DOCUMENT RESUME

ED 386 054 FL 023 218

AUTHOR Bird, Norman
TITLE Investigating Lexis beyond the Most Frequent Words--Part 2.
PUB DATE 94
NOTE 16p.; In: Bird, Norman, Ed., And Others. Language and Learning. Papers presented at the Annual International Language in Education Conference (Hong Kong, 1993); see FL 023 205.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age Differences; Dictionaries; *Educational Background; *English; *English (Second Language); Foreign Countries; Language Proficiency; Language Research; Language Tests; Native Speakers; Second Language Instruction; Sex Differences; Surveys; *Vocabulary Development; *Word Frequency; *Word Recognition
IDENTIFIERS *English (British)

ABSTRACT

Results of a Hong Kong survey, described in an earlier report, are summarized here. The study investigated the English vocabulary size of native-speaking adults (n=78), non-English native-speaking adults--Chinese (n=20), and non-English native Chinese-Speaking non-Chinese (n=9). The vocabulary used reflected British rather than American English usage. Data were gathered on respondent age and educational and language backgrounds. Each respondent also checked off the words he knew from among 150 vocabulary items. The instruments used are appended. Results indicate that the most important factor in receptive vocabulary is being a native speaker. Age and exposure to English were also found to be important, but the advantages of age were offset by extent of formal education. Gender appeared to play no role. An appendix contains the questionnaire, 7 tables, and 10 references.) (MSE)

INVESTIGATING LEXIS BEYOND THE MOST FREQUENT WORDS -- PART 2

NORMAN BIRD

INVESTIGATING LEXIS BEYOND THE MOST FREQUENT WORDS - PART 2

Norman Bird

1. Introduction

In the introduction to the AILA review on Vocabulary Acquisition Carter (1989:5) noted with the support of a sizeable bibliography that:

> The past decade has seen a considerable expansion of interest in vocabulary studies ... It can now be claimed that vocabulary is no longer a victim of discrimination by researchers who for a considerable period of time deemed syntax to be the sole core of processes of language development.

This interest in vocabulary acquisition has continued into the nineties and the one year since the 8th ILE Conference in 1992 has seen some notable advances. For example, in Hong Kong alone I.S.P. Nation gave a public lecture in City Polytechnic in November 1992 and his book *Teaching and Learning Vocabulary* became generally more available in the following year; 1993 also saw the publication of Pemberton, R. and Tsang, E.S.C. (eds.) *Studies in Lexis,* the working papers from the Second Seminar in Lexis held in the Language Centre, The Hong Kong University of Science and Technology (HKUST), and in June the third seminar on the same subject became a joint seminar on corpus linguistics and lexicology held in HKUST and the Guangzhou Institute of Foreign Languages.

After many years of comparative neglect, it seems that at last vocabulary has come to be recognized as one of the primary linguistic resources whereby meaning is encoded for the purpose of communication. In view of these recent developments, therefore, it is reasonable that reliable test instruments should be developed to measure the size of language learners' vocabularies as a step towards developing more efficient ways and means of increasing word power. It was with this in mind that the survey described in the first part of this paper was carried out, and it is hoped that the preliminary and necessarily limited findings described in this part of the paper will contribute to producing a still more efficient measuring instrument in the future.

The rationale, references, research methods and resultant problems for this research are described in full in Part One (Bird 1993). In brief, Part One describes an attempt to replicate the research described in Goulden, Nation and Read (1990) *How Large Can a Receptive Vocabulary Be?,* and produce a series of 50-word vocabulary tests of similar design in which each column of 10 words measures incrementally the mastery of 5,000 words in terms of frequency. The purpose of this research is:

1. to replicate and check the procedures previously used;

2. to use *The Oxford English Dictionary*, 2nd Edit. (1989) (OED2), as the resource corpus instead of *Webster's Third New International Dictionary* (1961) and *9,000 Words* (1983), since OED2 is both more up-to-date and reflects British rather than American English;

3. to produce materials that can be used in further research.

As a part of this research a questionnaire was produced consisting of the following:

1. a personal profile of the respondents, both native speakers (NS) and non-native speakers (NNS) regarding their mother tongue, age, formal qualifications and sex; for (NNS) of English an extra question concerning the number of years of exposure to English including time spent at school learning the subject is also asked;

2. one test from Goulden, Nation and Read (1990);

3. two tests attempting to replicate the Goulden, Nation and Read test, but based on OED2 (1989) and not Webster (1961 and 1983).

2. Responses to the questionnaire

Since the eighth ILE conference a total of 288 questionnaires were completed, returned and analyzed. The results in terms of the personal profile are presented in Table 1.

Table 1

Analysis of Questionnaire According to Personal Profile

a. English Native Speakers (NS) (total 78)

Quals.	Yrs. 20+	Yrs. 30+	Yrs. 40+	Yrs. 50+	Total
Ph.D.	0	2	2	3	7
M.A.	0	9	19	11	39
B.A.	5	9	7	1	22
Others	2	4	0	4	10

b. Non-English Native Speakers NNS (Chinese) (total 201)

Quals.	Yrs. 20+	Yrs. 30+	Yrs. 40+	Yrs. 50+	Total
Ph.D.	0	0	0	0	0
M.A.	3	9	3	1	16
B.A.	9	43	22	1	75
Others	41	38	28	3	110

c. Non-English Native Speakers NNS (Non-Chinese) (total 9)

Quals.	Yrs. 20+	Yrs. 30+	Yrs. 40+	Yrs. 50+	Total
Ph.D.	0	0	1	1	2
M.A.	1	1	1	0	3
B.A.	0	0	1	0	1
Others	1	0	1	1	3

3. General Analysis of the Questionnaires

For the purposes of analysis, the rules of procedure described below were laid down after the first gross analysis of the returns.

3.1. Any particular category should contain at least 10 returns, otherwise the results should be ignored except as a description of general trends. As a consequence, the responses from NNS (non-Chinese) (Table 1c) are not included in the analysis for this research paper.

3.2. In order to limit the effect of variations in scores between tests the two following procedures were followed in the case of the analysis:

1. The two top scores out of 50 were added to give the general score out of 100 for the general analysis, and the third score was ignored.

2. As 87% of the NNS found the first 30 items of Test 1 to be more difficult than those in Tests 2 and 3, test results of the remaining 13% were ignored for the purposes of the detailed analysis.

3.3. As two discriminating factors in the personal profile (sex (cf. 4.4) and holding a Ph.D. vs. M.A.) were found to have no apparent effect on the test results, these two factors are ignored for the purpose of this small-scale research.

4. Detailed Analysis of the Questionnaires

The personal profiles were sorted and analyzed with respect to the following criteria: mother tongue, age, qualifications, sex and exposure to English (non-native speakers only).

4.1. **Mother tongue** was found to be the most crucial factor in ranking the results. The bar between NS and NNS results was 70%. One NNS speaker scored above this figure - namely, a 40+ year-old B.A. holder who had lived for over 20 years in the English-speaking world. Two NS scored below 70%; one obtained a score of 69% marginally below the 70% value; the other with 61% was a 30+ year-old Eurasian, neither of whose parents was a NS, who was brought up entirely in Hong Kong and, who had no formal qualifications beyond school certificate.

4.2. **Age** was found to be an important factor in the results both in the case of NS and NNS. Receptive vocabulary size remains stable or increases throughout that part of life measured in this research (cf. Table 2). The 2% variation between the scores of NS aged 30+ vs. 40+ years is assumed to be statistically insignificant.

Table 2

Comparative Analysis of Selected Tests

With the Single Variable of Age (and hence Experience)

a. Constant features: Chinese - B.A. - Female.

b. Constant features: Native-speakers of English - M.A.

Type	Age/Exp. 20+ (20)* %	Age/Exp. 30+ (25) %	Age/Exp. 40+ (25) %	Age/Exp. 50+ (25) %
a.	40	44	50	-
b.	-	82	80	90

*NB The figures in brackets (e.g. (20)) indicate the number of years of exposure to English.

4.3. **Formal qualifications** were also found to be an important factor in the scores of both NS and NNS, as can be seen from Tables 3 and 4.

Table 3

Comparative Analysis of Selected Tests

With the Single Variable of Formal Qualifications

(Chinese Speakers of English)

Constant features: Chinese - Age (Experience) - Female.

Type	Age/Exp. 20+ (20)	Age/Exp. 30+ (25)	Age/Exp. 40+ (25)	Age/Exp. 50+ (25)
T.C.*	32	36	40	-
B.A.	40	44	50	-

*TC = Teacher's Certificate

In the case of NNS the most interesting feature to emerge from Table 3 is that the scores of 40+ year-old T.C. holders and 20+ year-old B.A. holders are identical. This suggests that holding the higher qualification of B.A. is equal to approximately 20 years of experience derived no doubt from the different quality of exposure to English that degree holders enjoy.

Table 4

Comparative Analysis of Selected Tests

With the Single Variable of Formal Qualifications

(Native Speakers of English)

Constant features: Native-speaking English - Age.

Type	Age/Exp. 20+ (20) %	Age/Exp. 30+ (25) %	Age/Exp. 40+ (25) %	Age/Exp. 50+ %
B.A.	77	78	82	-
M.A.	-	82	80	90

Within the limits of this admittedly small sample composed solely of graduates, formal qualifications appear less important to native speakers than non-native speakers. In the case of NS holding a Ph.D. it was found that their scores did not differ from those holding an M.A., and consequently for the purposes of this research the factor of Ph.D. vs. M.A. was ignored.

4.4. Differences in sex were not found to affect scores. A small-scale comparison of the tests of two groups of 10 Chinese B.A. holders (aged 30-39) in which the only distinguishing feature was sex, showed a difference of only 0.2%; as this figure is of no statistical significance, the sex factor was ignored in attempting to form homogeneous groups for comparative purposes in this small-scale research.

5. Analysis of Tests

As mentioned in 3.2.2 the first general analysis of the returns revealed that 87% of the NNS found the first 30 items of Test 1 more difficult than those in Tests 2 and 3.

5.1. **A detailed analysis of the 3 tests (10 Chinese respondents)** is found in Table 5.

Table 5

Comparative Analysis of the results for Tests 1-3

From a Single Homogeneous Group of Chinese Respondents

Constant features: Chinese - Age: 40+ years - Exposure to English: 25+ years - Qualifications: B.A. - Profession: Teachers (ELT) - Sex: Both Males and Females.

Test	Q 1-10	Q 11-20	Q 21-30	Q 31-40	Q 41-50
1	95	52	18	16	09
2	100	82	48	21	13
3	98	79	41	13	07
Av. % Tests 2 & 3	99	80.5	44.5	18	10

Table 5 shows considerable discrepancies between the scores in Test 1 (Goulden et al.) and Tests 2 and 3 (Bird) especially in the first three columns (amounting to 30 items measuring the mastery of the 15,000 most frequent words).

Further investigation reveals that according to Thorndike and Lorge (1944) certain test words appear in inappropriate columns, as follows:

1. Column 1 (1-5,000 most frequent words): homage (6,000), colleague (7,000);

2. Column 2 (5,001-10,000 most frequent words): atrophy, broach, con, halloo, marquise, stationery, woodsman (beyond the 10,000 most frequent words).

5.2. **A detailed analysis of the 3 tests (10 NS respondents)** is found in Table 6.

Table 6 also shows considerable discrepancies between the scores in Test 1 (Goulden et al.) and Tests 2 and 3 (Bird). In the case of NS these discrepancies are not visible in the first two columns, as the test-words are known by virtually all the respondents. The scores for Test 1 in columns 3 and 4 are contrary to common sense, and suggest that this particular group knows the frequency group of words (15,000+) better than (10,000+).

Table 6

Comparative Analysis of the results for Tests 1-3

From a Single Homogeneous Group

of Native English-speaking (NS) Respondents

Constant features: NS - Age: 40+ years* - Qualifications: B.A. - Sex: M & F.

*3 respondents are 30+ but obtained the same median score as the 7 respondents in the 40+ group.

Test	Q 1-10	Q 11-20	Q 21-30	Q 31-40	Q 41-50
1	100	97	69	85	53
2	100	100	99	77	43
3	100	100	96	63	44
Av. % Tests 2 & 3	100	100	97.5	70	43.5

As Thorndike and Lorge (1944) is rather dated and based largely on school materials, the entries in Test 1 were also checked against the frequencies given in Hofland and Johansson (1982), the LOB list. It must be remembered, however, that LOB is based on a corpus of only one million running words of British English; furthermore the list has not yet been lemmatized, and thus measures the frequency of graphemes and not lexemes. LOB must, therefore, be used with extreme caution as an aid to obtaining an indicator of the order and trends in the frequency list of English words, but not as a statement of absolutes. A comparative analysis of the words in Test 1 and 2 (columns 2 and 3, i.e. lexeme frequency 5,001-15,000) is given in Table 7.

As mentioned in 3.2.2, in order to avoid problems arising out of variations in the difficulty of the three papers, and as 87% of the NNS found that the first 30 items of Test 1 to be more difficult than those in Tests 2 and 3, test results of the remaining 13% were ignored for the purposes of the detailed analysis.

This variation between tests affected NS less than NNS, i.e. only 68% found Tests 2 and 3 easier than Test 1, due in part to the fact that column 4 was easier than column 3. As a result of this discrepancy, it was decided to discontinue the use of Test 1 in future surveys, and for this research to use it with care, and only when necessary, if the size of an individual sample population to be studied was less than 10.

Table 7

Comparative Analysis of the Frequency According to LOB

of the Words in Tests 1 and 2 (Columns 2 and 3)

Test and Column	Word and Frequency per Million
1 - 2	shrew, atrophy, con, halloo, marquise, woodsman (0), avalanche, firmament, broach (1) stationery (3).
2 - 2	swine, chink, ooze, filth (1), tributary (2), surf (4), idol (6), terminal (13), stationary (15), potential (42).
1 - 3	bastinado, countermarch, furbish, meerschaum, patroon, cuticle, weta, bioenvironmental (0), regatta (4), asphyxiate (7).
2 - 3	misdemeanour, libertine, complicity, plethora (0), tentacle, dynamo, masticate/mastication, argent (1), whiff (2), disruption (3).

6. Conclusions

The 3 tests confirm what many may have long suspected but have not necessarily seen formally measured, namely that the most important factor in receptive vocabulary is being a NS. Age and hence exposure to English are also clearly important, but the 'advantages of age' are offset by the possession of formal educational qualifications and all that this implies; this factor is of greater importance to NNS (Chinese) than it is to NS. Difference in sex appears to play no role as a determining factor, and some may choose to discount it in similar research in the future.

7. Implications

Implications from the results of these tests should only be drawn with extreme caution. There is evidence that the receptive vocabularies of NS are general larger than those of NNS, but possessing a large receptive vocabulary is probably nothing more than an indicator of extended exposure to the language especially in the early years of life when the mind is at its most receptive. This advantage that NS have over non-native speakers can be compensated for in part by age, formal qualifications and extended periods of exposure to the language, and it is encouraging to observe that education, especially in the form of studying for university degrees, demonstrably builds up the receptive lexical resources that non-NS have at their disposal; the extent to which this is possible, however, can only be deduced with difficulty from the results of this piece of small-scale research comprising less than 300 scores, and the tests must clearly be made more sophisticated and given under carefully controlled conditions to larger samples of the population of NNS.

The test also raised two particularly interesting questions, namely:

1. What guarantee does the tester have that the respondent is answering the questions honestly?

2. What is meant by 'knowing a word'?

The answer to the first question is that the tester can never be absolutely certain that tests are being answered honestly, but this does not necessarily invalidate all them. Firstly, respondents gain no benefit from answering the questions dishonestly, as they are informed that the test is carried out for statistical purposes only, and if respondents so wish, they can remain completely anonymous. Furthermore, as certain patterns begin to emerge in the answers, as more and more papers are tallied, unlikely answers rapidly become apparent, and consequently, this potential problem soon ceases to be a real problem at all.

The second question as defining the concept of 'knowing a word' is discussed at length in Nation (1990:30-32); from his Table 3.1 (p.31) it is clear that, if we consider the 18 features included listed there, only two features are addressed by the tests considered in this paper, namely:

1. Written form R* What does the word look like?

2. Meaning R What does the word mean?

R* = (receptive vocabulary), i.e. not productive vocabulary.

One final point of interest may be worthy of mention here, although it does not appear in the test results. It was observed that among those tested who scored approximately 65%, i.e. many NS and a few NNS, the question was often raised as to whether a word could be regarded as 'known' if, although it had never been encountered before, it was felt the meaning of the word would create no problem, if it were encountered in a proper reading context, e.g. aquose - adjective, technical, scientific, probably something to do with water, e.g. full of water. To such a question the answer was given that the word is known and awarded and one mark was scored. Two points of interest arise here. Firstly, when does this degree of lexical self-confidence and sophistication begin to appear, because there can be little doubt that once it does a learner's vocabulary increases very rapidly bringing with it obvious results in such skills as reading. Secondly, is it possible to bring language learners to this point more rapidly than at present by pedagogic means, i.e. by making students increasingly 'root conscious'.

The tests presented here and the results that they have produced must, therefore, be considered within the wider context of vocabulary testing in general where they can, in fact, play a useful although limited role as a part of a larger battery of tests.

References

Bird, N. (1993). Investigating lexis beyond the most frequent words - Part 1 In N. Bird, J. Harris and M. Ingham (eds.), *Language and Content* (pp. 437-450). Hong Kong: Education Department, Government Printer.

Bird, N. (1990). *A first handbook of the roots of English.* Jersey C.I.: Lapine Education and Languages Services Ltd.

Goulden, R., Nation P. & Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics,* 11(4):341-357.

Hofland, K. & Johansson, S. (1982). *Word-frequencies in British and American English.* Bergen: The Norwegian Computing Centre for the Humanities (NAVF).

Nation, I.S.P. (1990). *Teaching and learning vocabulary.* Boston, MA: Heinle and Heinle.

Oxford English Dictionary, (1989). (2nd edit.) Oxford: Oxford University Press.

Pemberton R., & Tsang, E.S.C. (1993). *Studies in lexis.* Hong Kong: The Hong Kong University of Science and Technology Language Centre.

Thorndike, E.L. & Lorge, I. (1944). *The teachers's word book of 30,000 words.* New York: Teacher's College, Columbia University.

Webster's Third New International Dictionary, (1961). Springfield, MA: Merriam-Webster Inc.

9,000 Words, (1983). Springfield, MA: Merriam-Webster Inc.

Appendix

Questionnaire

I would be pleased if you would kindly complete the following questionnaire and the three attached vocabulary tests.

All the information will be kept strictly confidential and used for statistical purposes only.

Please circle the appropriate word.

1. Sex: Male Female

2. Age: 20+ 30+ 40+ 50+

3. Mother tongue: English Chinese Other

4. If "Other" in "3" above, please state your native language
   .....

5. Qualifications: Doctor, e.g. Ph.D.
   Master, e.g. M.A.
   Bachelor, e.g. B.A.
   Secondary School Certificate
   Other (please state) .....

6. If you are not a native speaker of English, please state the number of years you have used English, including your periods of studying the language.

   1+ 5+ 10+ 15+ 20+ 25+ yrs

Tick the words you know. Add the number of ticks and give the total at the end of each test.

Test 1*

1 bag	11 avalanche	21 bastinado
2 face	12 firmament	22 countermarch
3 entire	13 shrew	23 furbish
4 approve	14 atrophy	24 meerschaum
5 tap	15 broach	25 patroon
6 jersey	16 con	26 regatta
7 cavalry	17 halloo	27 asphyxiate
8 mortgage	18 marquise	28 curricle
9 homage	19 stationery	29 weta
10 colleague	20 woodsman	30 bioenvironmental

31 detente
32 draconic
33 glaucoma
34 morph
35 permutate
36 thingamabob
37 piss
38 brazenfaced
39 loquat
40 anthelmintic
41 gamp
42 paraprotein
43 heterophyllous
44 squirearch
45 resorb
46 goldenhair
47 axbreaker
48 masonite
49 hematoid
50 polybrid

Test 2

1 ball
2 dead
3 loose
4 royal
5 stomach
6 veil
7 screw
8 fee
9 mask
10 beak
11 idol
12 tributary
13 potential
14 swine
15 chink
16 stationary
17 ooze
18 terminal
19 filth
20 surf
21 tentacle
22 dynamo
23 whiff
24 disruption
25 misdemeanour
26 libertine
27 mastication
28 complicity
29 plethora
30 argent

31 copulate
32 paradigm
33 cadge
34 aquaplane
35 antiphon
36 acrostical
37 shimmy
38 pomander
39 basqueless
40 parameter
41 slurry
42 ska
43 prunella
44 glycerose
45 pessimum
46 remanence
47 rhinocerotid
48 secant
49 minikin
50 tansy

Test 3

1 day
2 fear
3 memory
4 plane
5 female
6 twist
7 breeze
8 pluck
9 jam
10 pulse
11 bluff
12 hesitation
13 exit
14 treatise
15 feverishly
16 sill
17 giggle
18 swerve
19 clod
20 innovator
21 patriarch
22 tumour
23 barb
24 whetstone
25 chamois
26 sty
27 hydraulics
28 addle
29 tactile
30 flageolet
31 parse
32 spew
33 reginal
34 aureate
35 corral
36 debrief
37 sinistral
38 ablation
39 carriole
40 parhelion
41 possum
42 scarification
43 muscatel
44 aquose
45 erythraemia
46 pelagian
47 irredentist
48 doweral
49 helvellic
50 farinulent

*Goulden, R., Nation P., and Read, J. (1990). *How large can a receptive vocabulary be?* (Test 2) Applied Linguistics, 11(4):359.