DOCUMENT RESUME

ABSTRACT
        A word association test was given in French to 76
girls learning French to determine whether their responses matched
those given by native speakers. Three types of responses are possible
in such a test: syntagmatic, where one word cues another that usually
occurs with it ("bread" elicits "butter"): paradigmatic, which is of
the same form class as the cue word but differs in one semantic
factor ("man" elicits "woman"): and "clang-associates," commonly
given by children, where the response is heavily influenced by the
phonetic shape of the cue word ("light" elicits "bite"). Primary
responses (those given most frequently) were divided into three
categories: (1) those which matched the French responses: (2) those
which matched but appeared to be translations of English responses:
and (3) totally un-French responses, made up largely of
clang-associates, into which the majority of learners' responses
fell. Secondary and tertiary responses were also made up largely of
clang associates. Two possible attitudes toward these results can be
taken: either the discrepancies reflect serious inadequacies in the
learners' grasp of French, or the discrepancies are not important,
and will diminish as experience with the language increases. More
information about language instruction is needed to determine which
attitude is correct. (PJM)

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Learners' Word Associations in French.

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A word Association Test consists of a list of words which
are presented one at a time. For each word in the list you
have to write down or say aloud the first word that comes to
your mind. For many people, tests of this sort are closely
associated with Psychoanalysis, and a popular image of them
is that they are a key to our subconscious and innermost selves.
Word associations are indeed used in psychoanalysis, and in a
number of other clinical situations, but there is also a long
and respectable history attached to the study of the word
associations produced by people who are not disturbed in any way.
In contrast with the popular image, the word associations of
normal adults are very unrevealing about their subconscious
selves, and they show a surprisingly high degree of
unoriginality.

Table 1 below contains a list of 10 common words taken from
one of the standard word association tests, the Kent-Rosanoff
list. Read through the list quickly, and for each word write
down the first word that comes to mind. When you have done this,
check your answers against table 2.

Table 1:

1:	TABLE		2:	MAN	
3:	SOFT		4:	BLACK	
5:	HAND		6:	SHORT	
7:	SLOW		8:	NEEDLE	
9:	BREAD		10:	BITTER	

Table 2:
Commonest responses to words in table 1:

1:	table	chair	cloth	talk	desk
2:	man	woman	dog	boy	child
3:	soft	hard	cushion	light	bed
4:	black	white	night	cat	dark
5:	hand	foot	finger	glove	arm

table 2 ctd.				
6: short	long	tall	fat	small
7: slow	fast	quick	train	snail
8: needle	thread	cotton	pin	eye
9: bread	butter	jam	cheese	food
10: bitter	sweet	lemon	beer	sour

Table 2 lists the most common responses to the words in table 1, and you should find that most of your responses are to be found there. For common words such as these, the associations that normal people make are in fact very predictable. Given TABLE, for example, 78% respond with chair; given MAN, 78% respond with woman; BLACK produces white 70% of the time; BREAD gives butter 56% of the time, and so on.

Normal adults produce two main types of association, called syntagmatic and paradigmatic associations. Syntagmatic associations are associations that complete a phrase (syntagm) and some typical responses of this sort are shown below:

> BRUSH   teeth
> HOLD   hands
> BLACK   mark
> BANK   robber

The Paradigmatic associations are ones in which the stimulus word and the response that it evokes both belong to the same part of speech, nouns evoking nouns, verbs evoking verbs, and so on. In these cases, the two words both share a large part of their meaning, and stimulus and response can usually occur in the majority of contexts where the other appears. Typical paradigmatic responses are:

> MAN   woman   (meaning identical except for sex)
> BOY   girl   (meaning identical except for sex)
> FATHER   son   (different views of same relationship)
> HOT   cold   (polar opposite adjectives)
> TREE   bush   (both plants of a woody kind)

An association such as MAN snail would technically be classed as a paradigmatic one, but responses of this sort, where the two words are not related semantically, are rather uncommon.

Normal adults tend to produce more paradigmatic responses than syntagmatic ones, provided the stimulus words are reasonably common. Less frequent words, which tend to occur in more constrained contexts, are more likely to produce syntagmatic responses. Children under seven years of age have a strong tendency to produce syntagmatic responses as a first preference to any word. They also tend to produce a large number of "clang associates" - associations where the response is heavily influenced by the form of the stimulus word rather than

its meaning. Some examples of clang responses are given below:

LIGHT	bite	(rhyming response)
HUM	him	(consonants unchanged)
LATE	light	(assonance)
GO	goat	(initial vowel-consonant unchanged)

Responses of this last type are rare in normal adults, though they frequently occur in some types of mental illness, and under the influence of drugs.

The associations reported in this paper are those of 76 girls learning French in two London Comprehensive Schools. All the girls were preparing for the O-level examination in French, and were tested at the beginning of their final year of study. The girls were each given a list of 100 French words and asked to write down beside each one the first French word that it made them think of. The words were a translation of the standard Kent-Rosanoff list. (Rosenzweig's 1957 translation). This list is made up of high frequency words which students at this level would be expected to know. All but seven of the words are contained in either the premier or the deuxième degré of the français fondamental (Gougenheir al 1956). The complete list will be found in the tables that follow.

There are a number of reasons why it is interesting to look at the word association patterns of a group of students who are moderately proficient in a foreign language, but who have not yet achieved any real degree of fluency. Firstly, most of the recent work on the psychology of Foreign Language Learning has concentrated on syntactic aspects of acquiring a new language. Hardly anyone has looked at what happens to foreign language words in the early stages of their acquisition, although learners themselves often identify vocabulary as a major problem area. It seems important that this neglect should not be allowed to continue. Secondly, the work on syntactic aspects of foreign language acquisition has suggested that there are a number of interesting parallels between learners and children acquiring their first language. It would be interesting to know whether these parallels also extend to vocabulary, and in particular, it would be interesting to know whether there is any tendency for learners to produce the syntagmatic responses and clang associates that are characteristic of young children, or whether they produce typically adult responses from very early in the learning process. Thirdly, there is the problem of how foreign words are stored in the learner's mental lexicon. Are they organized into semantic networks that are quite separate from his native language lexicon, or does the learner merely tag his French words onto their native language equivalents? If the latter were the case, one would expect to find that a large proportion of the associations produced by

learners were merely translations of the normal English
responses to the equivalent English stimulus word. If the learners
were building independent lexicons for the two languages, one
would expect to find systematic differences between learners
responses in English and French.

The word associations produced by native French speakers are
broadly comparable with those of native English speakers.
Both groups produce a high proportion of paradigmatic responses,
and in many cases, the most common responses are very similar
in both languages. In other cases, either for cultural reasons,
or because there is a mismatch between the French and English
lexicons, the principal responses in the two languages are
quite different. Some examples are given in table 3 below.

Table 3:
Table three show the most common responses in English and French
to ten words from the Kent-Rosanoff list.

DEEP	shallow	sea	water
PROFOND	creux	mer	puits
MOUNTAIN	hill	valley	snow
MONTAGNE	neige	plaine	mer
HOUSE	home	garden	door
MAISON	toit	foyer	porte
BUTTERFLY	moth	wing	net
PAPILLON	fleur	aile	couleur
SWEET	sour	sugar	bitter
DOUX	dur	mou	agréable
EARTH	soil	sky	ground
TERRE	mer	ciel	ronde
SOLDIER	sailor	army	uniform
SOLDAT	guerre	plomb	armée
STOMACH	food	ache	pain
ESTOMAC	digestion	ventre	faim
YELLOW	blue	red	green
JAUNE	vert	citron	serin
BREAD	butter	jam	cheese
PAIN	vin	blanc	manger
HEALTH	sickness	wealth	happiness
SANTE	maladie	fragile	bonne
MEMORY	mind	thought	forgetfulness
MEMOIRE	souvenir	intelligence	leçon

The results of this study will be found in table 4. This table contains the three most frequent responses produced by the learner group. (These are known respectively as the primary, secondary and tertiary responses): Table 4 also reports the number of students contributing to each response, and the French primary response for each stimulus word.

Table 4:
Table 4 lists each of the stimulus words (col 1), the most common native speaker response (col 2) and the three most frequent responses produced by the learner group (cols 3-5). Numbers after these columns indicate the number of students contributing to each of the responses. The final column gives the number of different responses produced by the learner group. Symbols preceding the learner responses are explained in the text.

1 table	chaise	=chaise	53	/tableau	7	:manger	2	12
2 sombre	clair	:soleil	11	:noir	4	/heureuse	2	40
3 musique	note	/disque	11	:violon	6	/chanson	6	23
4 maladie	lit	/malade	9	/musique	9	/tête	4	29
5 homme	femme	=femme	37	/garçon	8	/dame	7	8
6 profond	puits	/plafond	6	/prendre	3	/professeur	3	50
7 mou	dur	/vache	13	/mouton	5	:chat	4	34
8 manger	boire	=boire	28	:pain	5	/pomme	4	31
9 montagne	neige	=neige	8	/campagne	5	/lac	3	47
10 maison	toit	:jardin	13	/appartement	12	:famille	5	25
11 noir	blanc	=blanc	53	/soir	4	::rouge	2	13
12 agneau	doux	:mouton	7	/mai	3	/oiseau	3	48
13 confort	fauteuil	/confortable	5	:table	4	/maison	2	41
14 main	pied	=pied	19	:doigt	7	:bras	6	23
15 petit	grand	=grand	68	/large	4	/petite	1	4
16 fruit	pomme	=pomme	31	:orange	14	:legume	6	14
17 papillon	fleur	=fleur	7	:oiseau	6	/papiers	4	40
18 lisse	rugueux	/livre	10	/lire	8	/lit	4	35
19 ordre	désordre	/demander	7	/menu	3	/garçon	3	44
20 chaise	table	=table	55	:asseoir	2	/chat	1	19

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table 4 ctd.

21 doux	dur	/deux	14	/trois	13	/un	7	23
22 sifflet	train	/soufflé	9	:agent	3	/gateau	3	46
23 femme	homme	=homme	42	/mari	5	:fille	4	10
24 froid	chaud	=chaud	56	/beau	9	:hiver	4	15
25 lent	rapide	:vite	10	/lentement	5	/noël	5	34
26 désirer	vouloir	=vouloir	15	:aimer	5	:avoir	3	44
27 rivière	fleuve	:mer	10	:eau	10	/bâteau	9	30
28 blanc	noir	=noir	55	:neige	4	:bleu	2	13
29 beau	joli	/belle	15	/froid	9	/mal	5	34
30 fenêtre	rideau	:porte	31	:maison	7	/ouvrir	5	25
31 rugueux	lisse	/rouge	16	/football	3	/rideaux	2	39
32 citoyen	vote	/auto	12	/voiture	11	:ville	5	29
33 pied	chaussure	:main	20	:jambe	12	/tête	4	21
34 araignée	toile	/arranger	5	/argent	2	/désordre	2	50
35 aiguille	fil	/train	2	/malade	2	/mouton	2	52
36 rouge	noir	:bleu	14	:blanc	9	:noir	7	20
37 sommeil	lit	/soleil	15	:lit	5	/dormir	3	33
38 colère	rouge	/bleu	7	/couleur	4	/blouse	4	41
39 tapis	moëlleux	/eau	5	porte	4	/pied	3	51
40 fille	garçon	=garçon	28	:fils	22	/fil	6	13
41 haut	bas	:montagne	4	/couture	3	/voix	3	44
42 travail	repos	/école	11	/rester	6	/autobus	5	24
43 aigre	doux	/tigre	6	/âgé	4	aiguille	3	46
44 terre	mer	:ciel	15	pomme de terre	11	/pomme	9	26
45 difficulté	facilité	:facile	18	/simple	13	/français	5	24
46 soldat	guerre	=guerre	6	:homme	4	:armée	4	44
47 chou	fleur	/chat	5	/chien	4	:fleur	3	36
48 dur	mou	/sur	4	:facile	4	/pendant	3	36
49 aigle	oiseau	=oiseau	12	/église	6	/aigre	2	41
50 estomac	digestion	:manger	4	/malade	3	/tabac	3	47
51 tige	fleur	:tigre	16	:lion	15	/animal	4	30
52 lampe	lumière	/lit	9	/table	8	/soleil	5	27

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table 4 ctd.

53	rêve·	sommeil	:dormir	9	/lève	8	:lit	5	40
54	jaune	vert	/vieux	14	:vert	7	:rouge	5	26
55	pain	vin	:beurre	26	:manger	4	:couteau	3	25
56	justice	balance	/police	7	/agent	6	/court	5	40
57	garçon	fille	=fille	37	:homme	8	:café	3	24
58	clair	obscur	:lune	19	/gateaux	5	:noir	5	33
59	santé	maladie	/noël	11	:malade	2	/église	2	43
60	évangile	bible	:église	11	:religion	4	/ange	2	42
61	mémoire	souvenir	/tête	13	:livre	4	/enfant	3	42
62	mouton	doux	/vache	10	/agneau	6	/viande	4	37
63	bain	mer	:salle de bain	13	/pain	7	:eau	6	31
64	villa	mer	:maison	48	/ville	4	/village	3	15
65	rapide	train	:vite	29	/eau	7	/rivière	6	18
66	bleu	mer	frouge	19	:ciel	17	:blanc	10	16
67	faim	soif	:manger	20	:soif	7	/femme	4	26
68	prêtre	noir	/prendre	18	/fenêtre	3	/petit	3	35
69	océan	mer	=mer	23	:eau	9	:atlantique	7	14
70	tête	cheveux	:yeux	10	/cheveux	9	:pied	8	20
71	fourneau	cuisine	/tourneau	3	/couteau	3	:chaud	3	44
72	long	court	:petit	18	/grand	8	:court	6	22
73	religion	église	=église	24	:catholique	14	:dieu	4	21
74	cognac	alcool	:boire	17	:vin	13	/boit	4	24
75	enfant	petit	:bébé	21	:petit	12	:école	7	25
76	amer	doux	/aimer	13	/mer	8	/amie	5	34
77	marteau	pilon	/manteau	3	/boire	3	/mouton	3	45
78	soif	faim	=faim	11	/soir	6	:eau	6	33
79	ville	Paris	:maison	21	:village	20	:Paris	3	25
80	carré	rond	/voiture	10	/porter	6	/roue	2	39
81	beurre	jaune	/pain	44	/vin	4	:jeune	2	20
82	docteur	maladie	:hôpital	19	:malade	13	/patient	4	19
83	bruyant	enfant	/brille	6	/noir	2	/acheter	2	52

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table 4 ctd.

84 voleur	bicyclette	:cambrioleur	5	/voiture	4	/maison	4	34
85 lion	crinière	:tigre	32	:animal	8	/tigre	5	19
86 joie	tristesse	/joli	17	/jouer	8	:heureux	4	24
87 lit	repos	:dormir	17	/lampe	10	/lire	5	28
88 lourd	léger	/silence	4	/France	4	/sac	3	44
89 tabac	fumée	:pipe	9	:cigarette	9	:fumer	7	25
90 bébé	rose	:enfant	33	:petit	8	:mère	4	25
91 lune	nuit	:clair	13	:soleil	8	:ciel	5	24
92 ciseaux	couper	/cheveux	7	:couper	6	:couteaux	5	42
93 tranquille	calme	:silence	6	:calme	4	/bruit	4	48
94 vert	pré	:bleu	15	:herbe	10	:jaune	9	16
95 sel	mer	/acheter	6	:poivre	5	/vendre	3	42
96 rue	maison	=maison	13	:voiture	7	/automobile	5	30
97 roi	reine	=reine	13	/rue	6	/moi	3	43
98 fromage	blanc	:pain	16	:beurre	9	:lait	8	30
99 fleur	rose	:jardin	9	:rose	8	/rouge	6	26
100 effrayer	peur	:enfant	4	/robe	3	/travaille	2	47

Notes:
The French norms are taken from Rosenzweig (1970) and are the primary responses produced by 184 female students. Rosenzweig also reports two other sets of data, responses from 104 male students and responses from 136 workmen, but the female nroms seemed most appropriate for comparison with the learner group which was also composed of females. Rosenzweig's male and female students differ only rarely in their primary responses, though there are a number of differences between t e student responses and those produced by the workmen.

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Consider first the learner's primary responses. These fall
into three main categories: Category A (marked = in table 4)
comprises primary responses which are the same as the primary
responses reported for native French speakers; Category B
(marked : in table 4) is made up of words which are not the
normal primary responses of French speakers, but which do
nonetheless occur in the list of normal responses for native
Francophones; Category C (marked / in table 4) are responses
that are not normally made by French speakers. The number of
responses in each category will be found in Table 5.

Category A, 23 cases, is basically uninteresting, in that
though the learners produce the same primary response as the
native speakers, these primaries are translation equivalents of
the corresponding English primary. For the four cases where
this is not so, the primary response is a translation equivalent
of a corresponding high frequency response in English. There
is no way of deciding whether the learners are producing
genuine French-like responses here, or whether they are merely
translating their normal English responses.

Category B, 40 cases, also appears to be largely made up of
translations of English responses. Twenty-five of the learner
primaries are translations of the corresponding English primaries
or other very frequent responses. Of the remaining cases, six
are marginal in that they are made very infrequently by native
French speakers (not more than once in a sample of 150 speakers).
This leaves us with only six primary responses which are
genuinely French and un-English: ESTOMAC-manger, CLAIR-lune,
EVANGILE-église, TETE-yeux, DOCTEUR-hôpital, and
EFFRAYER-enfant.

The third category, totally unFrench associations, is
surprisingly large. Eighteen of the thirty-seven cases can be
classified as clang associates, relying heavily on the form of
the word, and ignoring its meaning completely. The second
largest sub-category consists of associations which are quite
reasonable, which just do not figure in the French norms. There is
also a third set which arises as a result of the stimulus word
being misunderstood. JAUNE-vieux and CITOYEN-auto are fairly
simple cases of this but SANTE-noël and SEL-acheter and
MOU-vache are rather more serious. What seems to be happening
here is that the learners are interpreting the words in terms of
a suitable English sounding word rather than to the French
stimulus. The final type of unFrench association is where the
stimulus word is used as a base to form a lexically related word.
There were three examples of this type: CONFORT-confortable,
BEAU-belle and MALADIE-malade.

For the secondary and tertiary responses, the number of
unFrench responses is considerably higher, 54% and 60%
respectively. Here again there are a number of clang responses,

and several examples of misunderstandings of the SEL-vendre type.

Table 5:
Distribution of the learner's primary, secondary and tertiary responses.
= learners' primary response is same as French primary
: learners' response appears in the native speaker norms
/ learners' response is never made by native speakers

Category	=	:	/
Primary	23	40	37
Secondary		46 ·	54
Tertiary		40	60

The fact that this discussion has been limited to the three most frequent responses may make these typically unFrench responses seem less important than they really are. These three responses account for only 33% of the total number of responses made by the learners, and unFrench responses are much more frequent among the less common responses. To illustrate this point, table 6 contains the whole range of responses produced to three of the stimuli words. In this table 'French response' includes any word that appears in Rosenzweig's norms, even words occurring only once in his sample of 378. Even with a criterion as lenient as this, it is clear that only a fraction of the responses produced by learners can be classified as French-like associations. Table 6 also contains the whole range of native speaker responses for comparison.

Table 6a: Complete responses to PAIN

Learner responses
(French responses preceded by §)

§beurre	28
§manger	4
§couteau	3
§gâteau	3
§fro ge	2
§eau	2
§lait	2
doigt	2
malade	2

21 other responses f=1
français, provisions, mal de mer,
§grillé, confort, margarine, docteur,
flutes, être, anxious, guerre, toucher,
baguette, yeux pense, berre, porter,
pape, bière, bain, cou;
3 students claimed not to understand
the stimulus word. They produced:

merci	1	illegible	2
animaux	1	no response	2
tabac	1		

table 6a ctd. Native Speaker Responses

No	Response	Total	Female	Male
1	vin (et vin)	30	18	12
2	blanc	19	13	6
3	manger	19	12	7
4	faim	16	11	5
5	mie (de mie)	14	8	6
6	dur	13	9	4
7	nourriture	12	7	5
8	sec	11	8	3
9	bis	9	4	5
10	quotidien	8	5	3
11	boulanger	7	4	3
12	beurre	6	5	1
13	blé	5	4	1
14	farine	5	4	1
15	amour	4	1	3
16	bon	4	3	1
17	frais	4	1	3
18	noir	4	2	2
19	aliment	3	2	1
20	miche	3	2	1
21	sel	3	2	1
22	viande	3	2	1
23	boulangerie	2	1	1
24	brûlé	2	2	0
25	couteau	2	2	0
26	croissant	2	2	0
27	croûte	2	0	2
28	cuisine	2	2	0
29	épice (épices)	2	2	0
30	lait	2	2	0
31	main	2	1	1
32	pauvre	2	2	0
33	repas	2	2	0
34	sucre	2	1	1
35	table	2	2	0
36	travail	2	2	0
37	vie	2	2	0
38-93. (f=1)		56	32	24

"...Amour et Fantaisie", "...Amour et Jalousie".
appétit, beau, besoin, brioché, céleste, chaud,
chocolat, Christ, cidre, corbeille, à couper,
craque, déjeuner, Dieu, doré, drôle, eau, fantaisie,
film, flûte, four, fromage, gâteau, gourmand,
goûter, grillé, grossir, guerre, habitude, homme,
justice, labeur, long, mâcher, miettes, moralité,
nécessaire, nécessité, odeur, pain bis, pamplemousse, planche,
prison, rassis, régime, repos, sandwich, saveur, seigle, sueur,
tartine, endra, trou, vivant

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Learner responses
(French responses indicated by ϩ)

ϩpetit(e)          18
ϩgrand(e)           8
ϩcourt              6
  liste             3
  temp              2
  temps             2
  longtemps         2
  cours             2

19 other responses f=1
ϩcheveux, cour, cheveau,ϩ vite,ϩloin,
  corte, pont,ϩ kilomètre, vide, règle,
  lasse, lion, tard, jambes, giraffe,
  chanson,longleterre, lettre, Angleterre


3 students claimed not to understand the stimulus word.
They produced:

pantalons          1
vautour            1
short              1

illegible          1
no response        6
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Table 6b ctd.

No.	Response	Total	Female	Male
1	court	65	37	28
2	large	34	20	14
3	route	10	6	4
4	chemin	9	5	4
5	mince	9	8	1
6	jour (jours)	8	5	3
7	bâton	6	6	0
8	grand	6	5	1
9	pain	6	3	3
10	maigre	5	4	1
11	petit	5	2	3
12	serpent	5	4	1
13	étroit	4	0	4
14	fil	4	3	1
15	infini	4	4	0
16	jambe	4	3	1
17	nez	4	4	0
18	courrier	3	0	3
19	ligne	3	2	1
20	règle	3	2	1
21	tige	3	2	1
22	arbre	2	2	0
23	bras	2	2	0
24	cheveux	2	2	0
25	cou (cous)	2	1	1
26	fatigue	2	2	0
27	lent	2	2	0
28	mètre	2	1	1
29	rifle	2	0	2
30	ruban	2	2	0
31	train	2	1	1
32	trajet	2	1	1
33	ver	2	1	1
34-97 (f=1)		64	42	22

adjectif, allongé, asperge, attente, baguette, barbe,
bête, bois, bond, bref, Chine, corde, couloir, cour,
couteau, crayon, discours, Don Quichotte, ennui,
ennuyeux, espace, étang, étendu, fatiguant,
girafe, gouttière, haut, héron, l'hiver, horizon,
immense, immensité, indéfini, island, jour sans pain,
jumeau, kilomètre, loin, longévité, longitudinal,
long way, main, mariage, Mississippi, moi, mur,
ovale, patiente, patte, pin, plaisir, pluie, pointe,
rail, rigide, rude, rue, scieur, temps, trait,
triste, turban, tuyau, vite

Table 6c: Complete responses to MEMOIRE.

Learner responses
(French responses indicated by ʃ)

tête	13
ʃlivre	4
enfant	3
diarie	2
oublier	2
ʃmort	2
maison	2

38 other responses f=1
history, ʃhistoire, Italie, vert, lire,
école, remembre, jaune, morter, aimer,
pense, bord, fleurs, ʃvacances, pape, cahier,
nouveau, lettre, naître, matin, monton, moment,
belle, grandparents, mal, libre, prendre,
manger, monsieur, devenir, renoir, demain,
pleut, mourir, non, conservatoire, se lève

3 student claimed not to understand the stimulus word.
They produced:

rêver	1
récolation	1
fille	1
Illegible	0
no response	6

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Table 6c ctd

Native speaker responses

No.	Response	Total	Female	Male
1	souvenir (souvenirs)	50	29	21
2	intelligence	19	10	9
3	leçon	7	5	2
4	livre	6	6	0
5	oubli	6	1	5
6	fidèle	5	3	2
7	mot (mots)	5	3	2
8	travail	5	2	3
9	cerveau	4	3	1
10	facilité	4	1	3
11	habitude	4	1	3
12	homme	4	2	2
13	Bergson	3	2	1
14	bonne	3	2	1
15	chance	3	1	2
16	courte	3	0	3
17	faculté	3	2	1
18	faible	3	2	1
19	passé	3	2	1
20	savoir	3	2	1
21	trou	3	3	0
22	visuelle	3	2	1
23	affective	2	2	0
24	amnésie	2	0	2
25	d'un âne	2	2	0
26	apprendre	2	2	0
27	association	2	0	2
28	Chateaubriand	2	1	1
29	déficiente	2	1	1
30	effort	2	2	0
31	géographie	2	0	2
32	histoire	2	2	0
33	idée	2	1	1
34	intellectuel (intellectuelle)	2	1	1
35	maladie (maladies)	2	2	0
36	mauvaise	2	1	1
37	mort	2	1	1
38	outre-tombe (d'outre-tombe)	2	1	1
39	pensée	2	1	1
40	psychologie	2	1	1
41	rappeler	2	1	1
42	santé	2	2	0
43	test (tests)	2	1	1
44-140 (f=1) (see next page)		97	75	22

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Table 6c ctd.

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abstrait, absurde, analyse, ancien, d'ange, alphabet,
appétit, apprentissage, atomisme, attention, aucune,
bêtise, blanc, cervelle, cheval, par coeur,  compliquée,
conscience, couloir, cours, défaillance, défaut,
défectueuse, différente, difficile, difficulté,
distraction, document, durée, écrit, ennui, énorme,
épreuve, esprit, étude,  examen, fable, fatigue, foi,
folie, force, fuite, de Gaulle, grenier, grimoire,
gros livre, imagination, instinct, jeunesse, journal,
lecture, lente, localisation, lyre, machine, de
médecin, mémoire, mémorisation, mère, mnémonie,
moyen, noms propres, pas, passable, pathologique,
penser, peu, physique, philo, Piéron, poésie,
poisson, précise, qualité, Rabelais, rappel,
se rappeler, rapidité, récitation, réponse, réserve,
rétention, T.Ribot, Ségur, sensibilité, Mme de
Sévigné, simple, songe, sonnet, table de multiplication,
tombe, trace, trouver, utile,  vacances, vacillantes,
volonté
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These three sets of responses are fairly typical of the
complete responses to the 100 words. With less frequent
words such as LISSE or RUGUEUX, the number of non-responders
and those who claim not to know the stimulus word rises. In the
case of very frequent words such as HOMME or BLANC, the
number of individual responses is lower, and the number of
respondents contributing to the most frequent responses is
rather higher than in these examples. The data in figure 6
is untypical in that there are few examples of clang
associates. This is probably due to the fact that two of the
stimulus words are close cognates of English words. Clang
associates are particularly common with less common French
stimuli.

Other points worth noting are the complete absence of some
very frequent responses made by native speakers from the
learners' data, and the very small number of syntagmatic
responses. MEMOIRE gives rise to no syntagmatic responses,
although there are a number of examples of this type in the
native speaker responses. LONG produces mainly paradigmatic
responses. PAIN produces a number of syntagmatic responses,
beurre, eau, fromage, which are phrases, but only two examples
of genuine syntagmas, manger and grillé. There is no evidence
in the data as a whole that the learners produce syntagmatic
responses in any systematic way.

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There are two possible attitudes that we can take towards
the data presented above.

The first is to take the very obvious discrepancies between the
association patterns of learners and native speakers as indicative
of serious inadequacies in the learner's grasp of French.
Ideally, it might be argued, learners ought to aim at performing
like native speakers on every language task, and this ideal
applies not only to primary language activities such as
listening and speaking, but also to secondary activities such as
the word association task. These secondary activities are not
just academic curiosities; they are a useful way of investigating
the way a speaker's knowledge of his language is structured and
stored. Word associations clearly tell us something about the
way our mental dictionaries are organized. The data suggests
that the native speaker's mental dictionary is organized mainly
on semantic lines, rather more like a thesaurus than a conventional
dictionary. Words of similar meaning, or words that have the same
range of convenience are stored in such a way that they readily
evoke each other. In the learner's case, however, this semantic
organization seems to be much less well established. The learners
studied here do show some evidence of semantic organization, but
this is mainly dependent on translation between French and
English. There also appears to be a conflicting principle of
organization which makes use of the form of words rather than
their meaning, and even among respondents who claimed to have
understood the meaning of the stimulus word, there is a strong
tendency for totally extraneous words, related to the stimulus
neither in form nor meaning, to emerge as associates. This lack
of a proper semantic organization for foreign language words
may explain a large part of the difficulty that learners
experience in processing both written and spoken foreign
language material. Receptive skills rely heavily on a predictive
process whereby the reader/listener anticipates what is about
to appear, and checks these predictions against what does
actually appear in the speech stream or text. A semantically
based lexicon would obviously be effective here. It is usually
possible to predict at least a part of the meaning that your
interlocutor is trying to convey, even though it is not always
possible to predict the exact word that he will use. If we
imagine that predicting the occurrence of a particular word
brings to mind not only that word, but a whole cluster of
words that are closely related to it, then in a semantically
organized lexicon, all the words brought to mind would be
relevant to the matter in hand, and it is highly likely that one
of this cluster of words would match what appeared in the
utterance or text. A dictionary that was organized along non-
semantic lines would be less efficient, since the cluster of
words would contain a large number of items that were totally
irrelevant to the message in hand. A dictionary based on formal
criteria, for example, would bring to mind a whole cluster of

similar sounding words, and this would be confusing even if the
predicted word was correct. In effect, a learner with such a
mental dictionary would be bombarded with irrelevant messages,
which would make it very difficult for him to extract the true
meaning of what he is trying to understand. If this characterization
of the learner's mental dictionary as lacking proper semantic
organization is a true description, one'implication would be that
we ought to put a considerable research effort into developing
learning methods which could lead learners to develop mental
dictionaries that are properly structured, and as closely as
possible like those of native speakers.

On the other hand, there is a second equally plausible, but
quite contradictory attitude which could be taken: to claim
that though there are large and obvious discrepancies between
the learners and the native speakers, they are not really of any
importance. It might be the case that all learners go through a
phase when their foreign language lexicon is organized on
non-semantic criteria, or indeed even randomly. If the lexicon
was relatively small, this might not really matter, and it might
be the case that given enough exposure the lexicon reorganizes
itself on semantic grounds when the number of words it contains
becomes large enough to make efficient organization important.

Our knowledge of how learners acquire foreign language
vocabulary, and how this part of their competence is elaborated
is so slight that there is not really any evidence available
which could indicate which of these two attitudes is more
likely to be the correct one. This rather unhappy state of affairs
has three main causes.

Firstly, most of the major developments in applied
linguistics in the last decade have been chiefly concerned with
aspects of syntactic development. This is due to the existence of
well-developed and useful models that had been worked out in the
course of studies of first language acquisition in children.
This work is obviously important, but it is also important to
remember that syntactic problems are only part
of a whole set of problems faced by learners of foreign languages.
Syntax is not a serious source of difficulty for more advanced
learners, and vocabulary problems are probably much more serious
once the early phases of learning are past.

Secondly, where vocabulary problems have been studied, this
has almost always been from the point of view of the teacher,
the tester or the course writer, rather than that of the learner.
West's work on the frequency of English words as a criterion for
inclusion in text books (West 1953) and the work on

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Français Fondamental (Gougenheim et al. 1965) are good examples
of this. Such work is clearly of great value, but it leaves
unasked a number of questions of a fundamental kind about
the psychological aspects of acquiring foreign language
vocabulary.

Thirdly, the small amount of work that has looked at
learners acquiring vocabulary has usually assumed that learning
a foreign word is merely a matter of being able to recognize that
'homme' means 'man'. The model that underlies this kind of
thinking is an adaptation of the paired-associate idea found
in psychological work on verbal learning and implies that
native language words and foreign words are linked together in
simple stimulus response relationships. This is an impoverished
view of the complexities involved though. It assumes that
vocabulary items are discrete, and ignores the networks of
semantic relations that exist between words, and the fact that
sets of related words in one language rarely map in any simple
way onto the equivalent set in another language. More importantly,
by defining the problem in terms of inter-language pairs, any
comparison between what a learner does with a foreign word and
what a native speaker does are explicitly ruled out of consideration.

This last point is an important one. 'Knowing a word' for a
native speaker is a complex and multifaceted skill, perhaps
best described in behavioural terms as the ability to
react to a word in ways which are considered appropriate by
the speech community. Many learners are incapable of reacting
appropriately to a word, even though, technically they know its
meaning and might be able to use it in a sentence. Two examples
will suffice. Native speakers have little difficulty in
recognizing words spoken against a background of noise, but
even fluent learners are very much less tolerant of noise,
and can fail to recognize words at noise levels which have no
effect at all on the performance of native speakers. Native
speakers can read single words exposed on a screen for as
little as 30 milliseconds, but learners require much longer
exposure times, even when the words used are very common ones.
Being able to perceive words in noise, or read words quickly
are both examples of the type of skill each native speaker
is expected to have by his speech community. Both are important
subcomponents of the ability to communicate. It is clearly
important that learners should be trained to share these
appropriate reactions, so that they can perform these tasks and
others like them with something like the facility found in
native speakers. The case of word associations is not so clearly
important as the activities mentioned above, as there is a very
 ide range of tolerance found among native speakers, and since
 .1e production of word associations is not so clearly related to
ordinary language activities. My own feeling, however, is that

all the various types of language activity are reflections of
the same underlying, basic skills, and that if we could
develop learning methods that, as a side-effect produced
learners with native-like association patterns, we would
also be producing learners who were better able to
communicate in their foreign language.

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