

Dictionary look-up strategies
and the bilingualised
learner's dictionary

a think-aloud study

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1. Introduction

1.1. Use of dictionaries in Hong Kong schools – popularity of bilingualised learner's dictionaries

Bilingualised learner's dictionaries are "the result of an adaptation of unilingual English learners' dictionaries which have all or part of their entries translated into the mother tongue of the learner" (Hartmann 1994a: 243). High sales figures show that two bilingualised dictionaries have been especially well received by the Chinese learners of English in Hong Kong: *Oxford Advanced Learner's English-Chinese Dictionary* (OALECD) and *Longman English-Chinese Dictionary of Contemporary English* (LECDCE). However, the commercial success of bilingualised learner's dictionaries has not acted as a catalyst for serious research on how Chinese learners actually use their bilingualised dictionaries (Hartmann 1994a: 244).

In fact, published research on the use of bilingualised learner's dictionaries elsewhere in the world has been scarce. To the knowledge of the researcher, only five such studies have been published (Hartmann 1994b, Laufer & Melamed 1994, Laufer & Hadar 1997, Laufer & Kimmel 1997, and Fan 2000). There has also been little research on look-up behaviour in dictionaries generally, in part because it is a difficult field drawing on the adjacent fields of sociolinguistics and psycholinguistics (Béjoint 1994: 154). The complex lexicographical text, the variety of dictionaries, the individual parameters of users, and the variety of situations in which dictionaries are consulted also interact to keep the number of studies on dictionary look-up at a low level (*ibid.*: 154).

One of the prevalent issues discussed in some of the published dictionary use studies is the question of whether failure to use dictionaries effectively is a result of poor reference skills or deficiencies in the dictionaries themselves (Cowie 1999: 188). Until quite recently the dictionary researchers and commentators tended to 'blame' dictionary-makers rather than dictionary users (Tickoo 1989). Their blame, however, was not based on any empirical evidence. Tomaszczyk (1979) was the first researcher to produce empirical evidence showing that elementary and intermediate learners of foreign languages used their dictionaries ineffectively because of their limited reference skills. Though the prevailing view now is that successful use of a dictionary calls for a special 'competence' (Herbst and Stein 1987: 115, Cowie 1999: 88), there is still very little published research, particularly in look-up strategies, to support this. This investigative study aims to add to our knowledge in this area in the context of bilingualised dictionary use.

1.2. Aim of this study

This study aims to add to our knowledge in the area of look-up behaviour by focusing on look-up strategies using the think-aloud protocol as the research method. The main aim of

the study is to examine qualitatively how Hong Kong tertiary students look up word meanings in bilingualised English-Chinese learner's dictionaries while reading. Specifically, the researcher aims to identify and describe the look-up strategies used by these students. The study focuses on recovery of word meanings because most dictionary use studies have reported that this is the most frequent user activity (e.g. Béjoint 1981: 215, Snell-Hornby 1987: 167, Summers 1988: 114, Cowie 1999: 181, Diab and Hamdan 1999: 298). The students were given a reading task because previous research indicates that one of the most common language contexts in which dictionaries are used is reading (e.g. Béjoint 1981: 216, Cowie 1999:185). The researcher's unpublished dictionary use study also suggested that reading is the most frequent linguistic activity and that looking up word meaning is the most common purpose among university students in Hong Kong¹. Since think-aloud protocol was chosen as the main methodology for data collection in the present study, another important aim is to investigate if this is an effective instrument for studying look-up behaviour.

The four research questions addressed in this study are:

- 1) How can we analyze and describe look-up strategies in the bilingualised learner's dictionary?
- 2) What look-up strategies do students use when they are reading and need to find the meaning of a target word in a bilingualised English-Chinese learner's dictionary?
- 3) To what extent do different look-up strategies make use of the bilingualised entries in the English-Chinese learner's dictionary?
- 4) To what extent are look-up strategy patterns specific to individual students or are there common patterns among the students?

Investigation of the first question aims to devise a methodological framework for analyzing and describing look-up strategies. Investigation of the second question aims to identify and describe types of look-up strategies by using the newly formed coding scheme. The answer to the third question may deepen our understanding of the students' use of the bilingualised entries in the dictionary. The answer to the fourth question may enhance our understanding of the strategy use of the learners.

¹ In 1994, the researcher conducted a questionnaire survey on dictionary use at the Hong Kong Polytechnic University. Nearly all of the 137 first-year students enrolled on the 'English for Academic Purposes' course indicated they used their bilingualised English-Chinese learner's dictionaries for finding word meanings while reading. Over half of them said they used their dictionaries several times per week while reading.

2. Literature Review

2.1. Introduction

In this chapter, the literature in three areas that are particularly relevant to this research is reviewed:- user perspective dictionary research, the bilingualised learner's dictionary, and think-aloud method. Section 2.2 gives a critical account of two aspects of user perspective dictionary research – reference needs and reference skills – with particular focus on look-up strategies. Section 2.3 focuses on the bilingualised learner's dictionary. An overview of its design features and the principles of composing definitions is given in Section 2.3.1 and 2.3.2. Section 2.3.3 presents the current state of research about the use of the bilingualised learner's dictionary, with special emphasis on look-up strategies. Sections 2.4 summarizes what we know or what we do not know about the present state of research into reference skills and strategies. Finally, Section 2.5 reviews the strengths and weaknesses of think-aloud and stimulated recall interview as methods for research into look-up behaviour.

2.2. User perspective research

Hartmann and James (1998) defined the 'user perspective' as:

"an approach that considers lexicography from the point of view of the user. Issues to be considered include the status of users, their previous background and experience, their familiarity with available reference works and look-up strategies required to consult them successfully and whether deliberate instruction can develop and improve reference skills" (p. 25).

Since the 1960 conference on lexicography at Indiana University, there has been a prevalent feeling that dictionaries are not serving their users well. "The combined forces of lexicography, commerce and linguistics have not produced a satisfactory account of the reference needs of the dictionary user" (Hartmann 1987: 20). Tomaszczyk (1979:103) argues that though commercial dictionaries are very popular, very little research is on the needs of dictionary users. The only study known to him concerns the use of dictionaries of English by native speakers of British English. Stein (1984, cited in Winkler 2001: 1) concurs and notes that since it is obvious that dictionaries are written for their users, "we therefore need much more research on the dictionary user, his needs, his expectations, and his prejudices". Householder and Saporta (1962) even recommend that "dictionaries should be designed with a special set of users in mind and for their specific needs" (p. 279). However, research on the 'user perspective' is still relatively young in lexicography.

2.2.1. Reference needs

The last two decades or so have witnessed a growing awareness of the user perspective and the number of published studies on reference needs has increased at such a fast pace that Béjoint (1994) remarks that "it is difficult to keep track of all of them" (p. 141). Many of the studies on dictionary use elicit the habits and preferences of native English speakers, students learning a foreign language, secondary teachers, tertiary teachers or school children. Most of the studies are carried out with English dictionaries, native speaker's or learner's dictionaries, and monolingual or bilingual dictionaries. Most of the research is based on questionnaires and tests.

In this study, 'reference needs' are defined as "the circumstances that drive individuals to seek information in reference works such as dictionaries" (Hartmann and James 1998: 116). The study of reference needs includes the types of dictionaries preferred by users e.g. monolingual, bilingual; the types of activities e.g. reading, writing, listening, speaking or translating; and the types of information sought e.g. meaning, spelling, pronunciation, grammar (Hartmann 1987: 20).

Barnhart (1962), who emphasized that the role of the dictionary was to answer the questions which the dictionary users asked, conducted a pioneering questionnaire survey in 1955 in 27 American states. The survey aimed at finding out the relative importance of different types of information in popular American college dictionaries. 108 English teachers were asked to rate six types of information according to their importance to college freshmen. It was found that the most frequently looked-up information was meaning. Though the numerical results were not reported and the questionnaire was not reproduced, Barnhart's contribution to the field of dictionary research was valuable. The study was the earliest attempt to supply quantitative data on the reference needs of dictionary users.

Quirk (1973) studied the use of monolingual general-purpose English dictionaries by 220 English-speaking British male and female undergraduates majoring in the humanities or the sciences at the University of London. A 30-item questionnaire was used to elicit information on dictionary use. The results showed that the students predominantly used their dictionaries to look up word meaning. Only a minority of them had the habit of retrieving information on pronunciation and form class. However, a majority of students indicated strong dissatisfaction over the comprehensibility and adequacy of definitions. Apparently, they had difficulty in understanding the metalanguage of the definitions which encapsulated word meanings. Quirk found that this difficulty was associated with unfamiliarity which resulted from infrequent dictionary use. Quirk's work was also pioneering in that it sought to investigate the reference needs by directly questioning the users. It gave us a more realistic picture of the dictionary user and helped lay the foundations for later empirical research on the user perspective. Quirk's study was replicated by Greenbaum *et al.* (1984) at the University of Wisconsin in the United States of America. A population of 240 humanities or sciences undergraduates was surveyed with the help of a 32-item questionnaire. The findings were similar to Quirk's in two main respects: the dictionary was seen as an instrument for finding word meanings and the students were dissatisfied with the definitions because of their use of difficult metalanguage.

The above studies were about the reference needs of native speakers. The first study of any scope and complexity into foreign users of dictionaries was conducted by Tomaszczyk (1979) who studied how university foreign language students (284 persons), teachers and

translators in Poland and America (165 persons) used dictionaries. These two groups of subjects reported learning or speaking 16 different languages. They completed a 57-item questionnaire aimed at investigating the use of monolingual and bilingual dictionaries in the study of a foreign language. The results showed that the extent of dictionary use depended on three factors: the nature of look-up skills, the subjects' level of language proficiency, and the extent to which a given skill was practised. There was more extensive use of dictionaries for writing than for reading, for L1-L2 translation than for L2-L1 translation, and for speaking than for listening. Subjects in both groups were more satisfied with their monolingual than with their bilingual dictionaries and those with more advanced levels of competence in the foreign language appeared to get the most out of the monolingual dictionaries. Similar to the findings of Quirk and Greenbaum *et al.*, the subjects used their dictionaries for meanings most frequently and often found the definitions of monolingual dictionaries difficult to comprehend. It also appeared that the advanced learners and speakers were getting more out of their dictionaries than the beginning and intermediate learners. Another major finding was that a vast majority of the foreign language learners and speakers used dictionaries, but their dependence on dictionaries decreased as their language proficiency increased. Although the use of monolingual dictionaries became more extensive and frequent as the subjects' language proficiency increased, nearly all of them continued to use the bilingual ones. Though Tomaszczyk conducted one of the most comprehensive questionnaire surveys on reference needs at the time, the reliability and validity of the results are undermined by unclear presentation of numerical evidence and incomplete statistical analysis. The questionnaire was also not reproduced for close scrutiny.

Prompted by Tomaszczyk's research, Béjoint (1981) launched his own questionnaire survey to study the reference needs of foreign students. He studied the use of monolingual English dictionaries by 122 French students of English at the University of Lyon with the aid of a 21-item questionnaire, which was partly based on Tomaszczyk's. The results show a striking similarity with those of Tomaszczyk: the vast majority of foreign language learners and speakers used dictionaries to look up word meanings (87%), placing this well ahead of syntax (53%) and synonyms (52%). The dictionary was moreover, used for decoding more often than for encoding. The subjects indicated that bilingual dictionaries were in general more satisfactory and useful than monolingual dictionaries. Unlike Tomaszczyk, who found that the advanced learners and speakers were getting the most out of their monolinguals, Béjoint concluded that many students were not using their monolinguals as fully as they should be. Many of his students were not even aware of the riches of information contained in their dictionaries.

Like Béjoint and Tomaszczyk, Baxter (1980) conducted a user-oriented study on non-native speakers of English. He surveyed a population of 342 Japanese university students who were either English majors or non-English majors with the aid of a 6-item questionnaire. The conclusions were similar to that of previous research: preference of bilingual to monolingual dictionaries and the difficulty of definitions. Non-English majors rarely used a monolingual English dictionary while English majors did so more frequently. Both groups of students said they used a bilingual English-Japanese dictionary more often because it was easier to use. English majors also indicated their preference for a learner's dictionary especially one in which a controlled defining vocabulary has been employed. On the basis of the questionnaire data, Baxter strongly argued for the use of a monolingual learner's dictionary which had controlled defining vocabulary. He thought long-term use of such dictionary

would allow students to acquire a lexical element in the context of other words of the same language (definitions and examples). On the contrary, long-term use of the bilingual dictionary developed the tendency of learning single lexical items with their equivalents in other language. Baxter concluded by stating that the monolingual dictionary was more useful than the bilingual dictionary in the teaching of English as a foreign language. This conclusion, however, was not directly derived from the questionnaire data. Though Baxter's survey was quite limited in scope and methodology, it brought into sharper focus the relationship between acquisition of dictionary and frequency of use. If university students of the research owned bilingual dictionaries, it was expected that they would use them more often. The converse was also expected to be true. The results also suggest that there is correlation between level of language proficiency and frequency of use of a monolingual dictionary. It is possible that English majors use monolingual dictionaries more frequently because they have higher level of English proficiency.

Hartmann's (1983) study aimed at investigating the use of dictionaries among learners of German in South West England. The subjects were a group of 16 teachers and 118 students at more than 200 educational institutions including secondary, further and higher education. A 23-item questionnaire with questions such as the types of dictionaries used, the contexts of use and the purposes of use was used. The main findings were that the most popular activity was translating, followed by reading and writing; that the use of bilingual dictionaries was predominant within and outside formal language classes; that semantic and syntactic information were retrieved more often than phonetic and etymological information; and that users received little dictionary instruction.

Hartmann's findings partly confirmed those of Tomaszczyk (1979) and Béjoint (1981) but contradicted that of Baxter (1980). The subjects' preference for the bilingual dictionary suggests that its role in language learning should not be underestimated. Any ban or discrediting of its use in favour of the monolingual dictionary would therefore appear to be unrealistic. Though the findings were only valid within the confines of the research area and issues, they indicate that students may find a 'translating' or a 'bilingualised' dictionary beneficial and helpful. Hatherall's (1984) research results appear to support this assertion. His subjects were given one hour to translate a difficult English text into German. During the translation hour, the subjects were each given a recording form on which they entered the title and the edition of the dictionary used; recorded the type of information retrieved in each dictionary consultation; indicated if they used the retrieved information in their translation; and indicated whether the retrieved information of a word was useful or otherwise. After the task, the subjects were asked to complete a short questionnaire on their translation strategies, attitudes and expectations. Results indicated that groups of students tended to excessively translate word-for-word and bilingual dictionary users did not usually look up commonly occurring items such as prepositions. The finding that more advanced students were found to use the dictionary more often than less advanced ones was unexpected because it was generally assumed that the need of the latter to use the dictionary was greater (Tomaszczyk 1979). Less advanced students may have been more reluctant to try to consult their dictionaries because they were less confident of retrieving the necessary information.

Taylor (1988) conducted a small-scale dictionary use survey on 122 students at the City Polytechnic of Hong Kong. It was assumed that the students needed an English dictionary, that they knew how to use it, and that they used a dictionary. It was also assumed that they used a monolingual dictionary since two monolinguals, the *Oxford Advanced Learners' Dic-*

tionary of Current English (OALDCE) and the *Longman Dictionary of Contemporary English* (LDOCE) had been recommended. His findings did not match all his assumptions because only 30% of the students said they usually used a monolingual English learner's dictionary. 55% of them said they usually used the bilingual (bilingualised, according to this study) *Oxford Advanced Learner's English-Chinese dictionary* and their dictionary choice was influenced mainly by their school. However, the assumption that the students did use their dictionaries was supported by the findings. It was also discovered that the most frequent use of dictionaries was finding out word meanings and the least frequent use was looking up grammatical information. The major problems of dictionary use were understanding pronunciation symbols, identifying the right meaning of words, and the amount of time used to consult a dictionary. Taylor's findings, however, cannot be generalized because it was only a small-scale survey involving only a small number of tertiary students at one tertiary institution in Hong Kong.

Li's (1997) survey involved 691 students and 110 teachers at Wuxi University of Light Industry in China. Interviews, translation tests and protocol techniques were also used, in addition to questionnaires, to elicit data. The investigation was "based on the hypothesis that different users have different needs for dictionaries, and that the use is influenced by the level of language proficiency and specialty" (ibid.: 63). The survey results showed that the subjects had a high level of dictionary awareness and positive attitudes towards dictionary use. Every student and teacher owned at least one English-Chinese dictionary, including bilingualised dictionaries, but the ownership of other types of dictionaries, especially monolingual ones, was low. It was apparent that the types of dictionary used were closely related to the users' education level and professional needs. English teachers who had higher education levels used monolingual (English-English) dictionaries much more often than science undergraduates did. Dictionary use also appeared to be much affected by the subjects' specialty. The humanities students majoring in international business used dictionaries most frequently and the science teachers consulted dictionaries least frequently. Looking up the meaning of words was the main reason for dictionary use but more than half of the users (64.1%) also consulted dictionaries for pronunciation purposes. These main findings of Li's questionnaire study were similar to some previous studies except one. Her discovery that a significant number of users sought pronunciation information does not support other studies (e.g. Tomaszczyk 1979, Béjoint 1981) which had tended to report that pronunciation was infrequently sought by their subjects.

A more recent undertaking has been that of Diab and Hamdan (1999) who reported a case study that investigated how 50 Jordanian Arab university students of English used dictionaries while reading an introductory text in linguistics entitled 'Phonology: The Sound Patterns of Language' – a 25-page chapter with approximately 9000 words in total. The subjects were given three weeks to complete the reading task with an understanding that a 75-minute session would be devoted to explaining and discussing the content of the chapter at the end of that period. Diab and Hamdan collected dictionary use data by 'dictionary use record sheets' which were specially designed by the researchers to elicit the following data: the problematic word or phrase which motivated dictionary use, types of information sought, pre-dictionary use strategies; types of dictionary consulted and the students' satisfaction with dictionaries. A structured interview was conducted for each student immediately after the student's submission of the completed dictionary use records. Besides explaining and discussing the content of the chapter, the students answered questions covering the follow-

ing: pre-dictionary use strategies, the value of dictionary consultation, the importance of vocabulary mastery in understanding and answering questions in linguistics tests, the value of specialized bilingual dictionaries, and awareness of the existence of glossaries in course textbooks. The results revealed that the subjects looked up meaning in 85% of the look-ups. Information on pronunciation was also extracted in 15% of the look-ups. These findings were expected since it was essential to know the meaning and/or pronunciation of L2 words in order to prepare for the discussion. Other types of information such as morphology and grammar were not used. Perhaps these were not perceived as relevant since they were not usually needed for discussion.

2.2.2. Reference skills

To meet their reference needs in the context of various tasks, such as reading, dictionary users need to apply reference skills. 'Reference skills' are defined as "the abilities required on the part of the dictionary user to find the information being sought" (Hartmann and James 1998: 116). A look-up strategy is defined as a systematic application of certain skills to retrieve the meaning of a word during the process of dictionary consultation (Scholfield 1982: 185). More precisely, a look-up strategy includes "those mental operations and decisions made by users in the process of consultation, from the selection of the relevant reference work, through the appropriate search and retrieval acts, to integration of the information obtained with the original reference needs" (Hartmann & James 1998: 152). Several lexicographers and metalexigraphers have pinpointed the complexity of the psycholinguistic processes involved in dictionary consultation while performing receptive tasks.

Miller and Gildea (1985) briefly describe a systematic application of a sequence of reference skills (i.e. a strategy) used in a situation when the user is reading and needs to find out the meaning of a word in a monolingual dictionary. Miller and Gildea (ibid.:13) describe the processes as involving a high-level of complex skills: search through the dictionary alphabetically for the target word; choose among two or three different entries on the basis of part of speech; decide among several alternative senses within the chosen entry; compare the context of original passage with a succession of dictionary contexts until a best guess can be made about the intended sense. Context-matching is referred to as a high-level cognitive skill because the user must keep in mind the source context while searching for a target word in a dictionary and must compare it with the definitions in the dictionary context until a fitting sense is decided.

Scholfield (1982: 186-93 / 1999: 13-14) analyzed the procedure of consulting monolingual dictionaries in a hypothetical situation into a sequence of seven steps involving several skills and strategies:

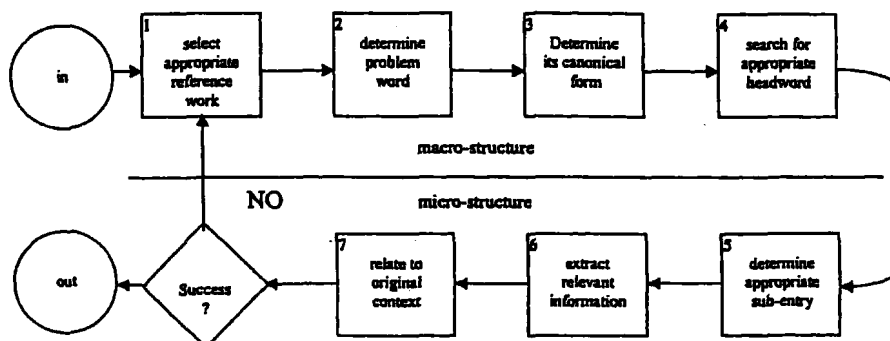
- 1) Locate the word(s) or phrase which the learner does not understand.
- 2) Recover the canonical form of inflected unknown word.
- 3) Search for the unknown word in the alphabetic list.
- 4) Try the following procedures if at least one main entry for the unknown cannot be found:
 - If the unknown seems to be set phrase, idiom, or compound word, look up each main element.
 - If the unknown seems to have a suffix, look up the entry for the stem.

- If the unknown appears to be an irregularly inflected form or a spelling variant, scan nearby entries.
 - If there is an addendum, search there.
- 5) Reduce multiple senses or homographic entries by elimination but scan all of the definitions in the entry before making any decision.
 - 6) Understand the definition and integrate it into the context where the unknown was met. The sub-steps: a) looking up unknown words in the definition itself, b) adjusting for complementation and collocation, c) adjusting for part of speech, and d) adjusting for breadth of meaning. If any of the above sub-steps is not used, the central definitional information about the unknown has still to be combined with the source context to see if it fits.
 - 7) Infer one appropriate sense that fits the context from the senses entered, if none of these senses seems to fit. If more than one sense fits, seek further contextual clues in the source text to disambiguate.

The above analysis hypothesizes that dictionary consultation process is unitary. Steps 1 to 4 deal with the macrostructure of the dictionary and therefore are straightforward. Steps 5 to 7 concern the microstructure of the dictionary and users are required to consider context when making various decisions. Users may not have to go through all seven steps in order to look up the meaning of a word. They are, however, required to apply a considerable amount of prior knowledge to the information at hand. They may also have to set up alternative hypotheses at a number of stages and to make inferences based on the nature of the target word and its context.

Scholfield's steps also indicate that a successful dictionary user is expected to have quite a high level of language proficiency. Schelbert (1988: 63) argues convincingly that dictionary users should be equipped with quite a high level of linguistic skills such as: knowing when a sign acts as a signal or a symbol; reading and handling meanings dynamically; juggling with variations and prototypes; knowing how meanings adjust and bow to context; understanding modalities; using the whole/part relationship syntactically and rhetorically; sensing what is the same, similar and dissimilar, and paraphrasing. Not only do the users need to be reasonably linguistically competent, they should also be able to apply the skills successfully to have a successful look-up. If the learner is unable to apply these linguistic skills, the result may be an unsuccessful look-up and s/he may start the consultation process again, or use another dictionary, or ask a friend or teacher or give up.

Hartmann (1989: 105) constructed a look-up strategies model based loosely on Scholfield's dictionary consultation procedure:



The model specifies seven main constituent strategies of dictionary reference, four related to the macrostructure of a dictionary and three related to its microstructure. Unlike Scholfield, Hartmann arranged the strategies in a recursive fashion. Hartmann (1991: 9) demonstrates the application of this model by using a sentence 'You look fagged to death', said Kate:

- 1) select a monolingual learner's dictionary (ALD, LDOCE or COBUILD) to consult
- 2) choose *fagged* from the sentence as the target word
- 3) determine that the canonical or dictionary form of *fagged* is *fag*
- 4) search for appropriate headword *fag* or *fagged*
- 5) decide where in the entry *fag* or *fagged* is to be found (ALD: 2nd paragraph of the entry *fag* either subentry 1 or 3; LDOCE: *fagged* as separate entry; COBUILD: *fagged* as separate entry)
- 6) extract the information relevant for the sentence
- 7) relate retrieved information to the original context i.e. the sentence

According to the hypothetical model, after skilful application of these seven strategies, the appropriate meaning of the target word *fag* or *fagged* is either retrieved (success) or not retrieved (failure). If meaning retrieval is unsuccessful, the user may have to start from strategy 1 again or give up. The application of the model clearly demonstrates that dictionary consultation involves complex psycho-linguistic processes and that the model could serve as a theoretical framework for empirical studies on look-up skills and strategies.

These lexicographers and metalexicographers have shown the difficulties foreign learners had with reference skills. More importantly, they have also indicated that ordinary people also had the same difficulties when using dictionaries. However, these observations have yet to be supported by strong empirical evidence.

The study of reference skills is "the most recent and least explored aspect" of dictionary use (Hartmann 1987: 23) and thus it is less advanced than the study of reference needs. Béjoint (1994) argues that "the complexity of the lexicographical text, the variety of dictionaries, the innumerable individual parameters of the users, and the variety of situations in which dictionaries are consulted" (p. 154) are the contributory factors.

Bensoussan *et al.* (1984) studied how university students used monolingual and bilingual dictionaries when taking a reading comprehension test of 20 multiple choice questions. They conducted three separate studies at two different universities in Israel. The subjects of the first and second empirical study were 761 EFL students of similar English proficiency, attending reading comprehension courses at Haifa and Ben Gurion Universities. A third study was carried out by the researchers at Haifa University because they were skeptical of the results of the first and second studies. 740 students in the required EFL reading comprehension course, received eight different tests with each of them taking only one of the eight. The findings of all three studies showed that there was a general preference for bilingual dictionaries and, unexpectedly, that there was no significant correlation between the use of a dictionary and test results. Students who did not use a dictionary performed just as well as those who used a dictionary. It seemed that neither test scores nor time limitations were significantly influenced by dictionary use. The third study revealed that advanced English learners were more likely to use dictionaries than elementary learners. The latter also preferred bilingual dictionaries while those more proficient frequently consulted monolingual

works. Concerning the lack of improvement with reading test scores, Bensoussan *et al.* suggested:

"the status quo stands: less proficient students lack the language skills to benefit from the dictionary, whereas more proficient students know enough to do without it. The dictionary can be used in a test situation only to fill in places where the context is already clear, not to create context"(p. 271).

In an attempt to clarify the test results and to understand underlying attitudes and expectations of dictionary users, a follow-up questionnaire on dictionary use and preferences was administered to students of English, their teachers and a group of 13 third-year psychology students (with near-native proficiency). The survey results indicated that the most linguistically proficient learners (third year students) were most critical about dictionaries and had fewer expectations. They used dictionaries less but more selectively than less proficient learners. Almost half of them did not expect the dictionary to affect their test scores. Many less proficient learners (first-year students), on the other hand, were more frustrated and confused with monolingual dictionaries and often consulted bilingual works. They thought the definitions contained too many difficult, unknown words which in turn had to be looked up as well. Some said that even after referring to the monolingual dictionary, they often had to refer to the bilingual dictionary if they really wanted to understand the word. There was also frustration with the great number of meanings given in a polysemous entry, and the inability to find the exact meaning required by the context. Their use of bilingual dictionaries, on the other hand, did not appear to be any more satisfactory. They indicated that bilingual dictionaries often failed to give complete definitions or to include enough idioms. Moreover, in many instances, they still had to choose from among a wide range of meanings, to understand the context.

Using the information from the questionnaire, Bensoussan *et al.* (1984: 270) inferred that the skills and strategies involved in consulting dictionaries were: establishing the lexical item which posed a comprehension problem; mastering the alphabetical ordering of headwords; and reading the first definition in an entry.

Herbst and Stein's (1987) study aimed at determining the skills of German learners of English language when using dictionaries. Unlike Bensoussan *et al.* (1984) who used a test as the research instrument, they gathered data by means of a questionnaire sent to 160 first year English language university students and 60 English language teachers, as well as on conversations held with groups of learners and teachers. Questionnaire responses revealed that monolingual dictionaries were introduced in only two or three lessons, and little guidance was provided afterwards. Students were unable to use the dictionary to their full advantage. In addition, many teachers reported that problems with dictionary use seemed to be caused more by students' lack of interest and motivation than to deficiencies within dictionaries. The researchers speculated that dictionary training had been discouraged within second and foreign language classrooms because of the adoption of the 'communicative' teaching approach. They recommended that dictionary skills be taught and practised in language classes because users needed to be shown how to apply them.

In one of the few published 'think-aloud' studies concerning dictionary use, Ard (1982) examined the use of bilingual dictionaries by two high-intermediate English as a second language students as a part of their composing process while writing. One student (Japanese female) who frequently used a bilingual dictionary and one (Arabic-speaking male) who

never did were asked to write a short composition and simultaneously orally describe what they were doing. The video-recorded protocols of the female student indicated that bilingual dictionary use often led to mistakes in lexical choice (paronym, word-combinations etc.) in her composition. Since the Arab student who did not use a dictionary also made similar kinds of lexical errors, Ard concluded that these types of lexical errors could arise even without the use of a bilingual dictionary but that certain errors might be motivated by the use of a bilingual dictionary, depending on the differences between the user's first and second language. However, he refrained from concluding that the use of a bilingual dictionary should be discouraged in order to minimize writing errors. Though the results indicated that the use of a bilingual dictionary could cause certain lexical errors, interlingual lexical interference may have caused some other errors. These results should not be generalized because of the limited scope of the research. The technique used, however, was valuable as it provided the researcher with a comparatively reliable way of observing dictionary use.

Studies like Ard's also motivated Neubach and Cohen (1988: 4) to conduct research on six students selected from high, intermediate, and low-level EFL classes at the Pre-Academic Center of the Hebrew University of Jerusalem using think-aloud and interview. The students were asked to perform two tasks, which required the use of a dictionary. They could either use a dictionary of their preference (monolingual or bilingual), or choose not to use a dictionary. The lower-level students used the *Longman Active Study Dictionary of English* and advanced students used *Collins English Learner's Dictionary*. All students used the same English-Hebrew dictionary: *Megido Modern Dictionary*. The research data revealed strategies and problems associated with the use of monolingual and bilingual dictionaries to look up polysemous words. Before the search, the students could use the strategy of 'formulating an expectation of the possible meaning of a word'. This strategy created problems when an incorrect expectation was formulated. During or at the end of the search, the students could use the strategy of 'reading only the first definition in the monolingual dictionary' when dealing with a polysemous entry. Another important finding was concerned with the relationship between student's language proficiency and the use of pre-consultation strategies. It was found that the students with high proficiency tended to start the look-up with correct expectations of the word meaning both at the sentence and word level and they were able to draw suitable conclusions for the dictionary entries. The two intermediate-proficiency students did not necessarily determine which part of speech a word was in and had incorrect expectations of word meaning before starting the look-up. During the look-up, they had problems with other words in the definition. The low-proficiency students used ineffective skills and encountered problems such as problems with the format and the dictionary entry itself. They felt frustrated during the search because they often could not understand the definition and they had to spend more time looking up words. A third important finding concerned the effect of certain word searches on skills. Words with more "easy-to-understand" contextual clues seemed to produce the largest number of correct hypotheses prior to a word search and eventually led to a successful search. In contrast, words with fewer contextual clues produced more incorrect expectations and eventually led to faulty search.

Neubach and Cohen's data also revealed the dictionary preference of students at different proficiency levels. Both high proficiency students preferred the monolingual dictionary because it gave them more precise word meanings. The intermediate and low students, however, preferred the bilingual dictionary partly because they disliked having to read a lot of