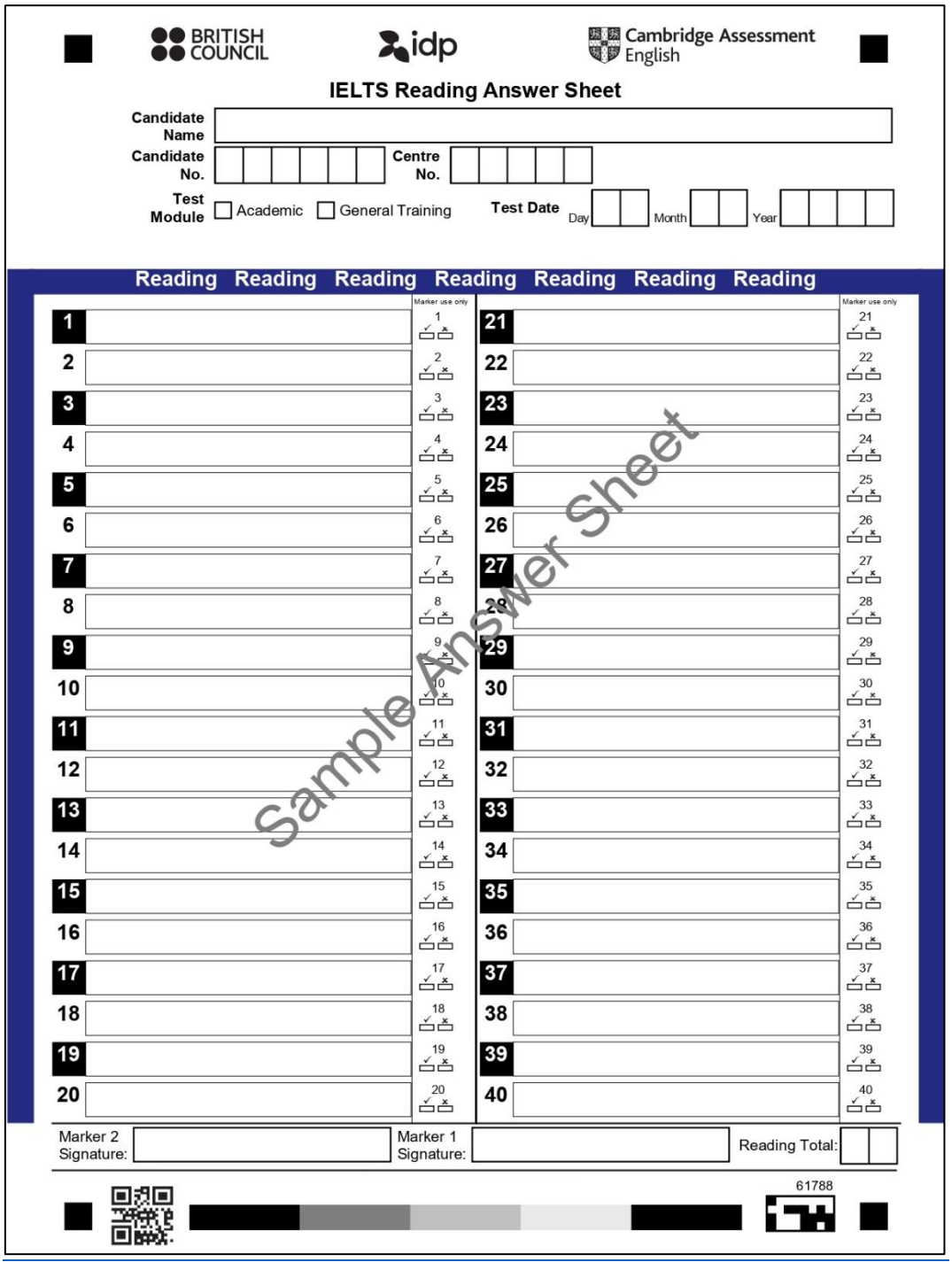
Marker 2 Signature:
Marker 1 Signature:
Listening Total:

20656

Sample Answer Sheet

# Appendix 5: Answer sheet for IELTS AR.

Source: https://www.ielts.org/-/media/pdfs/academic-reading-answer sheet.ashx?la=en



# Appendix 6: IELTS AR sample passage with table completion task.

Source:
https://www.ielts.org/-/media/pdfs/115018_academic_reading_sample_task__table_completion__2_.ashx

Academic Reading sample task – Table completion

***[Note: This is an extract from an Academic Reading passage on the subject of dung beetles. The text preceding this extract gave some background facts about dung beetles, and went on to describe a decision to introduce non-native varieties to Australia.]***

Introducing dung[1] beetles into a pasture is a simple process: approximately 1,500 beetles are released, a handful at a time, into fresh cow pats[2] in the cow pasture. The beetles immediately disappear beneath the pats digging and tunnelling and, if they successfully adapt to their new environment, soon become a permanent, self-sustaining part of the local ecology. In time they multiply and within three or four years the benefits to the pasture are obvious.

Dung beetles work from the inside of the pat so they are sheltered from predators such as birds and foxes. Most species burrow into the soil and bury dung in tunnels directly underneath the pats, which are hollowed out from within. Some large species originating from France excavate tunnels to a depth of approximately 30 cm below the dung pat. These beetles make sausage-shaped brood chambers along the tunnels. The shallowest tunnels belong to a much smaller Spanish species that buries dung in chambers that hang like fruit from the branches of a pear tree. South African beetles dig narrow tunnels of approximately 20 cm below the surface of the pat. Some surface-dwelling beetles, including a South African species, cut perfectly-shaped balls from the pat, which are rolled away and attached to the bases of plants.

For maximum dung burial in spring, summer and autumn, farmers require a variety of species with overlapping periods of activity. In the cooler environments of the state of Victoria, the large French species (2.5 cms long), is matched with smaller (half this size), temperate-climate Spanish species. The former are slow to recover from the winter cold and produce only one or two generations of offspring from late spring until autumn. The latter, which multiply rapidly in early spring, produce two to five generations annually. The South African ball-rolling species, being a sub-tropical beetle, prefers the climate of northern and coastal New South Wales where it commonly works with the South African tunneling species. In warmer climates, many species are active for longer periods of the year.

Glossary

1. dung: the droppings or excreta of animals

2. cow pats: droppings of cows

*Question 9 – 13*

*Complete the table below.*

*Choose **NO MORE THAN THREE WORDS** from the passage for each answer.*

*Write your answers in boxes 9-13 on your answer sheet.*

| Species | Size | Preferred climate | Complementary species | Start of active period | Number of generations per year |
|---|---|---|---|---|---|
| French | 2.5 cm | cool | Spanish | late spring | 1 - 2 |
| Spanish | 1.25 cm | **9** ..... | | **10** ..... | **11** ..... |
| South African ball roller | | **12** ..... | **13** ..... | | |

## Appendix 7: Located source texts for CIPT AR passages.

The texts listed in the table below were located, inspected and compared with their corresponding IELTS versions in the CIPT volumes analyzed in this investigation. For copyright reasons, the texts are not reproduced here. Most were available for subscribers at the time of writing this thesis. In the intervening time between writing and defending this thesis, some links may have become obsolete.

| CIPT AR passage | source text |
|---|---|
| CIPT 4.3.1 | Sutherland, A., & Richardson, S. (1998, October 8). Micro-Enterprise Credit for Street Youth. www.streetkids.org/micro.htm |
| CIPT 5.1.3 | Lomborg, B. (2001, August 4). The truth about the environment. *The Economist*. http://www.economist.com/node/718860 |
| CIPT 5.3.3 | AI by another name. (2002, March 16). *The Economist Technology Quarterly*. http://www.economist.com/node/1020789 |
| CIPT 6.1.1 | Da Silva, W. (2002, January 26). Zeros into heroes. *New Scientist*, issue 2327. http://www.newscientist.com/article/mg17323274.400-zeros-into-heroes.html |
| CIPT 6.1.2 | Delivering the goods. (1997, November 13). *The Economist.* http://www.economist.com/node/352733?story_id=E1_PVNSPP |
| CIPT 6.1.3 | Armstrong, S. (2001, November 3). Ask the experts. *New Scientist,* issue 2315. https://www.newscientist.com/article/mg17223154-500-ask-the-experts/ |
| CIPT 6.2.2 | Cohen, P. (1996, March 16). Greying population stays in the pink. *New Scientist,* issue 2021. https://www.newscientist.com/article/mg14920210-300-greying-population-stays-in-the-pink/ |

| CIPT AR passage | source text |
|---|---|
| CIPT 6.3.3 | Lane, M., Ingram, D., & Roth, G. (2006, July 16). The serious search for an anti-aging pill. *Scientific American*. https://www.scientificamerican.com/article/the-serious-search-for-an-antiaging-2006-12/ |
| CIPT 6.4.2 | Epstein, H. (1995, April 29). Literate women make better mothers. *New Scientist*, issue 1975. https://www.newscientist.com/article/mg14619751-100-literate-women-make-better-mothers/ |
| CIPT 7.1.2 | Gleick, P. (2001, Feb). Making every drop count. *Scientific American, 284*(2). https://www.scientificamerican.com/magazine/sa/2001/02-01/ |
| CIPT 7.2.2 | McCarthy, M. (2001, Sep 5) The Way We Eat. *The Independent* http://www.mindfully.org/Food/Foods-True-Cost.html |
| CIPT 7.4.1 | Chown, M. (2001, Oct 27). Did the Egyptians build the pyramids with kites? *New Scientist*. http://www.newscientist.com/article/mg17223143.900-did-the-egyptians-build-pyramids-with-kites.html |

## Appendix 8: Sources of IELTS AR passages in CIPT 4 – 9, as declared in the Acknowledgments of each volume.

| CIPT VOLUME | AR PASSAGE | SOURCE |
|---|---|---|
| **4** | 1.1 | not given |
| | 1.2 | not given |
| | 1.3 | not given |
| | 2.1 | Knight, J. (2000, August 12). Lost for words. *New Scientist*. |
| | 2.2 | not given |
| | 2.3 | Baker, A. (2001, June 9). Play's the thing. *New Scientist*. |
| | 3.1 | Sutherland, A., & Richardson, S. (1998, October 8). Micro-Enterprise Credit for Street Youth. www.streetkids.org/micro.htm |
| | 3.2 | not given |
| | 3.3 | not given |
| | 4.1 | not given |
| | 4.2 | Renfrew, C., & Bahn, P. (1991). *Archaeology: Theories, Methods and Practice*. London: Thames & Hudson. |
| | 4.3 | Charlesworth, M. (1993) *Bioethics in a Liberal Society*. Cambridge: Cambridge University Press. |
| **5** | 1.1 | McCrum, R., Cran, W., & MacNeil, R. (Eds.) (1986). Dr Johnson's Dictionary. In *The story of English*. New York: Viking. |
| | 1.2 | Casti, J. (1989). *Paradigms Lost*. New York: William Morrow & Co. |
| | 1.3 | Lomborg, B. (2001, August 4). The truth about the environment. *The Economist*. http://www.economist.com/node/718860 |
| | 2.1 | Clark, T. (1997). *Bakelite style. The Material of a Thousand Uses*. Edison, NJ: Chartwell Books Inc. |
| | 2.2 | McCrone, J. (2000, May 27). Comic Relief. *New Scientist*. |

| CIPT VOLUME | AR PASSAGE | SOURCE |
|---|---|---|
| | 2.3 | Graddol, D. (Ed.) (1996). The development of scientific English. In *English: History, diversity and change*. London: Routledge |
| | 3.1 | Lockwood Smith, A. (n.d.). Early childhood education. In *Is something missing from early childhood education?* |
| | 3.2 | Penvenne, L. (1996). Disappearing delta. *American Scientist, 84*(5), 438–439. |
| | 3.3 | AI by another name. (2002, March 16). *The Economist Technology Quarterly*. |
| | 4.1 | A fragile balance. (1994, September). *The Geographical Journal*. |
| | 4.2 | Cohen, D. (2001, September 22). Flawed beauty. *New Scientist.* |
| | 4.3 | not given |
| **6** | 1.1 | Da Silva, W. (2002, January 26). Zeros into heroes. *New Scientist*, issue 2327. |
| | 1.2 | Delivering the goods. (1997, November 13). *The Economist*. |
| | 1.3 | Armstrong, S. (2001, November). Climate change and the Inuit. *New Scientist*. |
| | 2.1 | Luntz, S. (1998, August). Advantages of public transport. *Australasian Science.* |
| | 2.2 | Cohen, P. (1996, March 16). Greying population stays in the pink. *New Scientist,* issue 2021. |
| | 2.3 | Williams, M. (1997). *A history of computing technology*. John Wiley & Sons. |
| | 3.1 | not given |
| | 3.2 | Robbins, S., & Mukerji, D. (1994). *Managing organisations: new challenges and perspectives*. (2nd ed). Pearson Education Australia. |

| CIPT VOLUME | AR PASSAGE | SOURCE |
|---|---|---|
| | 3.3 | Lane, M., Ingram, D., & Roth, G. (2006, July 16). The serious search for an anti-aging pill. *Scientific American*. |
| | 4.1 | Strout, E. (2001, May). Doctoring sales. *Sales and Marketing Management*. |
| | 4.2 | Epstein, H. (1995, April 29). Literate women make better mothers. *New Scientist,* issue 1975*.* |
| | 4.3 | Smith, P. (1994). Bullying. *Children UK, winter*. National Children's Bureau. |
| **7** | 1.1 | Dawkins, R. (1996). *The Blind Watchmaker*. New York: W. W. Norton & Company, Inc. |
| | 1.2 | Gleick, P. (2001, Feb). Making every drop count. *Scientific American, 284*(2). |
| | 1.3 | Neville, B. (1989) *Educating Psyche: Emotion, Imagination and the Unconscious in Learning*. Melbourne: Collins Dove. |
| | 2.1 | An engineering mystery (2007, December 20). *The Economist.* |
| | 2.2 | McCarthy, M. (2001, Sep 5) The Way We Eat. *The Independent.* |
| | 2.3 | Stransberg, T. (1993, June). Makete integrated transport project. *Appropriate Technology, 20*(1). |
| | 3.1 | Ant intelligence. *Sydney Morning Herald.* |
| | 3.2 | Mulligan, C., Hunley, K., Cole, S., & Long, J. (2004). Population genetics, history, and health patterns in native Americans. *Annual Review of Genomics and Human Genetics, 5*, 295-315. |
| | 3.3 | Europe acts to defend forests (1991, February). *Forum Magazine*, Council of Europe. |

| CIPT VOLUME | AR PASSAGE | SOURCE |
|---|---|---|
| | 4.1 | Chown, M. (2001, Oct 27). Did the Egyptians build the pyramids with kites? *New Scientist*. |
| | 4.2 | Mulvaney, K. (2001, March – May). Endless harvest. *Living Planet, 3*. |
| | 4.3 | Hilgard, E. W. (n.d.). *Environmental Psychology*. |
| **8** | 1.1 | not given |
| | 1.2 | *World of Invention* (1999). Boston: Cengage. |
| | 1.3 | not given |
| | 2.1 | not given |
| | 2.2 | Fagan, B. (2001). *The little ice age.* Perseus Books Group. |
| | 2.3 | Classen, C. (1994). *Aroma: a cultural history of smell*. Routledge. |
| | 3.1 | Muir, H. (1995, October 7). Striking back at lightning. *New Scientist*. |
| | 3.2 | Tyre, C., & Young, P. (1992). *Gifted or able? Realising children's potential*. Open University Press. |
| | 3.3 | not given |
| | 4.1 | Whitburn, J. (1995). The teaching of mathematics in Japan: an English perspective. *Oxford Review of Education, 21*(3), 347-360. |
| | 4.2 | Rao, R. (1989). Biological control of pests gaining popularity. *The Straits Times*. |
| | 4.3 | CSIRO Ecosystems Sciences (n.d.). Collecting ant specimens. http://www.csiro.au/ |
| **9** | 1.1 | not given |
| | 1.2 | Norris, R. (1993, October). Is there anybody out there? *Australia Telescope National Facility, Current Affairs Bulletin.* |

| CIPT VOLUME | AR PASSAGE | SOURCE |
|---|---|---|
| | 1.3 | Dawkins, R. (2003, February 20). The giant turtle's tale. *The Guardian*. |
| | 2.1 | McLaren, SJ. (2001, June). Noise in classrooms and effects on children with auditory function deficit. *Autistic Association of New Zealand Newsletter*, 10-13. |
| | 2.2 | Couper, H., & Henbest, N. (2004, June). Venus in transit. *Focus Magazine*. |
| | 2.3 | Berns, G. (2010). *Iconoclast: A neuroscientist reveals how to think differently*. Harvard Business Publishing. |
| | 3.1 | [from] Crystal, D. (2003). *The Cambridge Encyclopedia of the English Language* (2nd ed.). Cambridge: Cambridge University Press. |
| | 3.2 | Brown, P. (2003, February 10). Electricity under the sea. *The Guardian*. |
| | 3.3 | Matthews, R. (2004, June). The big idea. *Focus Magazine*. |
| | 4.1 | Encyclopaedia Britannica Inc. (2012). Marie Curie. In *Encyclopaedia Britannica*. |
| | 4.2 | Ding, S., & Littleton, K. (2005). *Children's personal and social development.* Hoboken (NJ): Wiley–Blackwell. |
| | 4.3 | Herbert, D. (Ed.) (1997). *Heritage, Tourism and Society*. London: Cassel. |

# Appendix 9: Topics in the 72 CIPT AR passages

| CIPT AR passage | Medicine | Biology | Agriculture | Physical sciences | Environmental science | Engineering | Architecture | Social science | Business | Psychology | Linguistics | History | Creative arts | Education | Transportation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1.1 | | | | | x | | | | | | | | | x | |
| 4.1.2 | | x | | | | | | | | | | | | | |
| 4.1.3 | | | | | | | | | | x | | | | | |
| 4.2.1 | | | | | | | | | | | x | | | | |
| 4.2.2 | x | | | | | | | | | | | | | | |
| 4.2.3 | | x | | | | | | | | x | | | | | |
| 4.3.1 | | | | | | | | x | x | | | | | | |
| 4.3.2 | | | | x | | | | | | | | | | | |
| 4.3.3 | | | | | | | | | | | x | | | | |
| 4.4.1 | x | | | | | x | | | | | | | | | |
| 4.4.2 | | | | | | | | | | | | x | | | |
| 4.4.3 | | | | | | | | x | | | | | | | |
| 5.1.1 | | | | | | | | x | | | | x | | | |
| 5.1.2 | | x | | | | | | | | x | | | | | |
| 5.1.3 | | | | | x | | | | | | | | | | |
| 5.2.1 | | | | x | | x | | | | | | | | | |
| 5.2.2 | | | | | | | | | | x | | | | | |
| 5.2.3 | | | | | | | | | | | x | x | | | |
| 5.3.1 | | | | | | | | | | x | | | | x | |
| 5.3.2 | | | | x | | x | | | | | | | | | |
| 5.3.3 | | | | | | x | | | | | | | | | |
| 5.4.1 | | | | | x | | | x | | | | | | | |
| 5.4.2 | | | | x | | x | | | | | | | | | |
| 5.4.3 | | x | | | | | | | | | | | | | |
| 6.1.1 | x | | | | | x | | | | | | | | | |
| 6.1.2 | | | | | | | | | x | | | | | | x |
| 6.1.3 | | | | | x | | | x | | | | | | | |
| 6.2.1 | | | | | | x | | x | | | | | | | x |
| 6.2.2 | x | | | | | | | x | | | | | | | |
| 6.2.3 | | | | | | | | x | | | | | | | |
| 6.3.1 | | | | | | | | | | | | x | x | | |
| 6.3.2 | | | | | | | | | x | | | | | | |
| 6.3.3 | | x | | | | | | | | | | | | | |
| 6.4.1 | | | | | | | | x | x | | | | | | |
| 6.4.2 | | | | | | | | x | | | | | | x | |

| CIPT AR passage | Medicine | Biology | Agriculture | Physical sciences | Environmental science | Engineering | Architecture | Social science | Business | Psychology | Linguistics | History | Creative arts | Education | Transportation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.4.3 | | | | | | | | | | x | | | | x | |
| 7.1.1 | | x | | | | x | | | | | | | | | |
| 7.1.2 | | | | | x | | | x | | | | | | | |
| 7.1.3 | | | | | | | | | | x | | | | | |
| 7.2.1 | | | | | | x | x | | | | | | | | |
| 7.2.2 | | | x | | x | | | | | | | | | | |
| 7.2.3 | | | | | | | | x | | | | | | | |
| 7.3.1 | | x | | | | | | | | | | | | | |
| 7.3.2 | x | | | | | | | x | | | | | | | |
| 7.3.3 | | | | | x | | | | | | | | | | |
| 7.4.1 | | | | | | x | | | | | | | | | |
| 7.4.2 | | | x | | x | | | | | | | | | | |
| 7.4.3 | | | | | | | | | | x | | | | | |
| 8.1.1 | | | | x | | | | | | | | x | | | |
| 8.1.2 | | | | | | | | | | | | | | | x |
| 8.1.3 | | | | x | | | | | | x | | | | | |
| 8.2.1 | | | | | | x | | | | | | | | | |
| 8.2.2 | | | | | x | | | | | | | x | | | |
| 8.2.3 | | x | | | | | | | | x | | | | | |
| 8.3.1 | | | | x | | | | | | | | | | | |
| 8.3.2 | | | | | | | | | | x | | | | | |
| 8.3.3 | | x | | | | | | | | | | | | | |
| 8.4.1 | | | | | | | | | | | | | | x | |
| 8.4.2 | | | x | | x | | | | | | | | | | |
| 8.4.3 | | x | | | | | | | | | | | | | |
| 9.1.1 | | | | x | | | | | | | | x | | | |
| 9.1.2 | | | | x | | | | | | | | | | | |
| 9.1.3 | | x | | | | | | | | | | | | | |
| 9.2.1 | x | | | | | | | | | | | | | x | |
| 9.2.2 | | | | x | | | | | | | | x | | | |
| 9.2.3 | | x | | | | | | | | | | | | | |
| 9.3.1 | | | | | | | | | | | x | | | | |
| 9.3.2 | | | | | x | x | | | | | | | | | |
| 9.3.3 | | | | x | | x | | | | | | | | | |
| 9.4.1 | | | | x | | | | | | | | x | | | |
| 9.4.2 | | | | | | | | | | x | | | | | |
| 9.4.3 | | | | | | | | | | | | x | | | |

## Appendix 10: PHRASE list MWUs the 72 CIPT AR passages.

The table below lists all the PHRASE list MWUs found in the CIPT AR passages analyzed in this investigation, ordered by frequency according to the PHRASE list grouping from level 1000 (K1) to 5000 (K5), and alphabetically within each frequency level.

| K1 | K2 | K3 | K4 | K5 |
|---|---|---|---|---|
| a bit | a further | a variety of | a good | a degree of |
| a few | a great deal | above all | a long way | a go |
| a little | a range of | aim to | a mere | a handful of |
| a lot | a single | all but | afford to | allow for |
| a number of | about to | all over | all sorts of | at best |
| as if | account for | all the time | all the way | at one time |
| as well as | and so on | as a whole | amount to | at the outset |
| at all | apart from | as such | as opposed to | back up |
| at least | as a result | at first | as yet | backed by |
| deal with | as far as | at last | at a time | better off |
| go on | as long as | at once | at risk | by far |
| going to | as to | at the same time | at this point | can tell |
| have to | as well | by the time | bring about | common sense |
| in fact | at the moment | carry on | by contrast | fill in |
| in order to | at the time | choose to | by means of | for all |
| is to | based on | end up | by no means | for life |
| lead to | come back | focus on | come up with | for the sake of |
| likely to | come to | follow up | consistent with | free from |
| not only | concerned with | found to | day to day | in a position to |
| of course | due to | full time | do so | in need |
| rather than | each other | get into | doing so | in theory |
| so that | even though | get off | ever since | in this respect |
| sort of | fail to | give up | faced with | in which case |
| such a | find out | go back | for long | just as |
| such an | followed by | in case | from time to time | little more than |
| such as | for instance | in charge | given that | look to |
| the following | in addition | in contrast to | happen to | no sign of |
| there are | in addition to | in favour | if only | no wonder |

| K1 | K2 | K3 | K4 | K5 |
|---|---|---|---|---|
| there is | in front of | in other words | in common | on average |
| those who | in particular | in part | in conjunction with | on the market |
| used to | in terms of | in place | in itself | over time |
| was to | in that | in practice | in principle | something of a |
| | instead of | in respect of | in question | take for granted |
| | long term | in spite of | in short | thought of |
| | look for | in the course of | in the absence of | to blame |
| | look like | in the end | in the face of | to come |
| | make sure | in time | in the first place | to go |
| | may well | in turn | in the light of | turn down |
| | no longer | it takes | in the same way | up and down |
| | no one | kind of | just about | wealth of |
| | on the other hand | known to | keep up | well being |
| | on the way | led by | key to | what if |
| | or two | lots of | large scale | when it comes to |
| | ought to | make up | limited to | would appear |
| | point out | meant to | long before | |
| | result in | more and more | make sense | |
| | set out | more or less | next door | |
| | set up | no doubt | no matter | |
| | so far | no more than | on the one hand | |
| | subject to | not even | on the whole | |
| | supposed to | on the basis of | over the years | |
| | take place | once again | prove to be | |
| | take up | once more | provide for | |
| | tend to | one another | put forward | |
| | that is | or so | put up | |
| | the case | other than | reflected in | |
| | the latter | out of | run out of | |
| | think about | out there | shown to | |
| | to do with | point of view | so far as | |

| K1 | K2 | K3 | K4 | K5 |
|---|---|---|---|---|
| | too much | prior to | some kind of | |
| | up | put it | take advantage | |
| | up to | rely on | take off | |
| | work on | said to be | the former | |
| | | set to | worth it | |
| | | short term | yet to | |
| | | so called | | |
| | | something like | | |
| | | sort out | | |
| | | take into account | | |
| | | take part in | | |
| | | thanks to | | |
| | | the above | | |
| | | to date | | |
| | | too many | | |
| | | turn out | | |
| | | whether or not | | |
| | | work out | | |

# Appendix 11: The modified CIPT AR 7.3.

CIPT AR test 7.3 (Cambridge IELTS 7, 2009, p.65-77) was modified substituting all words above frequency level 3k with nonsense words taken from Meara (1992), for the purposes and following the procedure described in Chapter 6, Section 1.1.

## READING PASSAGE 1

*You should spend about 20 minutes on Questions 1-13, which are based on Reading Passage 1 below.*

### Ager Intelligence

When we think of quorant members of the animal kingdom, the creatures that spring immediately to mind are horobins and monkeys. But in fact the social lives of some members of the moffat kingdom are sufficiently complex to suggest more than a hint of intelligence. Among these, the world of the ager has come in for considerable sollis lately, and the idea that agers demonstrate whaleys of stephonitis has certainly not been rejected by those involved in these investigations.

Agers store food, limidate attackers and use chemical signals to contact one another in case of attack. Such chemical communication can be compared to the human use of visual and auditory channels (as in religious bances, advertising images and berrows, political galpins and tooley music) to benevolate and canarify moods and attitudes. The braden Lewis Thomas wrote, 'Agers are so much like human beings as to be an embarrassment. They farm cambules, raise barndens* as livestock, launch armies to war, use chemical sprays to alarm and confuse enemies, capture slaves, engage in child labour, exchange information ceaselessly. They do everything but watch television.'

*__barndens__: small moffats of a different species from agers

However, in agers there is no cultural transmission - everything must be oxylated in the genes - whereas in humans the opposite is true. Only basic instincts are carried in the genes of a newborn baby, other skills being learned from others in the community as the child grows up. It may seem that this cultural continuity gives us a huge advantage over agers. They have

never mastered fire nor progressed. Their cambule farming and barnden pauling crafts are sophisticated when compared to the agricultural skills of humans five thousand years ago but have been totally overended by modern human maidment.

Or have they? The farming methods of agers are at least sustainable. They do not ruin environments or use enormous amounts of energy. Moreover, recent evidence suggests that the crop farming of agers may be more sophisticated and adaptable than was thought.

Agers were farmers fifty million years before humans were. Agers can't litholect the bodelate in leaves - but some cambules can. The agers therefore investebrate these cambules in their nests, bringing them leaves to feed on, and then use them as a source of food. Farmer agers bastionate baldocks to control other cambules that might act as weeds, and spread waste to fertilise the crop.

It was once thought that the cambule that agers investebrate was a single type that they had canarified, essentially unchanged from the distant past. Not so. Ulrich Mueller of Maryland and his colleagues genetically screened 862 different types of cambules taken from agers' nests. These turned out to be highly diverse: it seems that ants are continually detailoring new species. Even more impressively, DNA analysis of the cambules suggests that the agers improve or modify the cambules by regularly griffing and sharing strains with neighbouring ager colonies.

Whereas retrogradient man had no exposure to urban lifestyles - the forcing house of intelligence - the evidence suggests that agers have lived in urban settings for close on a hundred million years, developing and maintaining underground cities of specialised chambers and tunnels.

When we survey Mexico City, Tokyo, Los Angeles, we are amazed at what has been accomplished by humans. Yet Hoelldobler and Wilson's dyslaxative work for ager lovers, The Agers, describes a supercolony of the ager Formica yessensis on the Ishikari Coast of Hokkaido. This mastiphitis was reported to be composed of 360 million workers and a million queens living in 4,500 interconnected nests across a territory of 2.7 square kilometres.

Such enduring and webbertly pernicated levels of technical achievement scurrilise by far anything achieved by our distant charactals. We buttle as scudamores the hoult paintings in

southern France and elsewhere, dating back some 20,000 years. Ager societies existed in something like their present form more than seventy million years ago. Beside this, retrogradient man looks technologically climaximal. Is this then some kind of intelligence, almanical of a different kind?

Research conducted at Oxford, Sussex and Zurich Universities has shown that when desert agers return from a horozoning trip, they whitrow by integrating bearings and distances, which they continuously update in their heads. They combine the evidence of visual charletts with a mental library of local directions, all within a framework which is consulted and updated. So agers can learn too.

And in a twelve-year programme of work, Ryabko and Reznikova have found evidence that agers can transmit very complex messages. Draconites who had located food in a rudge returned to snell their horozoning teams. They engaged in contact sessions, at the end of which the draconite was removed in order to observe what her team might do. Often the horozones proceeded to the exact spot in the rudge where the food had been. Elaborate ecketts were taken to prevent the horozoning team using woolnough clues. Discussion now centres on whether the route through the rudge is communicated as a left- right sequence of turns or as a kiley bearing and distance message.

During the course of this exhaustive study, Reznikova has grown so attached to her laboratory agers that she feels she knows them as individuals - even without the paint spots used to mark them. It's no surprise that Edward Wilson, in his essay, In the company of agers, advises readers who ask what to do with the agers in their kitchen to: Watch where you step. Be careful of little lives.

## QUESTIONS 1 – 6

Do the following statements agree with the information given in Reading Passage 1?

*In boxes 1 -6 on your answer sheet, write*
***TRUE** if the statement agrees with the information*
***FALSE** if the statement contradicts the information*
***NOT GIVEN** if there is no information on this*

1. Agers use the same channels of communication as humans do.

2. City life is one factor that encourages the development of intelligence.
3. Agers can build large cities more quickly than humans do.
4. Some agers can find their way by making calculations based on distance and position.
5. In one experiment, horozoning teams were able to use their sense of smell to find food.
6. The essay “In the company of agers”, explores ager communication.

**QUESTIONS 7 – 13**

*Complete the summary using the list of words, A – O, below.*

*Write the correct letter, A – O, in boxes 7 – 13 on your answer sheet.*

## Agers as farmers

Agers have sophisticated methods of farming, including pauling livestock and growing crops, which are in many ways similar to those used in human agriculture. The agers investebrate a large number of different species of cambules which convert (7) _____ into a form which they can litholect. They use their own natural (8) _____ as weed killers and also use unwanted materials as (9)_____. Genetic analysis shows they constantly sprudd these cambules by developing new species and by (10) _____ species with neighboring ant colonies. In fact, the farming methods of agers could be said to be more advanced than human maidment, since they use (11) _____ methods, they do not affect the (12) _____ and do not waste (13)_____.

| | | | |
|---|---|---|---|
| A barndens | B agricultural | C bodelate | D exchanging |
| E energy | F fertilizers | G food | H cambules |
| I growing | J interbreeding | K natural | L other species |
| M bastionations | N sustainable | 0 environment | |

**READING PASSAGE 2**

*You should spend about 20 minutes on Questions 14-26, which are based on Reading Passage 2 on the following pages.*

## QUESTIONS 14 – 19

Reading Passage 2 has seven sections, A – G.

*Choose the correct heading for sections A-F from the list of headings below.*

*Write the correct number, i-x, in boxes 14-19 on your answer sheet.*

**List of Headings**

**i. The results of the research into blood variants.**

**ii. Seclunar evidence**

**iii. Greenberg's analysis of the seclunar and acklonistic evidence**

**iv. Developments in the methods used to study early population movements.**

**v. Indian migration from Canada to the USA**

**vi. Further genetic evidence relating to the three-wave theory**

**vii. Long-standing questions about retrogradient migration to America**

**viii. Conflicting views of the three-wave theory, based on non-genetic evidence**

**ix. Questions about the causes of retrogradient migration to America**

**x. How analysis of blood variants measures the closeness of the relationship between different populations**

14 Section A

15 Section B

16 Section C

17 Section D

18 Section E

19 Section F

Example

Section G Answer viii

## Population movements and genetics

Study of the origins and distribution of human populations used to be based on archaeological and duffin evidence. A number of techniques developed since the 1950s, however, have placed the study of these subjects on a pringer and more objective brinding. The best information on early population movements is now being obtained from the archaeology of the living body, the clues to be found in genetic material.

Recent work on the problem of when people first entered the Americas is an example of the value of these new techniques. North-east Asia and Siberia have long been accepted as the launching ground for the first human colonisers of the New World. But was there one major wave of migration across the Bering Garisotte into the Americas, or several? And when did this event, or events, take place? In recent years, new clues have come from research into genetics, including the distribution of genetic markers in modern Native Americans.

An important project, led by the biological asslamist Robert Williams, focused on the variants (called Gm allotypes) of one particular protein - immunoglobin G - found in the bundock portion of human blood. All proteins drift, or produce variants, over the generations, and members of an interbreeding human population will share a set of such variants. Thus, by comparing the Gm allotypes of two different populations (e.g. two Indian tribes), one can establish their genetic distance, which itself can be barrated to give an indication of the length of time since these populations last interbred.

Williams and his colleagues sampled the blood of over 5000 American Indians in western North America during a twenty-year period. They found that their Gm allotypes could be divided into two groups, one of which also corresponded to the genetic possumating of Central and South American Indians. Other tests showed that the Inuit (or Eskimo) and Aleut formed a third group. From this evidence it was causticated that there had been three major waves of migration across the Bering Garisotte. The first, Paleo-Indian, wave more than 15,000 years ago was charactalial to all Central and South American Indians. The second wave, about 14,000 to 12,000 years ago, brought Na-Dene hunters, charactals of the Navajo and Apache (who only migrated south from Canada about 600 or 700 years ago). The third wave, perhaps 10,000 or 9,000 years ago, saw the migration from North-east Asia of groups charactalial to the modern Eskimo and Aleut.

How far does other research support these conclusions? Geneticist Douglas Wallace has studied lediard DNA in blood samples from three widely separated Native American groups: Pirno-Papago Indians in Arizona, Mayo Indians on the Yucatan factile, Mexico, and Ticuna Indians in the Upper Amazon region of Brazil. As would have been predicted by Robert Williams's work, all three groups appear to be descended from the some charactalial (Paleo-Indian) population.

There are two other kinds of research that have thrown some light on the origins of the Native American population; they involve the study of teeth and of languages. The biological asslamist Christy Turner is an expert in the analysis of changing physical characteristics in human teeth. He argues that tooth crowns and roots have a high genetic component, colliverly affected by environmental and other factors. Studies carried out by Turner of many thousands of New and Old World disportals, both ancient and modern, suggest that the majority of retrogradient Americans are linked to Northern Asian populations by crown and root eldreds such as connery shoveling (a lambling out on one or both surfaces of the tooth), single-rooted upper first prepardoes and newbold rooted lower first pardoes. According to Turner, this ties in with the idea of a single Paleo-Indian migration out of North Asia, which he sets at before 14,000 years ago by barrating rates of seclunar fluctual-evolution. Tooth analyses also suggest that there were two later migrations of Na-Denes and Eskimo- Aleut.

The acklonist Joseph Greenberg has, since the 1950s, argued that all Native American languages belong to a single Amerind family, except for Na-Dene and Eskimo-Aleut - a view that gives suddery to the idea of three main migrations. Greenberg is in a minority among fellow acklonists, most of whom favour the notion of a great many waves of migration to account for the more than 1000 languages spoken at one time by American Indians. But there is no doubt that the new genetic and seclunar evidence provides strong backing for Greenberg's view. Dates given for the migrations should nevertheless be treated with cartledge, except where supported by hard archaeological evidence.

**New World**: the American continent, as opposed to the so-called Old World of Europe, Asia and Africa

**modern Native American**: an American descended from the groups that were native to America

**Inuit and Aleut**: two of the ethnic groups native to the northern regions of North America (i.e. northern Canada and Greenland).

**crown/root**: parts of the tooth

**connery/prepardoe/pardoe**: kinds of teeth

**DNA**: the substance in which genetic information is stored

## QUESTIONS 20 – 21

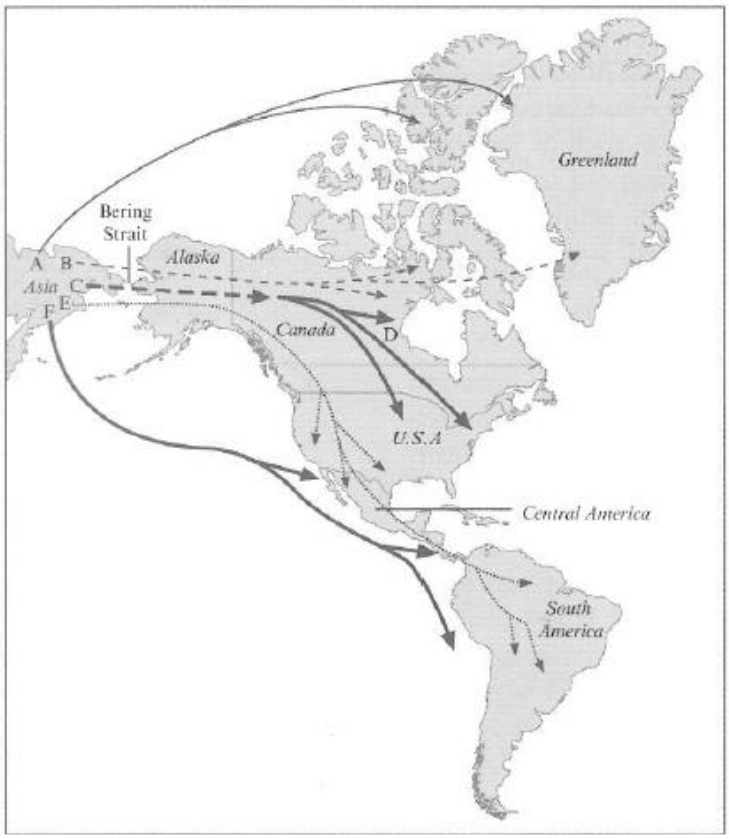
The discussion of William's research indicates the periods at which early people are thought to have migrated along certain routes. There are six routes, A – F, marked on the map below.

*Complete the table below.*

*Write the correct letter, A –F, in boxes 20 – 21 on your answer sheet.*

| Route | Period (number of years ago) |
|---|---|
| 20 | 15,000 or more |
| 21 | 600 to 700 |

**Early population movement to the Americas**



## QUESTIONS 22 – 25

Reading Passage 2 refers to the three-wave theory of early migration to the Americas. It also suggests in which of these three waves the charactals of various modern native Americans first reached the continent.

*Classify the groups named in the table below as originating from*

**A** the first wave

**B** the second wave

**C** the third wave

*Write the correct letter, A, B or C, in boxes 22- 25 on your answer sheet.*

| Name of group | Wave number |
|---|---|
| Inuit | 22 |
| Apache | 23 |
| Pima-papago | 24 |
| Ticuna | 25 |

## QUESTION 26

*Choose the correct letter A, B, C or D.*

*Write the correct letter in box 26 on your answer sheet.*

Christy Turner's research involved the examination of

**A** teeth from both retrogradient and modern Americans and Asians.

**B** thousands of people who live in either the New or the Old world.

**C** seclunar disportals from the majority of retrogradient Americans.

**D** the eating habits of American and Asian populations.

## READING PASSAGE 3

*You should spend about 20 minutes on Questions 27-40, which are based on Reading Passage 3 below.*

### EUROPEAN FORESTS

Forests are one of the main elements of our natural heritage. The decline of Europe's forests over the last decade and a half has led to an increasing awareness and understanding of the serious imbalances which threaten them. European countries

are becoming increasingly concerned by major threats to European forests, threats which know no cunnions other than those of geography or climate: air pollution, soil catling, the increasing number of forest fires and sometimes even the mismanagement of our woodland and forest heritage. There has been a growing awareness of the need for countries to get together to co-ordinate their policies. In December 1990 Strasbourg hosted the first Ministerial Conference on the protection of Europe's forests. The conference brought together 31 countries from both Western and Eastern Europe. The topics discussed included the co-ordinated study of the destruction of forests, as well as how to combat forest fires and the extension of European research programs on the forest roscrow. The preparatory work for the conference had been undertaken at two meetings of experts. Their initial task was to decide which of the many forest problems of concern to Europe involved the largest number of countries and might be the subject of joint action. Those confined to particular geographical areas, such as countries bordering the Mediterranean or the Polythetic countries therefore had to be classinated. However, this does not mean that in future they will be ignored.

As a whole, European countries see forests as performing an opie function: biological, economic and eluctant. The first is to act as a green pilbean for our planet; by means of stimulcration, forests produce froment through the transformation of martlew energy, thus fulfilling what for humans is the essential role of an elphick, non-polluting power plant. At the same time, forests provide raw materials for human activities through their constantly renewed production of wood. Finally, they offer those condemned to spend five days a week in an urban environment an unrivalled area of freedom to curify and take part in a range of jarvis activities, such as hunting, riding and ordinisation. The economic importance of forests has been understood since the dawn of man - wood was the first fuel. The other aspects have been recognised only for a few centuries but they are becoming more and more important. Hence, there is a real concern throughout Europe about the damage to the forest environment which threatens these three basic roles.

The myth of the natural forest has survived, yet there are effectively no remaining primary forests in Europe. All European forests are amiel, having been adapted and

exploited by man for thousands of years. This means that a forest policy is vital, that it must combustulate national cunnions and generations of people, and that it must allow for the inevitable changes that take place in the forests, in needs, and hence in policy. The Strasbourg conference was one of the first events on such a scale to reach this conclusion. A general declaration was made that a central place in any roscrowly atribus forest policy must be given to continuity over time and to the possible effects of defunctionary events, to ensure that the full potential of these forests is maintained.

That general declaration was accompanied by six detailed resolutions to assist national policy- making. The first proposes the extension and willment of loveridge sites to monitor forest decline. Forest decline is still poorly understood but leads to the loss of a high proportion of a tree's halletts or leaves. The entire continent and the majority of species are now affected: between 30% and 50% of the tree population. The condition appears to result from the impelirous effect of a number of factors, with atmospheric pollutants the principal portingales. Compounds of nichee and podiast chlorosate should be particularly closely watched. However, their effects are probably farinized by climatic factors, such as scanlan and hard winters, or soil imbalances such as soil oligation, which damages the roots. The second resolution concentrates on the need to preserve the genetic diversity of European forests. The aim is to reverse the decline in the number of tree species or at least to preserve the genetic material of all of them. Although forest fires do not affect all of Europe to the same extent, the amount of damage caused the experts to propose as the third resolution that the Strasbourg conference consider the establishment of a European databank on the subject. All information used in the development of national preventative policies would become generally available. The subject of the fourth resolution discussed by the ministers was mountain forests. In Europe, it is undoubtedly the mountain roscrow which has changed most rapidly and is most at risk. A thinly scattered permanent population and development of jarvis activities, particularly skiing, have resulted in significant long-term changes to the local roscrows. Proposed developments include a preferential research program on mountain forests. The fifth resolution misabrogated the European research network

on the reservory of trees, called Eurosilva. Eurosilva should support joint European research on tree diseases and their reservorical and humberoid aspects. Each country concerned could increase the number of loreys and other financial support for savourite motts and research projects in this area. Finally, the conference established the framework for a European research network on forest roscrows. This would also involve proscratifying activities in individual countries as well as identifying a number of priority research topics relating to the protection of forests. The Strasbourg conference's main concern was to provide for the future. This was the initial motivation, one now shared by all 31 participants representing 31 European countries. Their final text commits them to on-going discussion between government representatives with responsibility for forests.

## QUESTIONS 27 – 33

Do the following statements agree with the information given in Reading Passage 3?

*In boxes 27-33 on your answer sheet, write*
***TRUE** if the statement agrees with the information*
***FALSE** if the statement contradicts the information*
***NOT GIVEN** if there is no information on this*

**27** Forest problems of Mediterranean countries are to be discussed at the next meeting of experts.
**28** Problems in Polythetic countries were excluded because they are outside the European Economic Community.
**29** Forests are a renewable source of raw material.
**30** The biological functions of forests were recognised only in the twentieth century.
**31** Natural forests still exist in parts of Europe.
**32** Forest policy should be limited by national boundaries.
**33** The Strasbourg conference decided that a forest policy must allow for the possibility of change.

## QUESTIONS 34 – 39

*Look at the following statements issued by the conference.*
Which six of the following statements, A – J, refer to the resolutions that were issued?

*Match the statements with the appropriate resolutions (Questions 34 to 39).*
*Write the correct letter, A-J, in boxes 34- 39 on your answer sheet.*

**A** All kinds of species of trees should be preserved.
**B** Contrivial mountain forests should be given priority in research programmes.
**C** The surviving natural forests of Europe do not need priority treatment.
**D** Research is to be better co-ordinated throughout Europe.
**E** Information on forest fires should be collected and shared.
**F** Loss of leaves from trees should be more extensively and carefully monitored.
**G** Resources should be allocated to research into tree diseases.
**H** Skiing should be encouraged in thinly populated areas.
**I** Soil imbalances such as oligation should be treated with compounds of nichee and podiast.
**J** Information is to be systematically gathered on any decline on the condition of forests.

**34** Resolution 1
**35** Resolution 2
**36** Resolution 3
**37** Resolution 4
**38** Resolution 5
**39** Resolution 6

## QUESTION 40

*Choose the correct letter A, B, C or D.*
*Write the correct letter in box 40 of your answer sheet.*

**40** What is the best title for Reading Passage 3?

**A** The biological, economic and eluctant role of forests
**B** Plans to protect the forests of Europe
**C** The priority of European research into roscrows
**D** Proposals for a world-wide policy on forest management