THE LEARNING OF CONCEPTS FROM VERBAL CONTEXT

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THESIS

ABSTRACT

THE LEARNING OF CONCEPTS FROM
VERBAL CONTEXT

By Sandra Jean Woolum

This study sought to demonstrate that the learning of concepts from context was somewhat analogous to the learning of concepts by the reception paradigm. Number of instances, an important variable used in the reception paradigm, was used here by varying the number of sentences given for an unknown word. Each sentence contained the word and some information about it.

Six conditions were created by presenting the words in stories with zero, one, two, four, eight and twelve sentences. Nine unknown words were used to represent the concepts. The words used were, POSSET, CANARD, DIZEN, PHARISAICAL, MARMOREAL, PURSY, TUSSAH, AMERCE AND SAPONIFY. Acquisition of the word was tested by a five-item multiple-choice test for each word. One hundred twenty subjects took each of the nine tests after having read the corresponding story in one of its six conditions.

The reliabilities of the tests varied but most were in the range of .59 to .74. Analyses of variance computed on each of the nine words were all significant at the

.01 level. Duncan's range tests and F tests for trend demonstrated that these differences were not comparable from one word to the next. There was in general an increase in knowledge of the word's meaning as the number of instances increased. Variations in this general trend were attributed to differences in the value of the context clues presented in each sentence.

APPROVED BY Donald M. Johnson

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By

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I would like to thank the members of my committee for their contributions to this thesis. I especially want to thank Dr. Johnson because he believed that this kind of research was worth doing, Dr. Uleman because he wanted it to be honest, and Dr. Phillips because he wanted it to be good.

I also want to thank my family for their continued interest in my research and my friends who serve as consultants on language behavior when we know the answers and as subjects when we don't.

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CHAPTER I

INTRODUCTION

The intention of this study is to introduce the experimental investigation of concept learning using verbal context. The general concern of this investigation is the way that concepts are learned by reading.

This type of question is not answered either by studies of verbal learning or by studies of concept formation. Studies of verbal learning are generally concerned with the memorization of verbal material. Studies of concept formation typically use non-verbal material or isolated words.

It is obvious that people learn by reading. This is the foundation of educational systems. Systematic variables underlying this learning, however, have not been discovered. Part of the difficulty involved in investigating reading is that it is difficult to characterize what it is that is learned. Reading presumably generates basic ideas or concepts which could not be reproduced without producing the whole text of material. On the other hand useful labels exist for many new concepts. They are the new or unknown words embedded in the verbal context. The acquisition of a new word may thus provide a useful index of concept acquisition. When a new concept is acquired it may not indicate that a new word has been learned. But, unless the word is a synonym for an already known word, the learning of a new word signifies the learning of a new concept. Archer (1964) writes that the basic property of concepts is that they are words. "Concepts are not just words, they are meaningful words used as class labels and the acquisition of the meaning is surely a continuous and variable process."

Research concerning the learning of concepts from context is practically non-existent. Johnson and Stratton (1966) however, demonstrated that new words can be learned from verbal context. Research with the reception paradigm, however, is extensive. The reception paradigm utilizes positive and negative attributes of an artificial concept with definitive attributes. Thus a series of geometric figures are presented and the S learns that all those with red squares are designated as correct instances of the concept and all others are designated as incorrect.

This paradigm of concept learning seems to be very different from the learning of the word "decussation" when it is mentioned repeatedly in a physiology text (Altman, 1966, 232). Some similarities may exist however. These similarities would allow the "context paradigm" to incorporate information or hypotheses from the extensive research utilizing the reception paradigm.

Instances of a concept in the reception paradigm present both repetition of the concept and information about it. If the concept to be learned is "green or blue four-sided figure," the occurrence of a green square presents the concept and some information about it, the occurrence of a blue parallelogram repeats the concept and provides additional information about it.

Instances of a concept which present both repetitions of the concept and information about it may be created in the context paradigm by a unit which contains the concept label and some information about it. The unit that was created for the present investigation was a sentence though this was not the only possibility. The information in the sentence is designated as "concept clues."

This information is not strictly analogous to the kind of information that occurs in the reception paradigm. Consider the sentence, "The giddack hobbled down to the river for a swim." Clues relevant to the meaning of the word "giddack" are "hobbled" and "swim." These words must be chosen as relevant. They are not, however, attributes of "giddack" in the way that blue and square are attributes of a geometric figure. A giddack is not a "hobbled swim." A giddack does hobble and swim however, and this indicates that it is some form of animal life. It is thus apparent that neither the information nor the rules for combining it into a concept is strictly analogous to those of the reception paradigm. Principles of concept acquisition may be the same however. It is probable, for instance, that repeated exposure to the concept is important in both cases.

Conclusions from other investigations of concept learning may be transferable to the learning of concepts from context but this transfer is not automatic and should be closely investigated. On the following pages a study is presented which investigated how number of instances influenced the learning of concepts from context.

Most essentially this study indicates that the learning of concepts from context can be systematically investigated.

CHAPTER II

LITERATURE

As noted previously literature concerning the learning of concepts from verbal context is practically non-existent. The importance of this type of learning however is demonstrated by the comments of educators. Brownell and Hendrickson (1950, 93) write

> The most evident characteristic of information, concepts and generalizations is that they are predominantly verbal. They are learned chiefly through the agency of words, and they are used most commonly through the same agency. In the school we deal with the Mississippi River not as an immediate sensible object but with the idea as symbolized in words.

J. B. Carroll (1964, 179-180) criticizes the artificiality of concepts learned in the psychology laboratory and compares them with concepts learned in the schools.

> There is a gap between the findings of psychologists on the conditions under which very simple concepts are learned in the psychology laboratory and the experience of teachers in teaching the "for real" concepts that are contained in the curriculum of the schools. It is not self-evident that there is any continuity at all between learning "DAX" as the name of a certain geometrical shape of a certain color and learning the meaning of the word "longitude."

Carroll reviews five major differences between the kinds of concepts learned in school and those learned in the psychology laboratory. School concepts, he states are genuinely new, relational rather than conjunctive and deductive rather than inductive. The attributes of school concepts, he continues are complex concepts in themselves, and school concepts require memory more than do psychology laboratory concepts.

McCullough (1943, 1958) outlines several kinds of clues that may be used to determine the meaning of a word from its context. As an example of the comparison-contrast clue she gives the sentence. "Ed was talkative while Bill remained taciturn." The meaning of taciturn can be derived from contrast with talkative. Some clues, she notes, rely on past experience. Thus the meaning of raucously in the sentence, "a pair of crows cawed raucously," can be deduced from an experience with crows. McCullough also presents examples in which the clues are not given in the same sentence as the new word. "The room was completely disheveled. Chairs were overturned. Pillows were thrown helter-skelter. Parts of the newspaper lay about the floor."

A number of studies have indicated however, that learning from context is a very inefficient means of vocabulary development. In the first of these studies H. Gibbons (1940) presented college students with an unknown word and asked the students to construct the meaning of the word from inspection of the sentence. The students' performance on this task varied considerably and Gibbons concluded that it represented a specific ability. The percentage of students who were able to construct the meaning of a specific sentence also varied considerably. For instance, 91% of the students were unable to derive the meaning of vicarious from the following sentence. "Part of our education is obtained through actual experiences; vicarious experiences which come through reading, pictures, lectures, art and music are equally important however as a means of extending real experience." Thirty-three percent of the students were unable to construct the meaning of itinerant from the sentence, "In the beginning the teacher travelled from one locality to another to meet the students, thereby bringing into existence the itinerant school master."

H. J. Sachs (1943) made a more direct test of frequency as related to concept learning. He tested 416 college freshmen on twenty-five words that were found in a text of previously required reading. There was a low correlation between the number of times the word occurred in the reading and the students' knowledge of the word. Performance on the whole was low. The word "impious" occurred 83 times in the required reading but only 50% of the students could demonstrate knowledge of the words meaning. In a more controlled version of the study by Sachs, 69 students read an essay on "the luxury of integrity" in which the word "integrity" occurred thirteen times. On the following day less than 20% of the students could correctly define integrity. This was repeated with four other essays. Performance in all cases was less than 35% and frequency of occurrence was as great as 48.

It should be noted that these students did not read the essay with the intention of learning the meaning of the new word and that the scores given reflect correct definition on the following day. It is also difficult to specify the criteria for correct definition. The low scores are surprising, however, especially since the words were not particularly rare and some of the students may already have known their meanings.

Russel and Fea (1963, 890-891) suggest one reason why learning from context may not be particularly effective. "Direct research on the value of reading in increasing vocabulary has yielded disappointing results . . . It is obvious that if the context is unknown, it cannot furnish clues to unfamiliar words." It is thus suggested that unknown words frequently occur in unknown contexts from which their meaning cannot be derived.

Werner and Kaplan (1950) present another example of the inefficiency of the context method. They asked young children to read sentences which contained nonsense syllables and then to guess the meaning of the nonsense syllable. Another sentence using the syllable was then presented and the children were asked to guess again. For example in the sentence, "Ontrave sometimes keeps us from being unhappy. It is silly to ontrave things that are not possible," "Ontrave" replaces the word "hope" or "hope for." Young children were often unable to modify their first response when a second sentence was presented. They either forgot about the first sentence entirely or put the first interpretation into the second sentence whether it fit or not. For instance if the first substitute provided the sentence, "Love sometimes keeps us from being unhappy," the second substitute might provide: (1) It is silly to try things that are not possible, or (2) It is silly to love things that are not possible. Werner and Kaplan believed that the younger children could not abstract the word from the sentence and apply it to another sentence.

Johnson and Stratton (1966) indicate that words can be learned from context and that this method is not inferior to learning by definitions, synonyms or classification. They investigated the effectiveness of these methods of concept learning and of a mixed program which contained all of the other methods in abbreviated form. The mixed program was superior to the others but no significant different existed between the other methods. The materials for context learning in this study were stories which presented each of four concepts twice in a short story.

It is thus evident that concept learning can take place by inspection of context although evidence exists that indicates that this method is ineffective when the S is not instructed to learn the new concept or when the S is very young. This evidence is sketchy and incomplete. A wealth of information exists on the learning of concepts by the reception paradigm, however (Bourne, 1966). Besides the general importance of number of instances, which is assumed at this stage in the development of knowledge about the reception paradigm, Bourne stresses the relative importance of positive and negative instances, of rules for combining information, of attribute complexity and conspicuousness and of strategies for concept acquisition. Such considerations will eventually be important for the study of concept acquisition by the context paradigm, but are too complex for considerations until some more obvious variables, such as number of instances, are established.

CHAPTER III

STATEMENT OF THE PROBLEM

Investigations with the reception paradigm of concept learning indicate the importance of number of instances, units of presentation which serve to repeat the concept and to provide information about it. No systematic investigations of the learning of concepts by the context paradigm exist. It was hypothesized, however, that variables relevant to one paradigm would be relevant to the other. The variable of instances was translated into the context paradigm by creating a unit of presentation which represented both repetition of the concept and information about it. The unit created was a sentence which contained the verbal label for the concept and some context-clues. The value of different types of information was not the specific hypothesis under test so attempts were made to present equally valuable information in each unit. To the extent that this was impossible, presentations do not accurately represent information.

The new concept was represented by a word. The word itself is not the concept however and it must be assumed, not unreasonably, that the acquisition of the meaning cf the word represents the acquisition of the concept.

The number of instances for each word were varied by varying the number of sentences in a story in which each sentence contained the concept word once. It was hypothesized that with increased number of instances learning would increase in a negatively accelerated fashion. Learning was assessed by the number of correct responses to a multiple-choice test.

CHAPTER IV

METHOD

The concepts

The new concepts were represented by single words chosen from the Thorndike and Lorge (1944) list of words that occurred four times per eighteen million. The words in the list are the least frequent words reported by Thorndike and Lorge. However, all of the words in the list do not represent concepts that would be new to college students. For instance the word, "flatworm" is infrequent but does not represent a new concept. The words chosen were therefore chosen randomly from the words that the _E_ believed to be unknown to college students. Further stipulation was imposed on the randomness by requiring that three of the words be nouns, three be verbs and three be adjectives. From the words thus chosen several were eliminated because it was impossible to write a story that used the word in every sentence. One such word was "imbricate," another was "necrosis." The words used were POSSET, CANARD, TUSSAH, DIZEN, AMERCE, SAPONIFY, PURSY, MARMOREAL and PHARISAICAL.

The stories

The stories were written so that the concept word appeared once in each of twelve sentences. Each story had only one new concept word. It was thought advisable to make all the sentences equally valuable since some would be randomly dropped from the story. This was, of course, impossible but an attempt was made to make each sentence contain some clue relevant to the meaning of the concept.

The stories ranged in length from 145 to 215 words. The subject matter varied but for the most part they related amusing episodes for fictitious characters. The occurrence of the new word in every sentence made the story somewhat far fetched but they were definitely stories and not simply collections of sentences. The following is an example: the story used for MARMOREAL.

> The marmoreal snow stretched endlessley over the plains. In the midst of the snow, an artist was trying to capture the marmoreal quality on canvas. The marmoreal snow was a perfect study because it was cold and white. The marmoreal quality, however, was almost impossible to capture in all its smoothness. Finally the artist began to capture the fine marmoreal quality with his brush. He was ecstatic to think how his marmoreal snow resembled the marble columns of more classic painters. He said to himself, "I will call the painting, 'The marmoreal snow' and it will make me famous." But long did the marmoreal painting hang in the store without being bought, though everyone admitted that its texture and icy effect were beautiful. No one wanted a mormoreal painting because it was all white. One day an important museum curator saw 'The marmoreal snow,' and asked who had painted it. Unfortunately, no one knew who had painted the smooth, white, marmoreal work. The artist had loved its marmoreal quality too much to mar it by signing his name.

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<u>The six conditions</u>

In order to vary the number of instances given for the new word, each story was used in its complete form and in several condensed forms. The complete form provided the condition of twelve instances because the new word was presented once in each of the twelve sentences. For the condition of eight instances, eight sentences were randomly chosen from the story; for the four instances condition, four sentences were chosen, for the two sentence condition two sentences were chosen, for the one sentence condition one sentence was chosen. For the zero instance condition, no sentences were given.

The selection of sentences was completely random, beginning each time with the complete story. When the sentences for the condensed story had been chosen their order was sometimes changed to make the condensed story more logical. The only other change that was made was to substitute a noun for a personal pronoun that referred to a noun in a sentence that had been dropped.

For the most part the stories were still reasonable. Character and redundancy of the new word tended to hold the story together. The following is an example of a condensed version for MARMOREAL; it was used for the four instance condition.

> Finally the artist began to capture the fine marmoreal quality with his brush. The marmoreal snow was a perfect study because it was cold and white. But long

> did the marmoreal painting hang in the store without being bought, though everyone admitted that its texture and icy effect were beautiful. No one wanted a marmoreal painting because it was all white.

The other stories are presented in Appendix A.

The questions

Five multiple-choice questions were written to test knowledge of the meaning of each new word. Each question had five alternative answers. Questions were written before the sentences were chosen for inclusion in the condensed versions of the stories. In general, five questions exhausted all possible questions that the E could construct to test knowledge of the new word so questions were not limited to any specific type. The following is a sample question for MARMOREAL.

There is probably nothing marmoreal

a) in the modern city.
b) on a hot summer day.
c) in a museum.
d) in the jungle.
e) on a cold winter night.

The other questions are presented in Appendix B.

The booklets

The stories and questions were assembled into booklets. One and only one condition of each story was put into a booklet. In every case the story was presented on one page and the questions concerning that word were put on the next page. Since there were six conditions and nine stories, each booklet contained each of the six conditions once and three of the six conditions twice.

Eighteen different ways of combining stories and conditions were randomly chosen with the stipulations that each story occur once and only once, each condition occur once, and no condition occur more than twice. The stories and questions which followed them were randomly ordered into the booklets. This ordering was individually done for each of the booklets.

Instructions

Instructions were printed on the cover of the booklet. The subjects were instructed to read the story in order to discover the meaning of the new word and then to turn the page and answer the questions. They were allowed to study the story as long as they deemed it profitable but they were verbally instructed not to look back at the story after they had looked at the questions. The instructions are presented in Appendix C.

Subjects

The booklets were distributed to an experimental psychology class at Michigan State University. Since the booklets were individually ordered and several combinations of conditions were possible, considerations for impartial distribution were not necessary.

The students took the test individually, working at their own speed. Booklets were collected after approximately forty minutes. All but two of the students had finished.

A total of 132 booklets were collected. Twelve of these were eliminated either because they were incomplete or to give an equal number of subjects in each condition. When the remaining 120 booklets were considered, there were twenty subjects in each of the six conditions for each of the nine words.

CHAPTER V

RESULTS

One point was given for each correct answer to a multiple-choice questions. Thus a total of five points was possible for each new word for each subject. By summing over the twenty subjects who had a particular condition for a certain word, totals were obtained for each of the nine words. The average scores for each word are presented in Figures 1 through 9. Means and variances for each word are presented in Tables 2 through 10. It is apparent from the figures presented, that in general more correct answers were given as the length of the story increased. However, a wide variation of scores may be noted by inspection of the shapes of the various cureves.

Because the questions were created for this experiment and because there were only five questions for each word, the reliabilities of the test for each word was computed. The Kuder-Richardson (Formula 20) reliabilities for each word are presented in Table 1 (Guilford, 1956). It may be noted that the reliability for DIZEN is much lower than that for any of the other words. This test had an extremely low variance which failed to produce a high reliability coefficient. CANARD also had a low reliability.

An analysis of variance was performed on each of the words. All of the tests were significant at the .01 level (Tables 2 through 10). Considering the individual graphs again it may be noted that the total score for the twelve condition is higher than the score for the zero condition in <u>every</u> case. A sign test would of course be significant. However, as noted before, there is a wide variation in the shapes of these graphs. Duncan's range tests were used to determining the locus of the significant differences for each analysis of variance. For CANARD there was only one significant difference. The condition in which two sentences were presented was significantly higher than all of the others. For MARMOREAL the condition for which one sentence was presented was significantly different from all other conditions except the twelve sentence condition. For POSSET on the other hand, no significant differences exist except for the differences between the eight and twelve conditions and between these and the other conditions. It is thus apparent that these curves are not all the same and there is some indication that these variations are not simply random error. The results of Duncan's range test are presented in Tables 2 through 10.

Applying a trend analysis to this data is difficult because the curves are so different. A formula that explains one curve is not likely to explain the others. However, the curves can be compared by applying one formula and determining how well each curve is explained by that formula. A difference in the ability of the formula to predict the curves will demonstrate the difference in the curves.

Attempts to fit the curves with exponential and logarithmic functions were not particularly successful. Several of the curves, however, were closely approximated by a formula for a hyperbola. The general form of the equation for a hyperbola is $Y = \frac{X}{a - bX}$. Each point is plotted as (X, X/Y) instead of as (X,Y). This tends to make the points form a straight line. The resulting figures are presented in figures 10 through 18. It may be noted that some curves fit the hypothetical curve better than do others. An F test for goodness of fit was performed on each of the nine curves according to the method outlines by Lewis (1960). The results of this analysis are presented in Table 11. All but three of the curves, those for POSSET, DIZEN and PHARISAICAL demonstrated a significant deviation from the ideal curve. As may be noted this test does not distinguish the curves with a regular trend from the irregular ones. The distinction is thus rather arbitrary. The tests do demonstrate, however, that some of the curves follow a hyperbola and that some do not and thus that the differences in the curves is not merely error but indicative of a real difference.

The variation probably results from the impossibility of writing sentences that were exactly comparable in value. This indicates the need for experiments which use the value of context clues as a controlled independent variable. Meanwhile, however, it would be beneficial to note the general effect of presenting additional instances, as that was the original aim of this study. A general curve is therefore presented in Figure 19. There are several problems involved in the interpretation of this curve however. As noted previously the data which contributes to it originates from curves which are genuinely different; in addition these curves are not entirely independent. It is not difficult to demonstrate however, that as the number of instances increase, learning will in general increase. The variations in the curves which prevent a more powerful conclusion really demonstrate the existence of complex variables which will provide interesting questions for further studies.

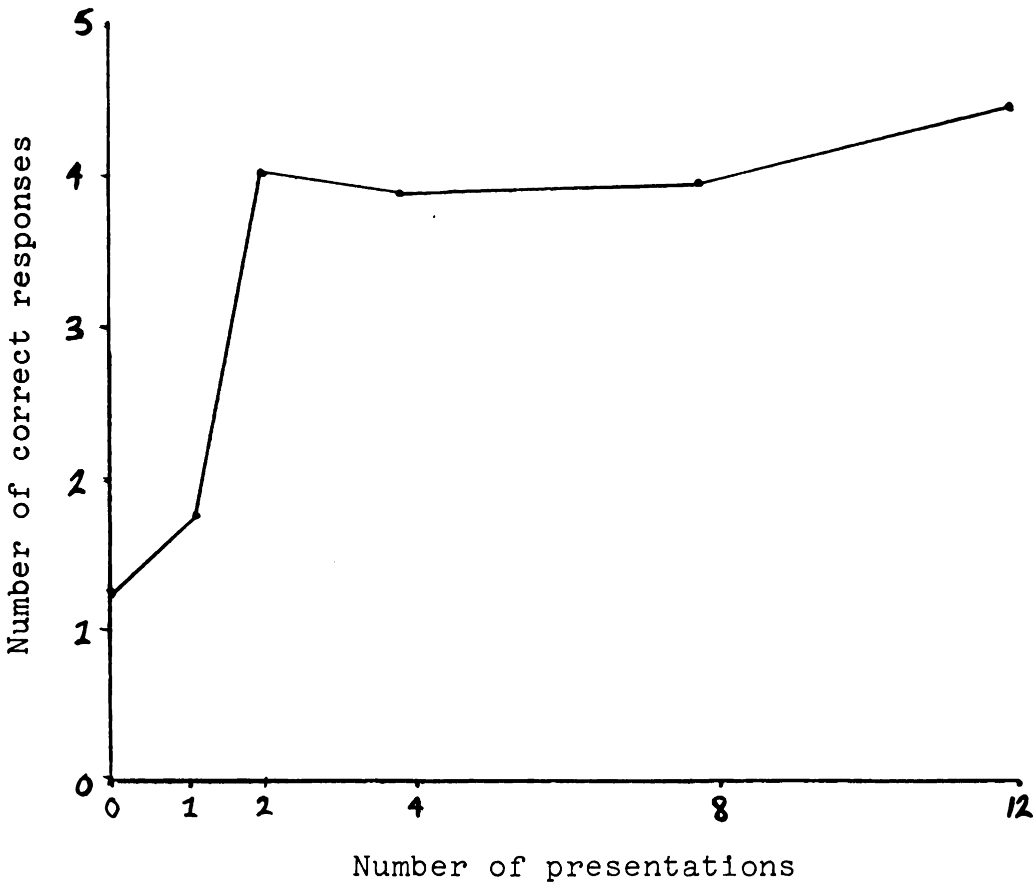

Fig. 1 Average number of correct responses for AMERCE.

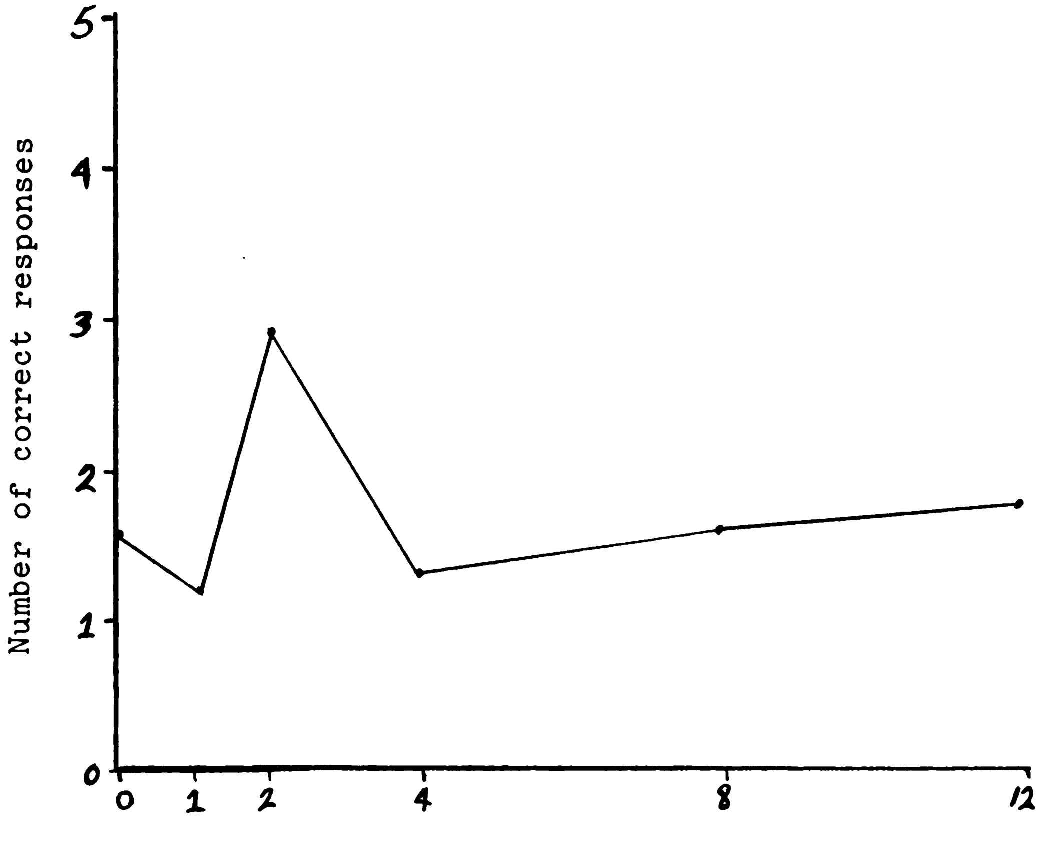

Fig. 2 Average number of correct responses for CANARD.

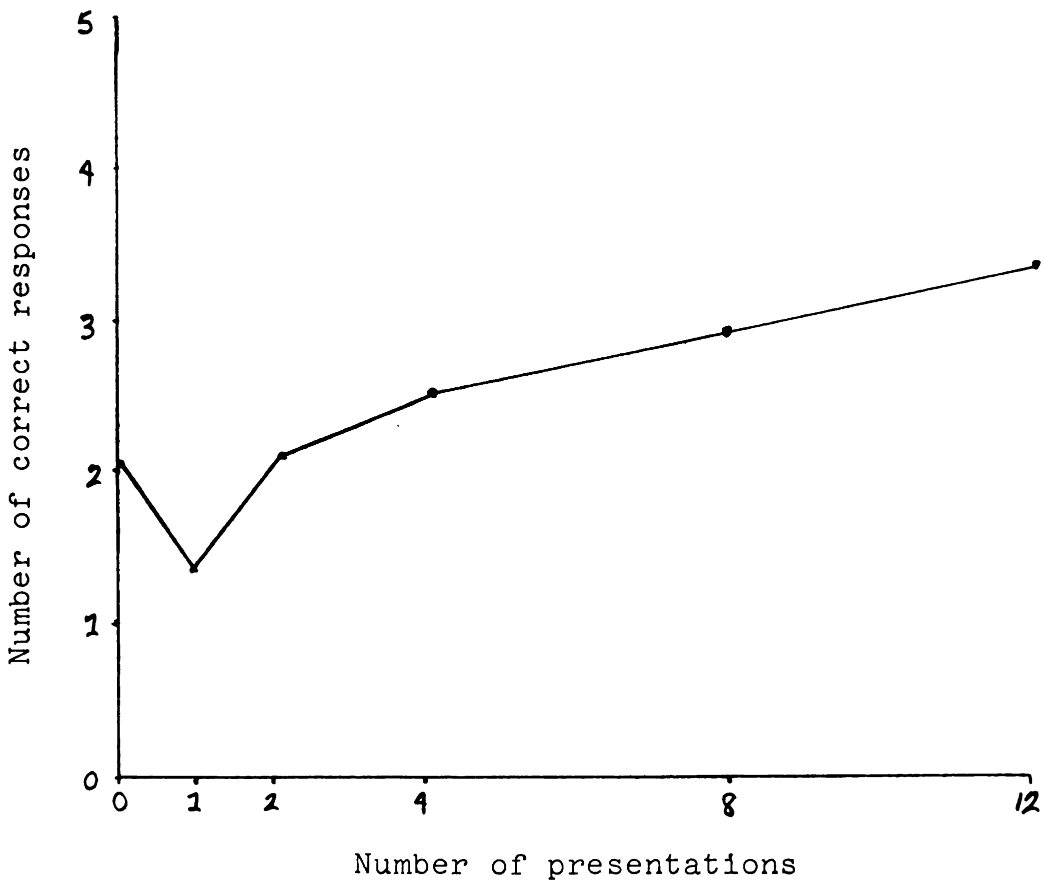

Fig. 3 Average number of correct responses for DIZEN.

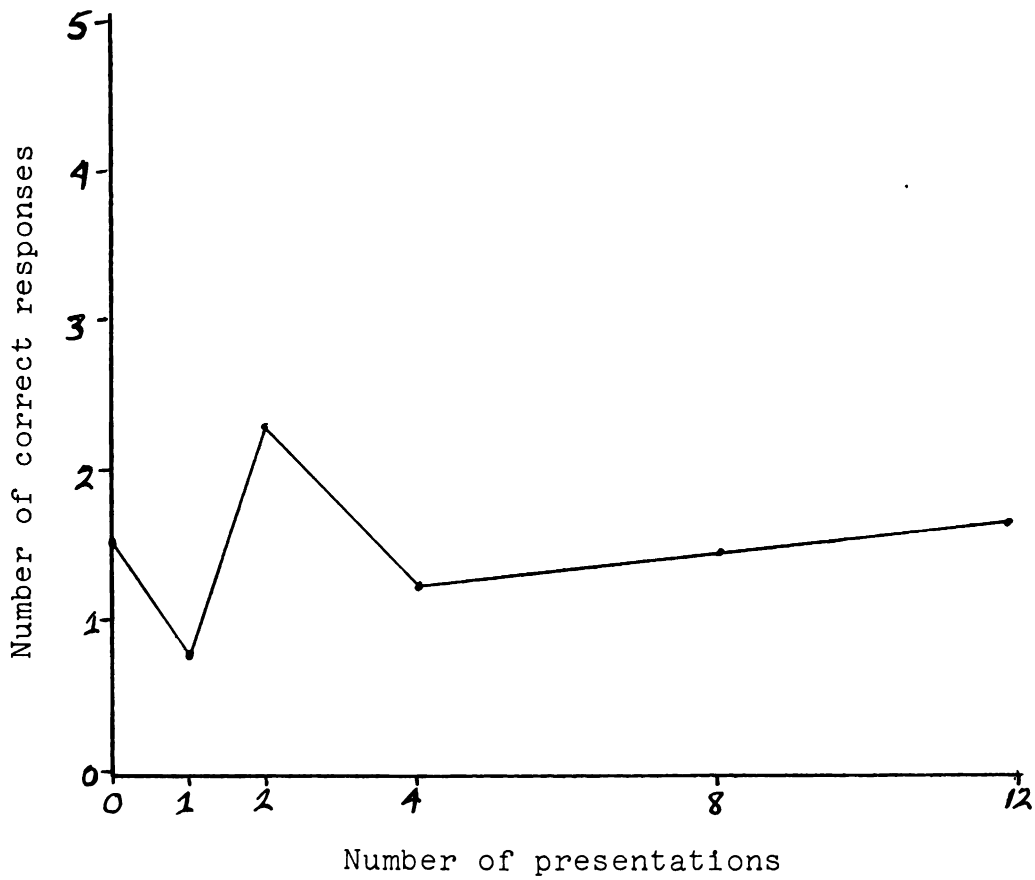

Fig. 4 Average number of correct responses for MARMOREAL.

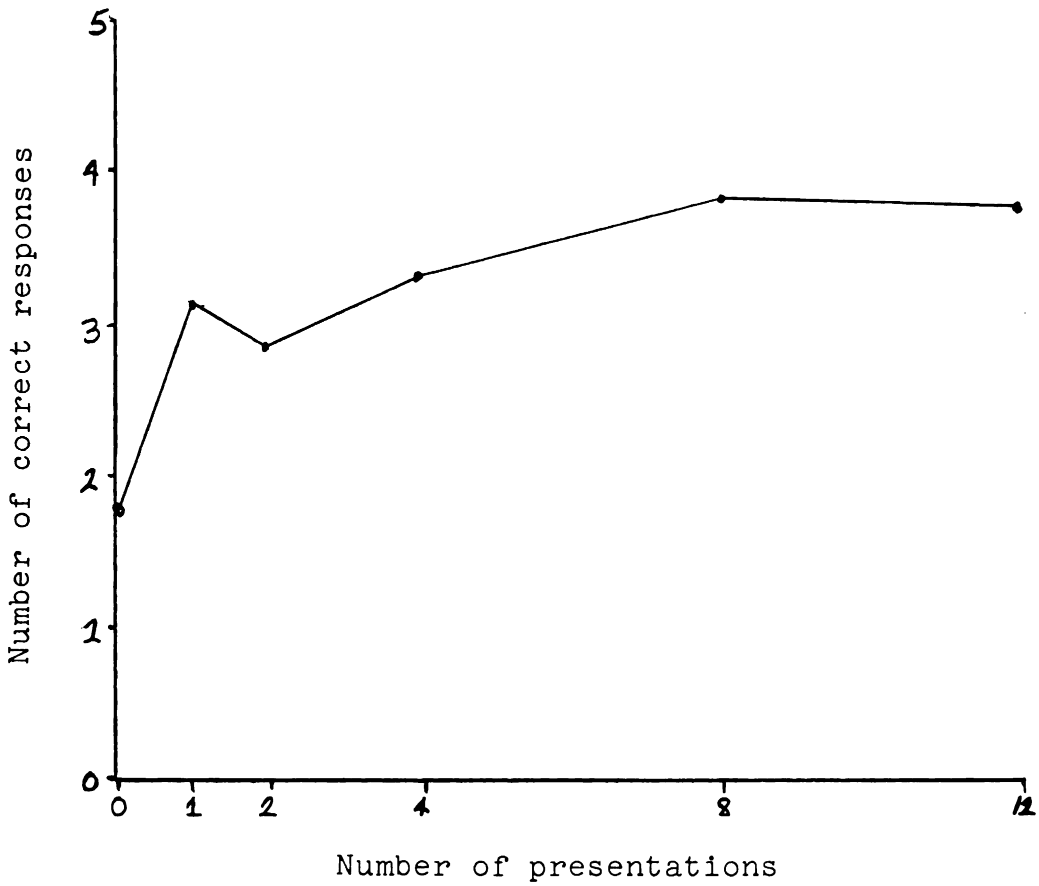

Fig. 5 Average number of correct responses for PHARISAICAL.

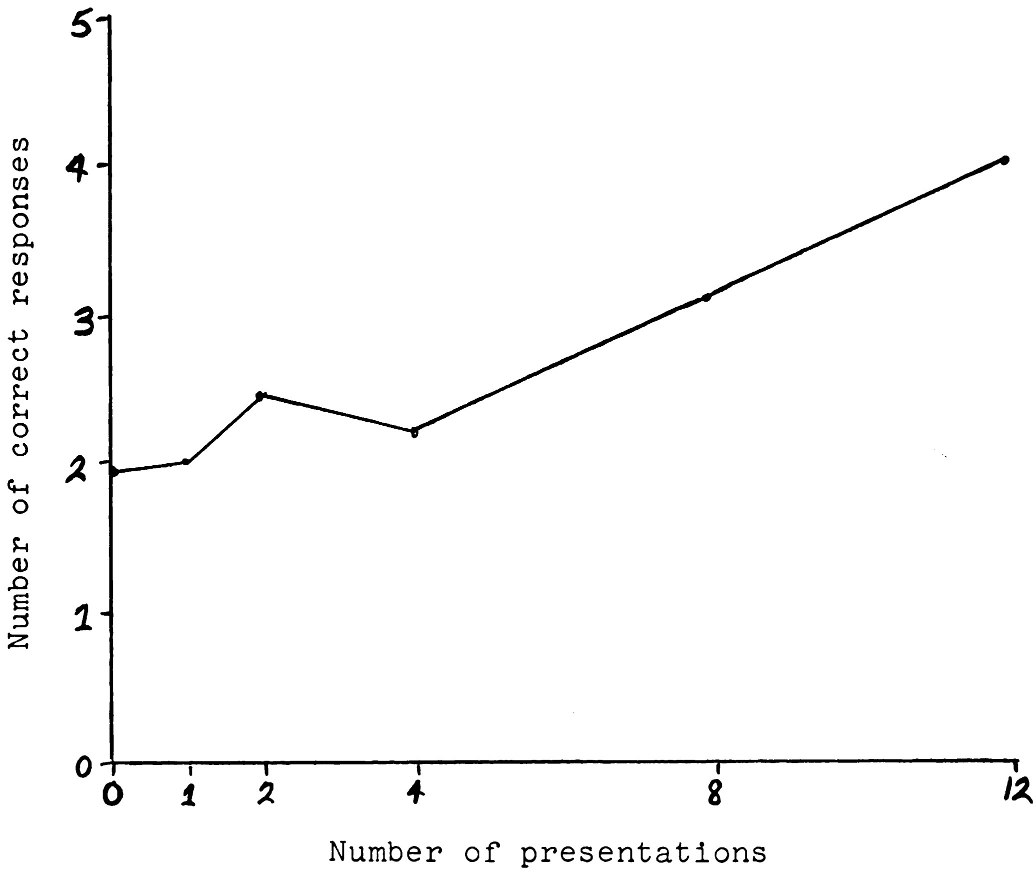

Fig. 6 Average number of correct responses for POSSET.

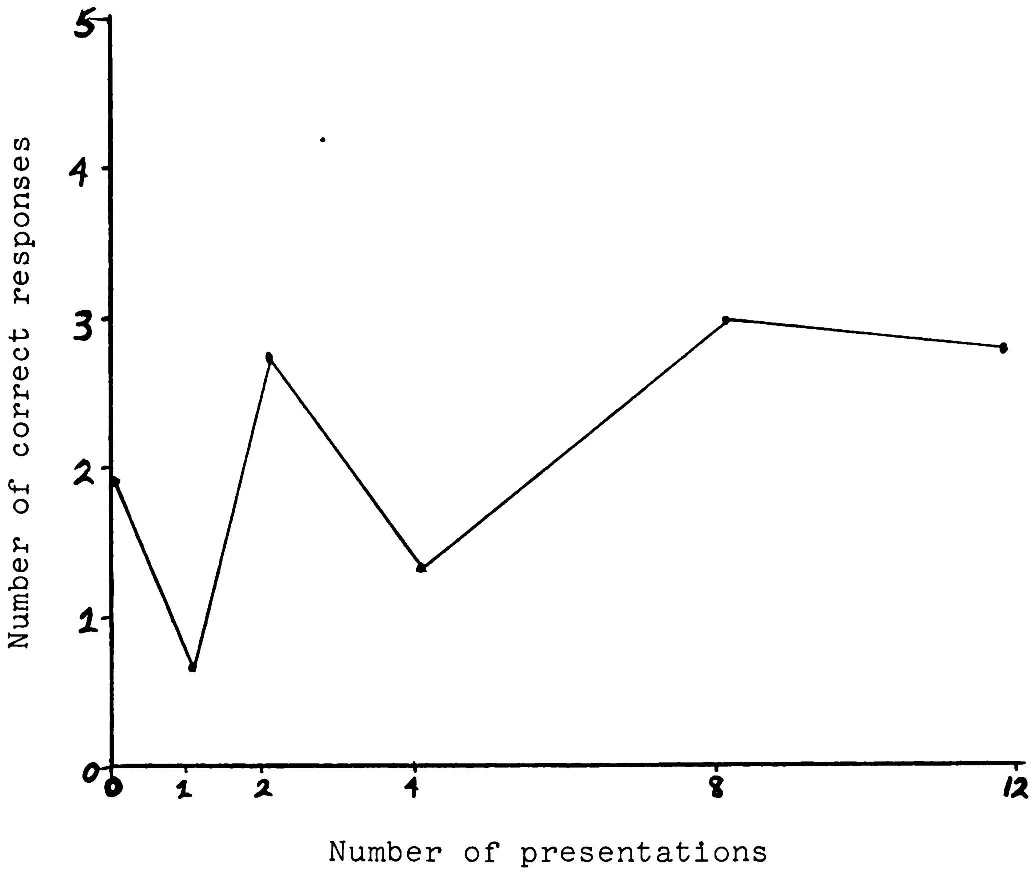

Fig. 7 Average number of correct responses for PURSY.

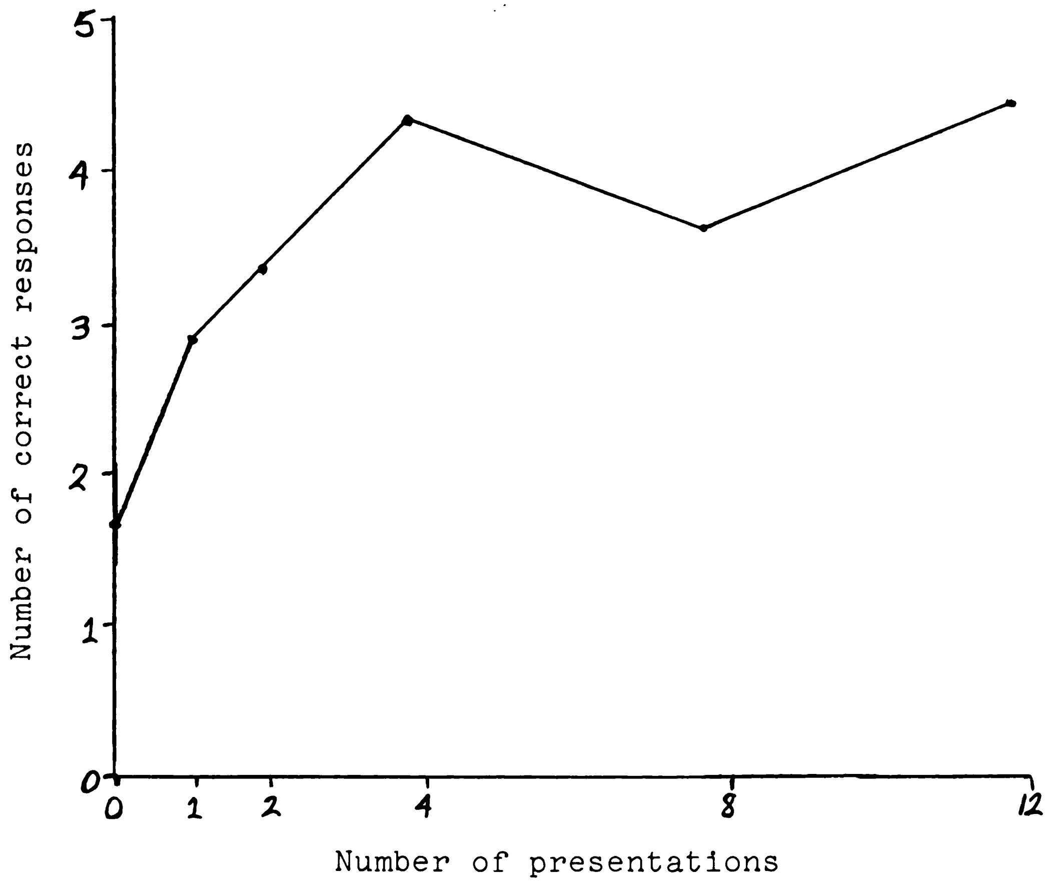

Fig. 8 Average number of correct responses for SAPONIFY.

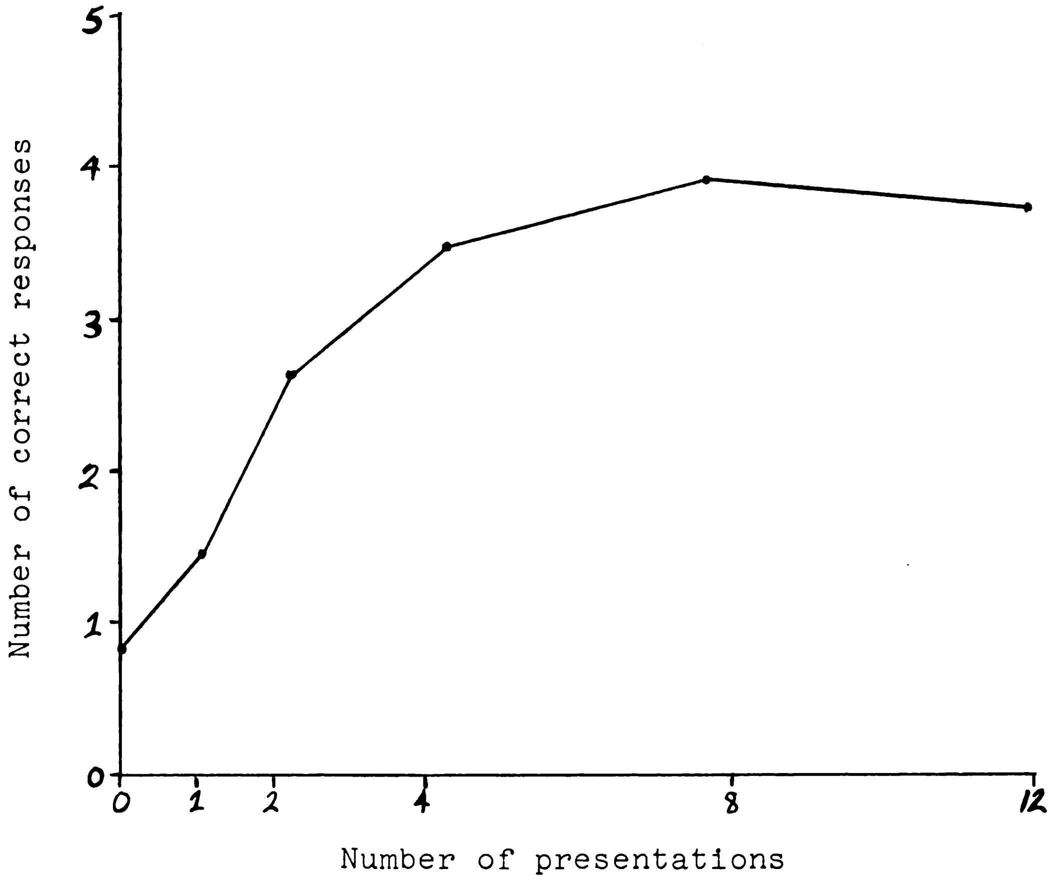

Fig. 9 Average number of correct responses for TUSSAH.

Table 1.--Kuder-Richardson reliabilities of the nine multiple-choice tests.

AMERCE	.72
CANARD	.42
DIZEN	.19
MARMOREAL	.60
PHARISAICAL	.74
POSSET	.59
PURSY	.69
SAPONIFY	.71
TUSSAH	.71

Table 2.--Analysis of variance and Duncan's range test for AMERCE.

Analysis of Variance

Source	SS	df	MS	F
Within	209	114	1.8	13.9*
Between	125	5	25.0	
Total	334	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	1.30	1.80	4.55	3.95	4.05	4.60
S. D.	1.4	1.3	.7	.9	1.0	.55

Duncan's Range Test

	A 1.30	B 1.80	C 3.95	D 4.05	E 4.55	F 4.60	Required Value**
A		.50	2.65*	2.75*	3.25*	3.30*	.919 (6)
B			2.15*	2.25*	2.75*	2.85*	.905 (5)
C				.10	.60	.65	.882 (4)
D					.50	.55	.856 (3)
E						.05	.812 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 3.--Analysis of variance and Duncan's range test for CANARD.

Analysis of Variance

Source	SS	df	MS	F
Within	130	114	1.1	3.6*
Between	20	5	4.0	
Total	150	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	1.60	1.25	2.45	1.35	1.60	1.75
S. D.	1.2	.95	1.6	.45	.63	1.1

Duncan's Range Test

	A 1.25	B 1.35	C 1.60	D 1.60	E 1.75	F 2.45	Required Value**
A		.10	.35	.35	.50	1.20*	.697 (6)
B			.25	.25	.40	1.10*	.686 (5)
C				0	.15	.85*	.669 (4)
D					.15	.85*	.649 (3)
E						.70*	.616 (2)
							***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 4.--Analysis of variance and Duncan's range test for DIZEN.

Analysis of Variance

Source	SS	df	MS	F
Within	219	114	1.9	5.3*
Between	50	5	10.0	
Total	268	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	2.05	1.45	2.15	2.65	3.00	3.40
S. D.	1.7	1.3	1.3	1.3	1.0	1.3

Duncan's Range Test

	A 1.45	B 2.05	C 2.15	D 2.65	E 3.00	F 3.40	Required Value**
A		.60	.70	1.20*	1.55*	1.95*	.983 (6)**
B			.10	.60	.95*	1.35*	.967 (5)
C				.50	.85	1.25*	.942 (4)
D					.35	.75	.914 (3)
E						.40	.868 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 5.--Analysis of variance and Duncan's range test for MARMOREAL.

Analysis of Variance

Source	SS	df	MS	F
Within	181	114	1.6	6.5*
Between	51	5	10.5	
Total	232	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	2.05	3.85	2.00	2.40	2.95	3.15
S. D.	1.4	1.3	1.5	.9	1.2	.9

Duncan's Range Test

	A 2.00	B 2.05	C 2.40	D 2.95	E 3.15	F 3.85	Required Value**
A		.05	.40	.95*	1.15*	1.85*	.919 (6)
B			.35	.90*	1.10*	1.80*	.905 (5)
C				.55	.75	1.45*	.882 (4)
D					.20	.90*	.856 (3)
E						.70	.812 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 6.--Analysis of variance and Duncan's range test for PHARISAICAL.

Analysis of Variance

Source	SS	df	MS	F
Within	205	114	1.7	7.7*
Between	65	5	13.0	
Total	270	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	1.85	3.20	3.00	3.50	4.05	4.00
S. D.	1.7	1.5	1.5	.77	1.4	.9

Duncan's Range Test

	A 1.85	B 3.00	C 3.20	D 3.50	E 4.00	F 4.05	Required Value**
A		1.15*	1.35*	1.65*	2.15*	2.20*	.919 (6)
B			.20	.50	1.00*	1.05*	.905 (5)
C				.30	.80	.85	.882 (4)
D					.50	.55	.856 (3)
E						.05	.812 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 7.--Analysis of variance and Duncan's range test for POSSET.

Analysis of Variance

Source	SS	df	MS	F
Within	165	114	1.4	8.9*
Between	62	5	12.4	
Total	227	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	2.00	2.05	2.55	2.35	3.20	4.05
S. D.	1.4	1.3	1.4	.9	1.4	.9

Duncan's Range Test

	A 2.00	B 2.05	C 2.35	D 2.55	E 3.20	F 4.05	Required Value**
A		.05	.35	.55	1.20*	2.05*	.856 (6)
B			.30	.50	1.15*	2.00*	.842 (5)
C				.20	.95*	1.70*	.821 (4)
D					.65	1.50*	.796 (3)
E						.85*	.756 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 8.--Analysis of variance and Duncan's range test for PURSY.

Analysis of Variance

Source	SS	df	MS	F
Within	252	114	2.2	8.4*
Between	92	5	18.4	
Total	344	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	1.95	.75	2.85	1.55	3.20	2.95
S. D.	1.4	1.4	1.7	1.4	1.2	1.2

Duncan's Range Test

	A .75	B 1.55	C 1.95	D 2.85	E 2.95	F 3.20	Required Value**
A		.80	1.20*	2.10*	2.20*	2.45*	1.046 (6)
B			.40	1.30*	1.40*	1.65*	1.030 (5)
C				.90	1.00*	1.25*	1.003 (4)
D					.10	.35	.974 (3)
E						.25	.924 (2)

***

*Significant at the .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 9.--Analysis of variance and Duncan's range test for SAPONIFY.

Analysis of Variance

Source	SS	df	MS	F
Within	121	114	1.1	21.0*
Between	115	5	23.0	
Total	236	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	1.75	2.95	3.45	4.40	4.25	4.50
S. D.	1.2	.9	1.1	.8	1.1	.8

Duncan's Range Test

	A 1.75	B 2.95	C 3.45	D 4.40	E 4.25	F 4.50	Required Value**
A		1.20*	1.70*	2.50*	2.65*	2.75*	.697 (6)
B			.50	1.30*	1.45*	1.55*	.686 (5)
C				.80*	.95*	1.05*	.669 (4)
D					.15	.25	.649 (3)
E						.10	.616 (2)

***

*Significant at .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

Table 10.--Analysis of variance and Duncan's range test for TUSSAH.

Analysis of Variance

Source	SS	df	MS	F
Within	171	114	1.5	17.1*
Between	128	5	25.6	
Total	299	119		

Means and Standard Deviations

Condition	0	1	2	4	8	12
Mean	.85	1.50	2.70	3.60	4.00	3.80
S. D.	1.2	1.3	.7	.6	1.1	1.0

Duncan's Range Test

	A .85	B 1.50	C 2.70	D 3.60	E 3.80	F 4.00	Required Value**
A		.65	1.85*	2.75*	2.95*	3.15*	.856 (6)
B			1.20*	2.10*	2.30*	2.50*	.842 (5)
C				.90*	1.10*	1.30*	.821 (4)
D					.20	.40	.796 (3)
E						.20	.756 (2)

***

*Significant at .05 level.

**Value required for a difference in means that are this number apart.

***Means underlined by the same line are not significantly different.

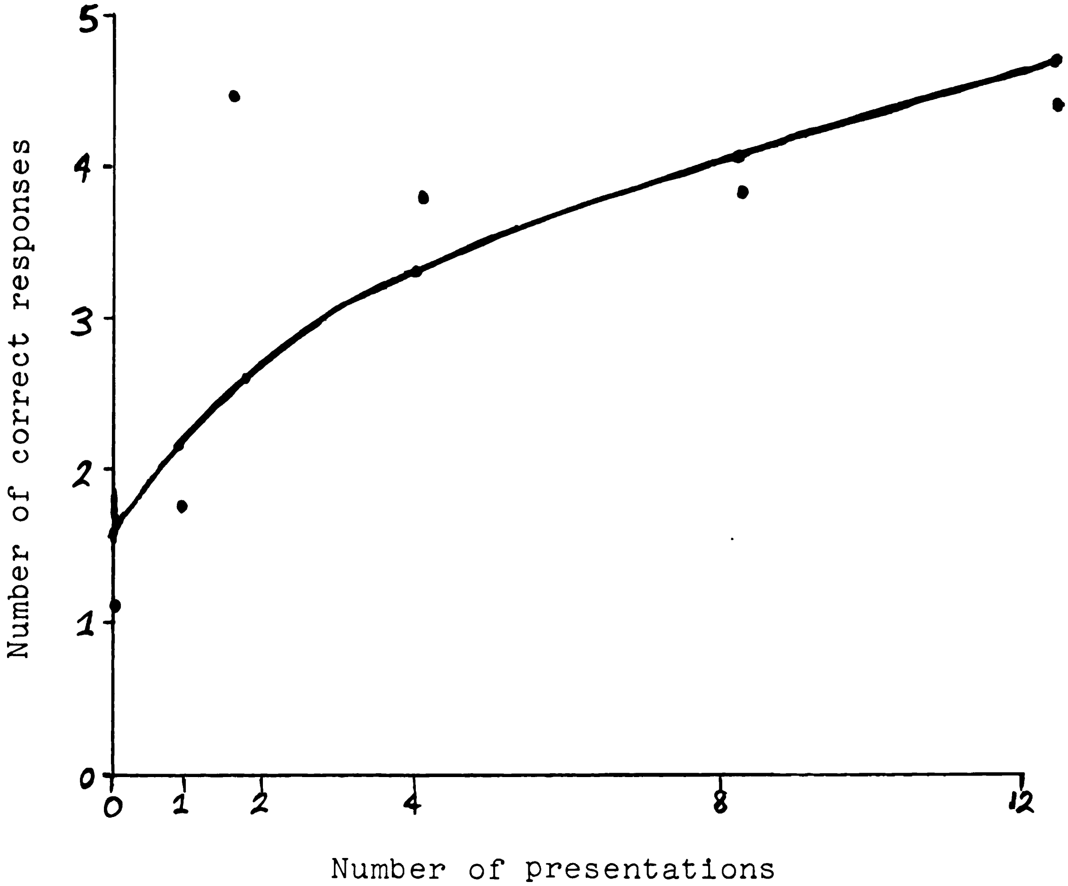

Fig. 10 Deviations from the ideal curve for AMERCE.

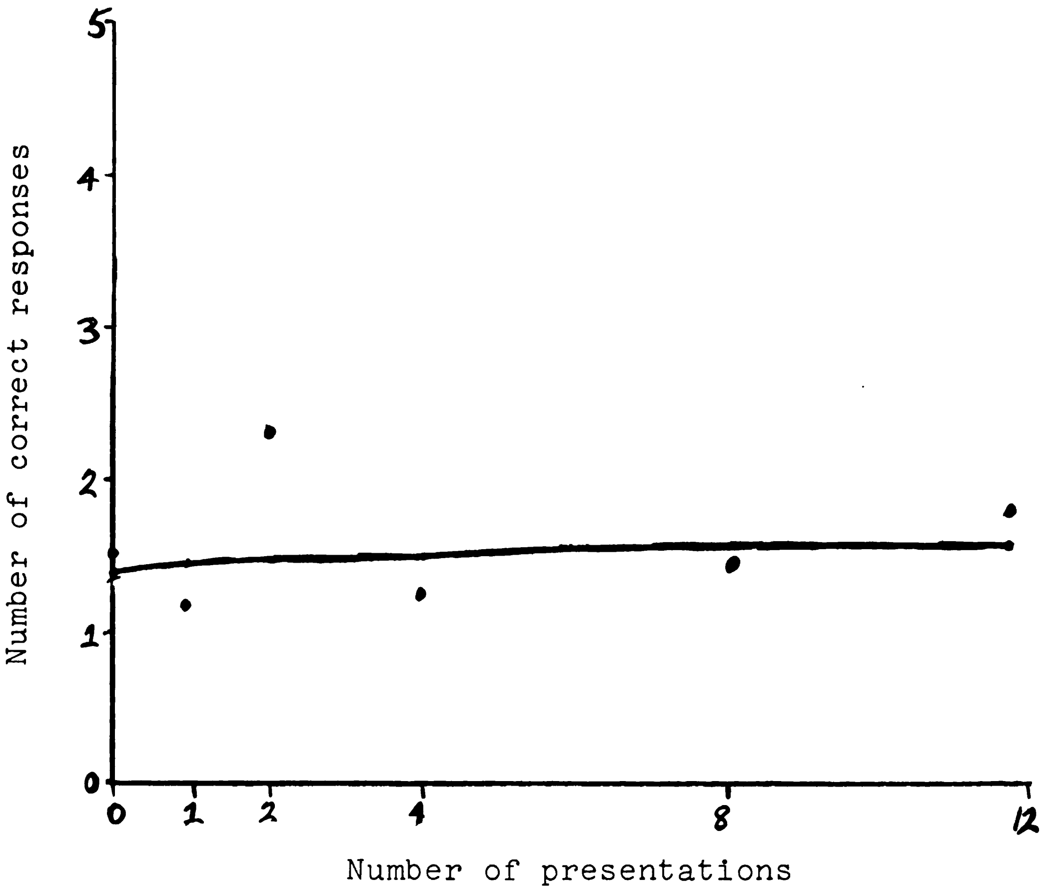

Fig. 11 Deviations from the ideal curve for CANARD.

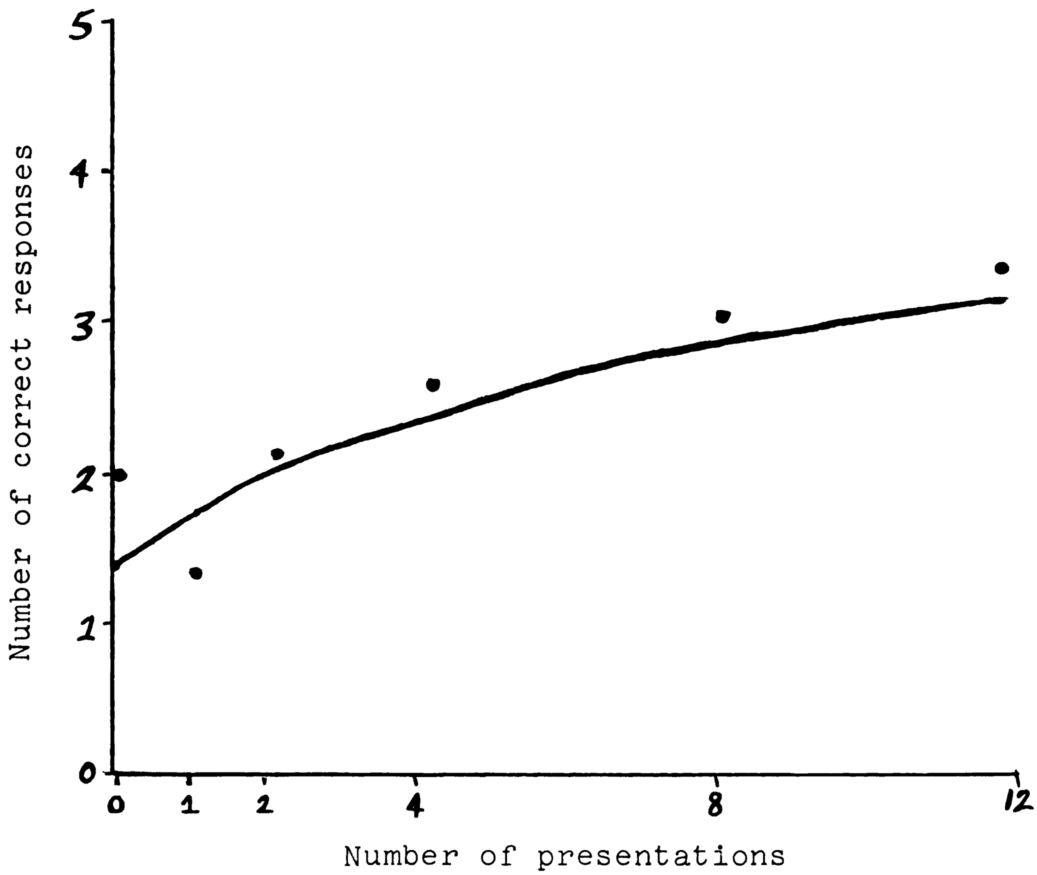

Fig. 12 Deviations from the ideal curve for DIZEN.

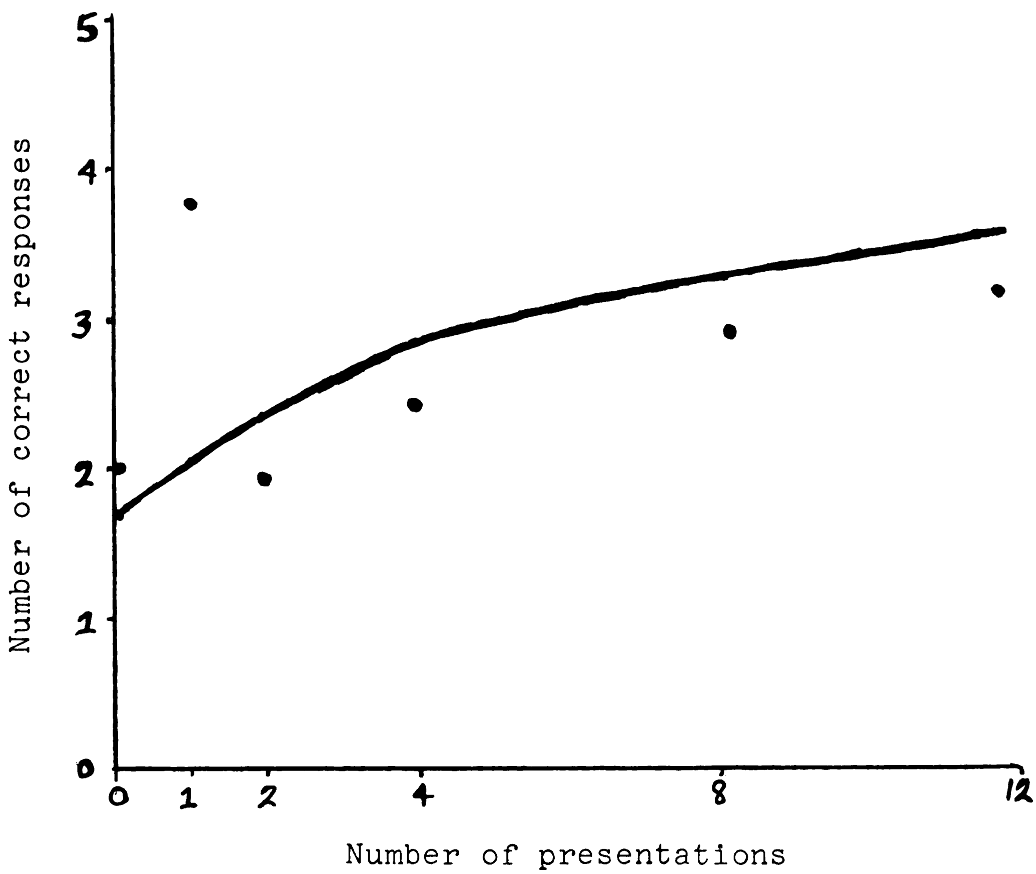

Fig. 13 Deviations from the ideal curve for MARMOREAL.

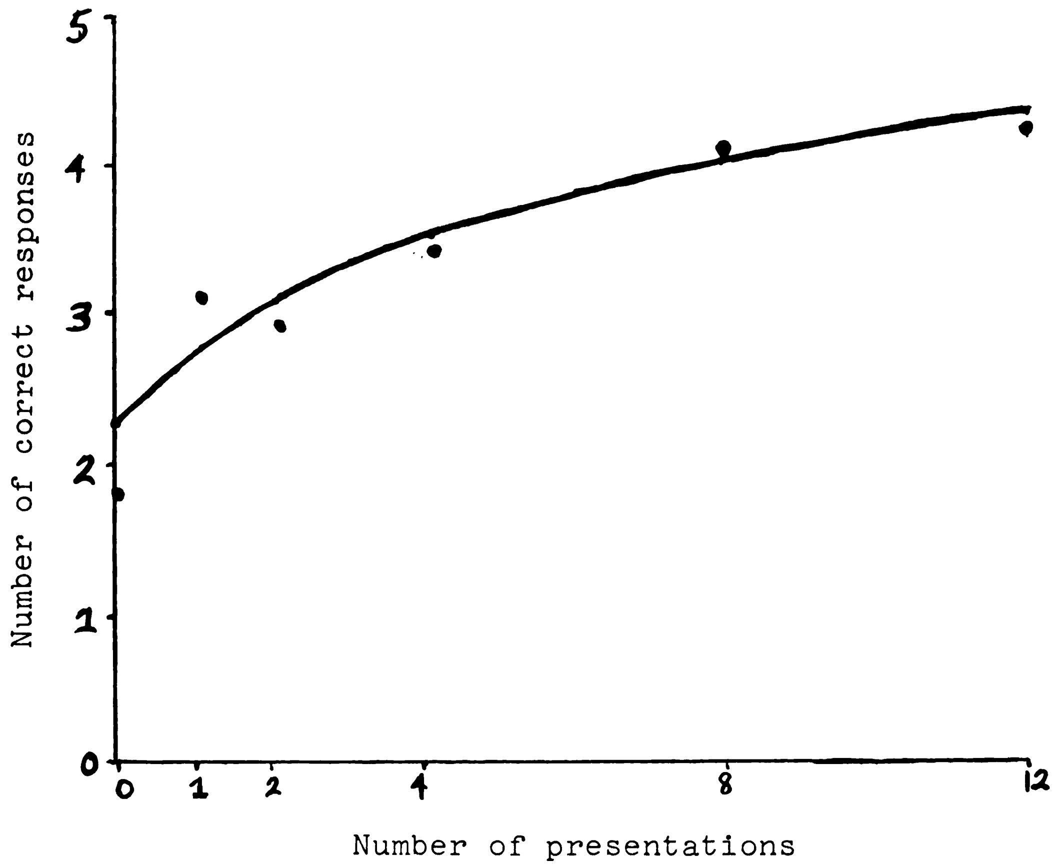

Fig. 14 Deviations from the ideal curve for PHARISAICAL.

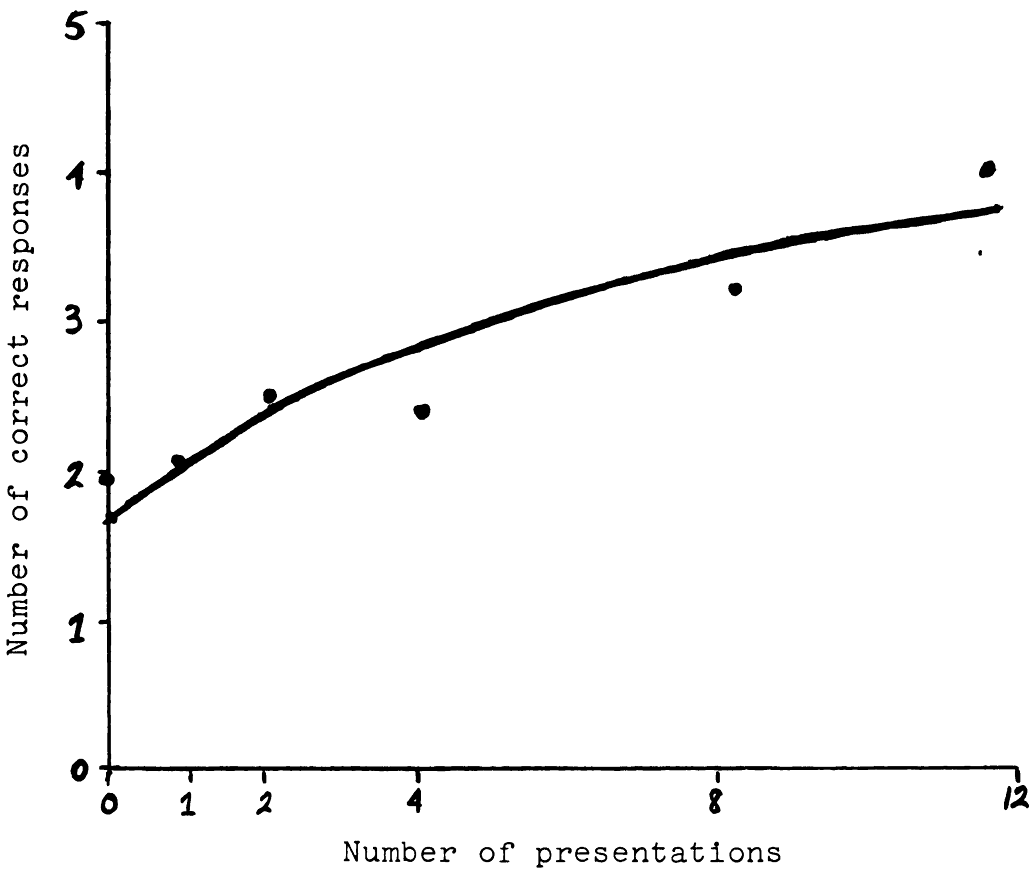

Fig. 15 Deviations from the ideal curve for POSSET.

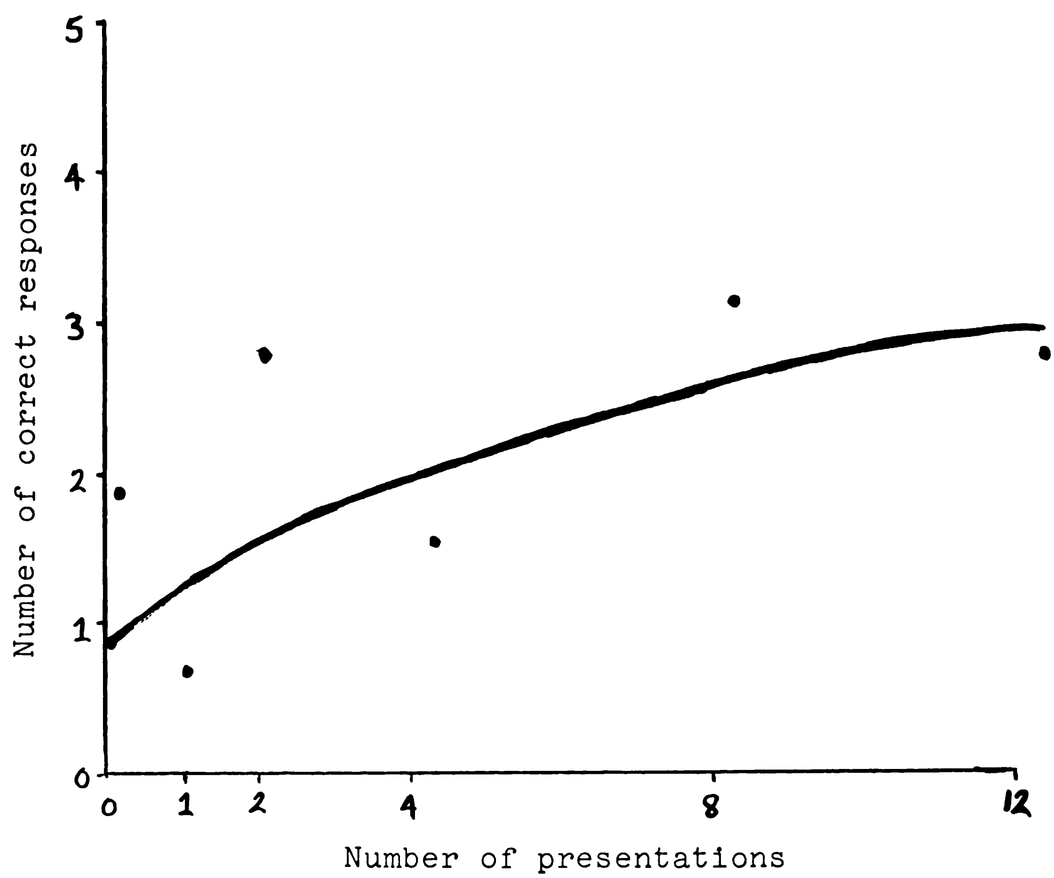

Fig. 16 Deviations from the ideal curve for PURSY.

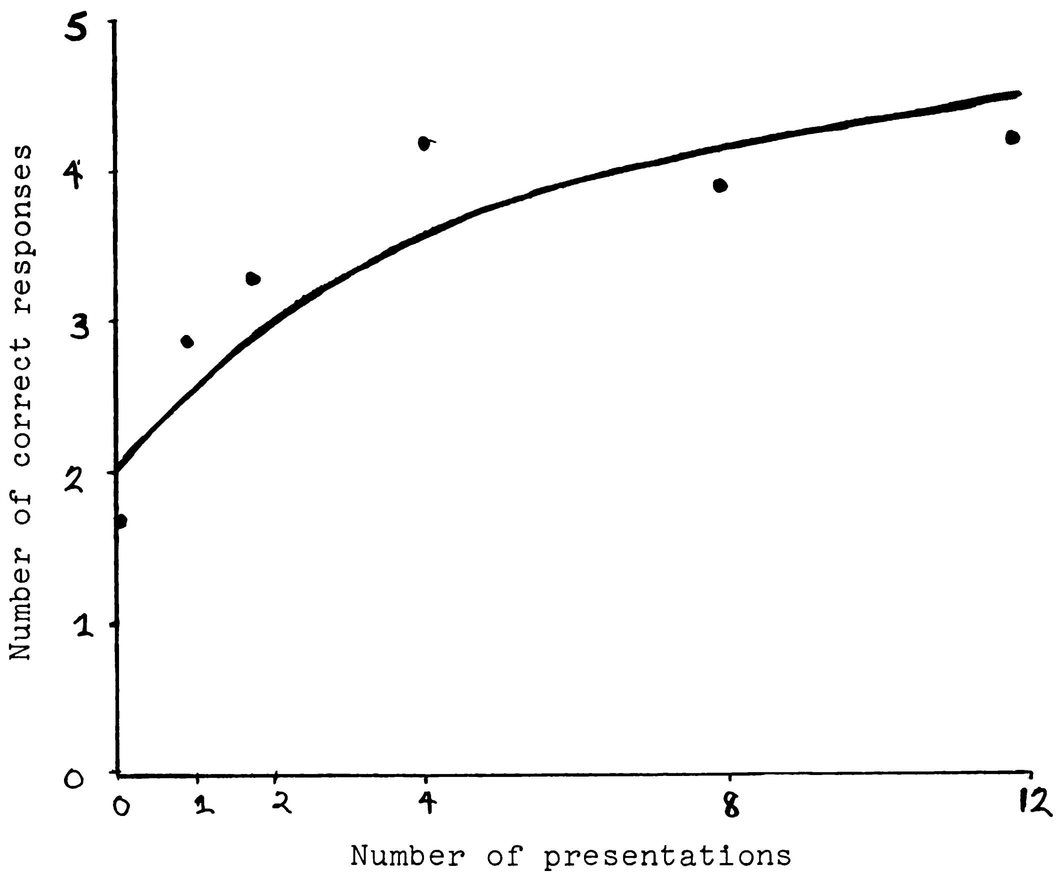

Fig. 17 Deviations from the ideal curve for SAPONIFY.

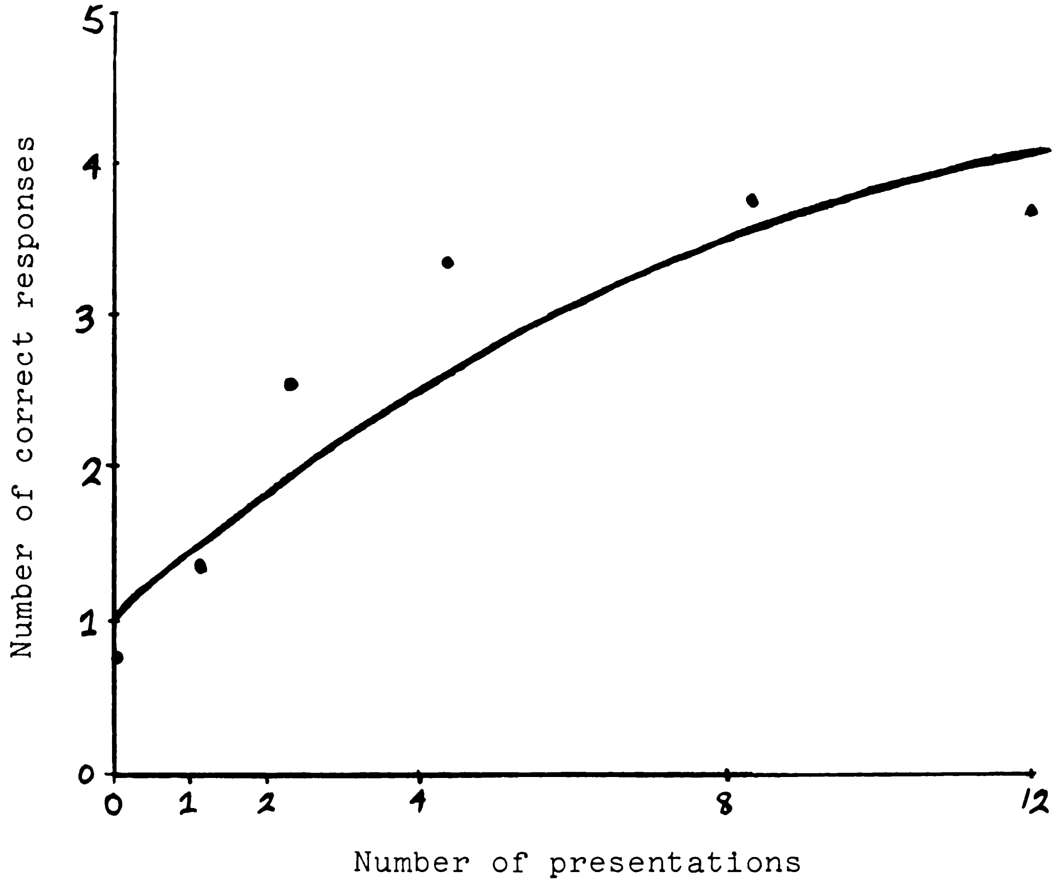

Fig. 18 Deviations from the ideal curve for TUSSAH.

Table 11.--Analysis of variance for the deviations of sample means from the respective hypothetical means.

Word	Weighted SS	Within SS	F
AMERCE	82.27	209	11.10**
CANARD	19.69	130	4.28**
DIZEN	11.01	219	1.43
MARMOREAL	74.65	181	11.57**
PHARISAICAL	9.17	205	1.26
POSSET	11.02	165	1.90
PURSY	66.86	252	7.52**
SAPONIFY	19.85	121	4.66**
TUSSAH	34.75	171	5.73**

**Signif. at .01 level.

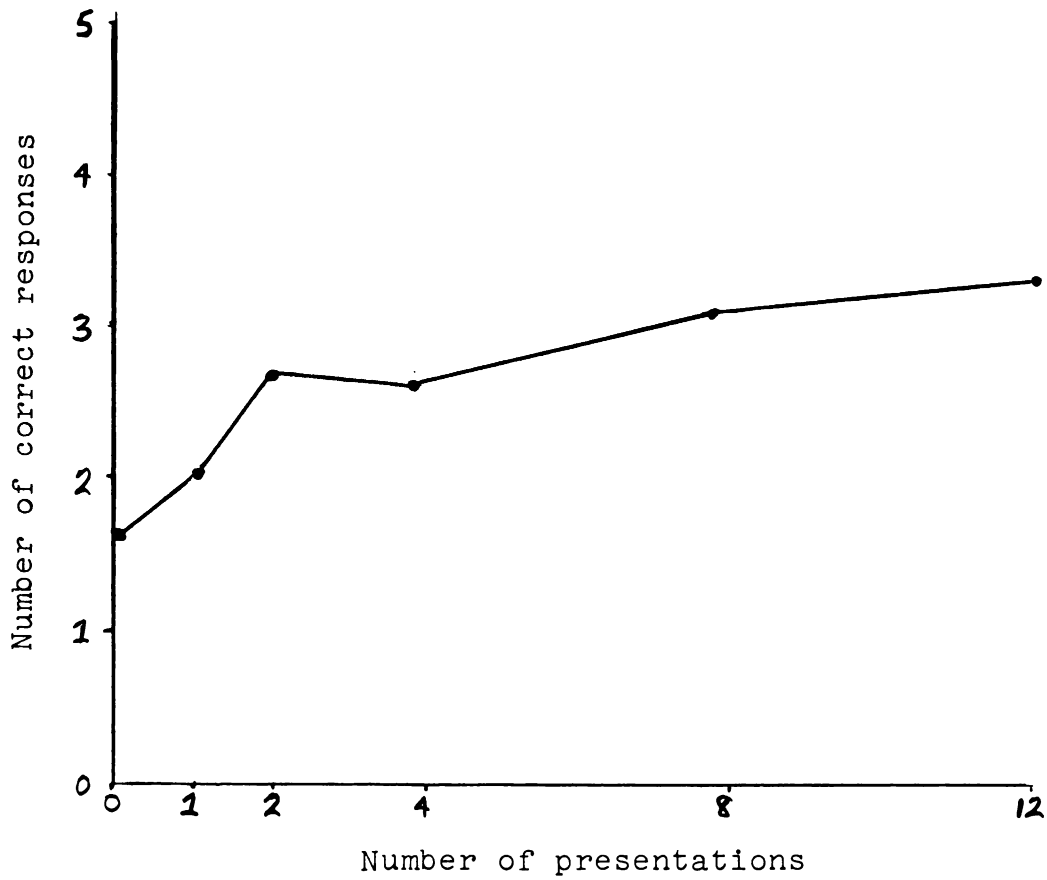

Fig. 19 Average number of correct responses for the nine words.

CHAPTER VI

DISCUSSION

There are numerous problems involved in the design of this experiment. As noted before, it is not easy to study the acquisition of concepts from context.

Several limitations involve representativeness of the material. The words chosen were probably representative of unknown concepts but the contexts used were not particularly representative of contexts that exist outside the experimental laboratory. Rarely, if ever, do a series of twelve sentences contain the same unknown word once in each sentence. Examples which approximate this may be discovered however. The word "decussation" occurs eleven times in twelve sentences in a physiological psychology textbook. (Altman, 1966) The essential difference between these concentrated occurrences and the general case probably relate to requirements of memory. If a word is encountered in reading once a month or even once a week, the accumulation of encounters may well have a different result than several encounters on the same page.

In addition the contexts used were deliberately written for this experiment and all were written by the same person. Unknown words may, in general occur in difficult contexts which contain many unknown words.

Another limitation involves measurement. The acquisition of a concept is probably continuous but it is difficult to measure this acquisition in progress. The multiple-choice tests had a fair reliability but may have lacked the sensitivity to pick up small increments in knowledge.

Finally, the variable shapes of the curves indicate some problems that were inherent in the design of the experiment to test the general effect of instances. It was impossible to write sentences that were exactly equal in value. The shapes of the curves may in some instances be explained by examining the sentences that were given the subjects. The scores for MARMOREAL indicate highest performance on the one-sentence condition. The sentence given was, "He was ecstatic to think how his marmoreal snow resembled the marble columns of more classic painters." The essential clue to the meaning of MARMOREAL (i.e., marble-like) is conspicuous in this sentence. When this sentence was combined with several others it became less obvious that this clue was so important.

Since it was impossible to make each sentence equally valuable, it would have been wise to present each of the sentences singly, each combination of two, four and eight. This would probably have eliminated the variation which is so obvious in the curves. The curves show especially wide variation for the one and two sentence conditions for which the result of random selection of sentences was most important. This ideal plan would, however, have necessitated the use of several thousand subjects. At any rate it is probably more important, though not particularly neat, to demonstrate the extreme importance of context clues.

As stated before, instances have two aspects. They represent both information and repetition. Repetition alone would probably have little effect. Repeating the same sentence twelve times is clearly different then using twelve different sentences. It is equally obvious that twelve sentences could be created which had little or no information in them. Information is an important variable and it is probably something that can be independently manipulated.

Some indication of a method for this manipulation may be derived from inspection of dictionary definitions. These definitions supposedly contain all the information necessary for the acquisition of the meaning of a word. Partial elimination of such information might effectively control the amount of information in a sentence. Some method should be developed to predict the value of context clues in order to pursue the answer to a very intriguing question which psychology has thus far ignored. How does one word tell the meaning of another word?

CHAPTER VII

SUMMARY

This study sought to demonstrate that the learning of concepts from context was somewhat analogous to the learning of concepts by the reception paradigm. Number of instances, an important variable used in the reception paradigm, was used here by varying the number of sentences given for an unknown word. Each sentence contained the word and some information about it.

Six conditions were created by presenting the words in stories with zero, one, two, four, eight and twelve sentences. Nine unknown words were used to represent the concepts. The words used were, POSSET, CANARD, DIZEN, PHARISAICAL, MARMOREAL, PURSY, TUSSAH, AMERCE AND SAPONIFY. Acquisition of the word was tested by a five-item multiple-choice test for each word. One hundred twenty subjects took each of the nine tests after having read the corresponding story in one of its six conditions.

The reliabilities of the tests varied but most were in the range of .59 to .74. Analyses of variance computed on each of the nine words were all significant at the .01 level. Duncan's range tests and F tests for trend demonstrated that these differences were not comparable from one word to the next. There was in general an increase in knowledge of the word's meaning as the number of instances increased. Variations in this general trend were attributed to differences in the value of the context clues presented in each sentence.

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APPENDICES

APPENDIX A

Amerce

Amerce

Then, Mr. Higgins called his brother-in-law who was a lawyer and asked him if he would be amerced.

Amerce

Mr. Higgins, a notorious playboy, squandered his money on wine and women and could not afford to be amerced very much. When the judge amerced him fifty dollars, he protested.

Amerce

When Mr. Higgins saw the parking ticket on his car, he wondered if he would be amerced. Mr. Higgins, a notorious playboy, squandered his money on wine and women and could not afford to be amerced very much. He hoped that a definite fine was set, since in his case that would be better than being amerced. When the judge amerced him fifty dollars, he protested.

Amerce

Mr. Higgins, a notorious playboy, squandered his money on wine and women and could not afford to be amerced very much. He thought of tearing up the ticket but feared that if he did he would be amerced even more. Because he was reputedly a rich man, he thought that he would be amerced more than the average man. Since he did not trust judges, he did not want to be amerced. "At least being amerced is better than going to jail," he thought to himself. Then, Mr. Higgins called his brother-in-law who was a lawyer and asked him if he would be amerced. His brother-in-law said that he would be glad to accompany Mr. Higgins to court but that he would probably not be amerced very much anyway. Mr. Higgins hocked his jade cufflinks so that he could pay the fine when he was amerced.

Amerce

When Mr. Higgins saw the parking ticket on his car, he wondered if he would be amerced. Mr. Higgins, a notorious playboy, squandered his money on wine and women and could not afford to be amerced very much. He thought of tearing up the ticket but feared that if he did he would be amerced even more. Because he was reputedly a rich man, he thought that he would be amerced more than the average man. Since he did not trust judges he did not want to be amerced. He hoped that a definite fine was set, since in his case that would be better than being amerced. "At least being amerced is better than going to jail," he thought to himself. Then, Mr. Higgins called his brother-in-law who was a lawyer and asked him if he would be amerced. His brother-in-law said that he would be glad to accompany Mr. Higgins to court but that he would probably not be amerced very much anyway. Mr. Higgins hocked his jade cufflinks so that he could pay the fine when he was amerced. When the judge amerced him fifty dollars, he protested. The judge said that he had amerced him so much because he had brought a lawyer so it was obvious that he could afford it.

Canard

Canard

He told a reporter to write a similar canard for the next edition as it would undoubtedly increase circulation.

Canard

Mr. Sunshine said that the story was ridiculous and that anyone would be foolish to believe such a canard. He concluded that the Daily Mirror was nothing but a scandal sheet and that this would be the last canard they ever published.

Canard

Mr. Sunshine told the editor that the canard was defamatory and that he was entitled to compensatory payment. He concluded that the Daily Mirror was nothing but a scandal sheet and that this would be the last canard they ever published. The author of the canard reported that the strippers worked at Sunshine Cleaners during the day and at Mr. Sunshine's Sun Club Lounge at night. The editor told a reporter to write a similar canard for the next edition as it would undoubtedly increase circulation.

Canard

Mr. Sunshine charged the Daily Mirror with having published a canard. He told the editor that the canard was defamatory and that he was entitled to compensatory payment. The canard concerned the operation of Sunshine Cleaners by nightclub strippers. The author of the canard reported that the strippers worked at Sunshine Cleaners during the day and at Mr. Sunshine's Sun Club Lounge at night. Mr. Sunshine said that the story was ridiculous and that anyone would be foolish to believe such a canard. He further charged that the canard was a malicious attempt to send patrons to the opposition, Rain Or Shine Cleaners. The fooling of the public by such canards was an outrageous and irresponsible way to run a newspaper, added Mr. Sunshine. He concluded that the Daily Mirror was nothing but a scandal sheet and that this would be the last canard they ever published. The editor only smiled at Mr. Sunshine because he had been in trouble for publishing canards before. He told a reporter to write a similar canard for the next edition as it would undoubtedly increase circulation. He instructed the reporter to attack any local business when he wrote the canard. The next morning the editor read the canard and was surprised to learn that the Daily Mirror hired dope addicts as paper boys.

Dizen

Dizen

"Anyone who would dizen in satin and lace when she could afford furs and emeralds is a fool," thought Mrs. Bonton.

Dizen

"You dizened in purple satin and green lace," said Mr. Bonton. "The truth is that you can't afford to dizen like that," he said, "because I just lost all our money in a poker game."

Dizen

Mrs. Bonton was now fixing the emeralds in her hair and in other ways proceeding to dizen. She had either to dizen or to be completely unnoticed. "You dizened in purple satin and green lace," said Mr. Bonton. "Anyone who would dizen in satin and lace when she could afford furs and emeralds is a fool," said Mrs. Bonton.

Dizen

Mrs. Bonton prepared to dizen in furs and emeralds. Mr. Bonton, however, preferred that she dizen in satin and lace. Mrs. Bonton had to dizen because she was an unusually ugly woman. Mrs. Bonton was now fixing the emeralds in her hair and in other ways proceeding to dizen. When she had dizened, she looked like a spangled rabbit. Mr. Bonton then came in and protested, "When I married you, you did not dizen so." "Anyone who would dizen in satin and lace when she could afford furs and emeralds is a fool," said Mrs. Bonton. "The truth is that you can't afford to dizen like that," said Mr. Bonton, "because I just lost all our money in a poker game."

Dizen

Mrs. Bonton prepared to dizen in furs and emeralds. Mr. Bonton, however, preferred that she dizen in satin and lace. Mrs. Bonton had to dizen because she was an unusually ugly woman. She had either to dizen or to be completely unnoticed. Mrs. Bonton was now fixing the emeralds in her hair and in other ways proceeding to dizen. When she had dizened, Mrs. Bonton looked like a spangled rabbit. Mr. Bonton then came in and protested, "When I married you, you did not dizen so." "How did I dizen then?" asked Mrs. Bonton who besides being ugly was not too bright. "You dizened in purple satin and green lace," said Mr. Bonton. "Anyone who would dizen in satin and lace when she could afford furs and emeralds is a fool," said Mrs. Bonton. "The truth is that you can't afford to dizen like that," said Mr. Bonton, "because I just lost all our money in a poker game." "Nevermind," said Mrs. Bonton as she kissed him, "from now on I will dizen in burlap and feathers."

Marmoreal

Marmoreal

He was ecstatic to think how his marmoreal snow resembled the marble columns of more classic painters.

Marmoreal

The marmoreal snow stretched endlessly over the plains. Finally the artist began to capture the fine marmoreal quality with his brush.

Marmoreal

Finally the artist began to capture the fine marmoreal quality with his brush. The marmoreal snow was a perfect study because it was cold and white. But long did the marmoreal painting hang in the store without being bought, though everyone admitted that its texture and icy effect were beautiful. No one wanted a marmoreal painting because it was all white.

Marmoreal

The marmoreal snow was a perfect study because it was cold and white. The marmoreal quality, however, was almost impossible to capture in all its smoothness. Finally the artist began to capture the fine marmoreal quality with his brush. He was ecstatic to think how his marmoreal snow resembled the marble columns of more classic painters. He said to himself, "I will call the painting 'The marmoreal snow,' and it will make me famous." But no one wanted a marmoreal painting because it was all white. Unfortunately, no one knew who had painted the smooth, white, marmoreal work. The artist had loved its marmoreal quality too much to mar it by signing his name.

Marmoreal

The marmoreal snow stretched endlessly over the plains. In the midst of the snow, an artist was trying to capture the marmoreal quality on canvas. The marmoreal snow was a perfect study because it was cold and white. The marmoreal quality, however, was almost impossible to capture in all its smoothness. Finally the artist began to capture the fine marmoreal quality with his brush. He was ecstatic to think how his marmoreal snow resembled the marble columns of more classic painters. He said to himself, "I will call the painting 'The marmoreal snow,' and it will make me famous." But long did the marmoreal painting hang in the store without being bought, though everyone admitted that its texture and icy effect were beautiful. No one wanted a marmoreal painting because it was all white. One day an important museum curator saw "The marmoreal snow," and asked who had painted it. Unfortunately, no one knew who had painted the smooth, white, marmoreal work. The artist had loved its marmoreal quality too much to mar it by signing his name.

Pharisaical

Pharisaical

If anyone wondered what was morally correct, the pharisaical church members could surely tell them.

Pharisaical

Dressing elegantly and looking proper at church was considered essential by the pharisaical men and women. "Surely that boy is as poor as anyone can be," thought the pharisaical woman.

Pharisaical

The pharisaical women were especially fond of quoting the Bible and telling people how to live by it. The pharisaical teacher was surprised to find that the poor boy had also brought something. "Surely that boy is as poor as anyone can be," thought the pharisaical woman. The pharisaical teacher had not realized that unlike herself, the poor boy was rich in spirit.

Pharisaical

The pharisaical women went to church every Sunday. These pharisaical church members looked down upon anyone who did not attend church regularly. If anyone wondered what was morally correct, the pharisaical church members could surely tell them. In the class of the pharisaical woman was a small poorly dressed boy. The boy was only tolerated by the pharisaical teacher who secretly thought that he was a disgrace to the church. At Christmas time, the pharisaical women begrudgingly contributed to a basket for the poor. The pharisaical teacher was surprised to find that the poor boy had also brought something. The pharisaical teacher had not realized that unlike herself, the poor boy was rich in spirit.

Pharisaical

The pharisaical women went to church every Sunday. These pharisaical church members looked down upon anyone who did not attend church regularly. Dressing elegantly and looking proper at church was considered essential by the pharisaical men and women. If anyone wondered what was morally correct, the pharisaical church members could surely tell them. The pharisaical women were especially fond of quoting the Bible and telling people how to live by it. One of the pharisaical women even taught the Sunday school class. In the class of the pharisaical woman was a small poorly dressed boy. The boy was only tolerated by the pharisaical teacher who secretly thought that he was a disgrace to the church. At Christmas time, the pharisaical women begrudgingly contributed to a basket for the poor. The pharisaical teacher was surprised to find that the poor boy had also brought something. "Surely that boy is as poor as anyone can be," thought the pharisaical woman. The pharisaical teacher had not realized that unlike herself, the poor boy was rich in spirit.

Posset

Posset

When she added the wine, the posset curdled.

Posset

Mrs. Jones was preparing a posset to serve to her guests. She checked the wine cupboard and decided that red wine would be best for the posset.

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Mrs. Jones was preparing a posset to serve to her guests. Plenty of milk was available for the posset. Mrs. Jones tasted the posset and decided that it was terrible. The guests all agreed that the first cup of posset was terrible but subsequently it was quite good.

Posset

Mrs. Jones was preparing a posset to serve to her guests. She checked to see if she had the necessary ingredients for the posset. Plenty of milk was available for the posset. The posset required spice but Mrs. Jones wasn't sure what kind. While the posset heated, Mrs. Jones read the recipe again. Mrs. Jones tasted the posset and decided that it was terrible. She decided to serve the posset anyway so she took out some milk glass cups. The guests all agreed that the first cup of posset was terrible but subsequently it was quite good.

Posset

Mrs. Jones was preparing a posset to serve to her guests. Unfortunately, she had never prepared a posset before. She read the recipe for posset carefully and decided that it would not be too difficult. She checked to see if she had the necessary ingredients for the posset. Plenty of milk was available for the posset. The posset required spice but Mrs. Jones wasn't sure what kind. She checked the wine cupboard and decided that red wine would be best for the posset. While the posset heated, Mrs. Jones read the recipe again. When she added the wine, the posset curdled. Mrs. Jones tasted the posset and decided that it was terrible. She decided to serve the posset anyway so she took out some milk glass cups. The guests all agreed that the first cup of posset was terrible but subsequently it was quite good.

Pursy

Pursy

Then the piano started and the pursy dachshund went round and round on his back legs, trying in vain to be a butterfly.

Pursy

"Oh no," thought the dancing teacher, "that pursy woman has come again and every time she starts to dance she has to stop and rest." Then the piano started and the pursy dachshund went round and round on his back legs, trying in vain to be a butterfly.

Pursy

Round and round wobbled the pursy woman who was trying in vain to imitate a butterfly. The policeman laughed out loud to think of such a pursy woman dancing. Then it happened: the pursy woman fell over. Then the piano started and the pursy dachshund went round and round on his back legs, trying in vain to be a butterfly.

Pursy

The pursy woman huffed and puffed as she ran down the street. Behind her a pursy dachshund trotted along as fast as his fat legs would carry him. Finally they were stopped by a policeman who asked the pursy woman where she was going. The pursy woman panted as she replied, "To my dancing class." The policeman laughed out loud to think of such a pursy woman dancing. Soon the pursy woman and the dog arrived at the dancing class, completely out of breath. "Oh no," thought the dancing teacher, "that pursy woman has come again and everytime she starts to dance she has to stop and rest." The piano started and the pursy woman tried to dance with the others. Round and round wobbled the pursy woman who was trying in vain to imitate a butterfly. Then it happened: the pursy woman fell over. When the pursy woman was seated in a chair, everyone thought that the class could go on uninterrupted. Then the piano started and the pursy dachshund went round and round on his back legs, trying in vain to be a butterfly.

Saponify

Saponify

As the fat saponified, her grandchildren arrived at the door.

Saponify

The children wondered why their grandmother saponified fat anyway, since their mother bought Doozy Duds at the supermarket. Their grandmother told them that she had always saponified fat and that it was the best way to have a good cleanser. If the ingredients saponified properly they would make a fine yellow cleanser. After the mixture had saponified and hardened, the children could help cut it into bars.

Saponify

The little old lady sat in her kitchen saponifying her accumulation of meat fats. She began by melting fat scraps and then stirred in lye to saponify them. If the ingredients saponified properly they would make a fine yellow cleanser. As the fat saponified, her grandchildren arrived at the door. In spite of the distractions from the children who were playing with the barnyard animals, the grandmother had to saponify the fat. After the mixture had saponified and hardened, the children could help cut it into bars. Their grandmother told them that she had always saponified fat and that it was the best way to have a good cleanser. Finally the mixture had saponified and it was a good thing since all the children were covered with mud.

Saponify

The little old lady sat in her kitchen saponifying her accumulation of meat fats. She began by melting fat scraps and then stirred in lye to saponify them. As she saponified the fat she thought how marvelous it was going to be to have so much soap on hand. If the ingredients saponified properly they would make a fine yellow cleanser. As the fat saponified, her grandchildren arrived at the door. In spite of the distractions from the children who were playing with the barnyard animals, the grandmother had to saponify the fat. The children wondered why their grandmother saponified fat anyway, since their mother bought Doozy Duds at the supermarket. Their grandmother told them that she had always saponified fat and that it was the best way to have a good cleanser. Fortunately, once the lye had been added the fat would saponify itself. After the mixture had saponified and hardened, the children could help cut it into bars. However, it took a long time for the fat to saponify, and meanwhile the children had fallen into the pig pen. Finally the mixture had saponified and it was a good thing since all the children were covered with mud.

Tussah

Tussah

"How much is the tussah?" asked Mrs. Canterbury who wanted to get out of the store before any more mention of worms was made.

Tussah

Mr. Quigsly discovered that he had falsely ordered a hundred yards of tussah. "The tussah is six dollars a yard and well worth it," said Mr. Quigsly as he hurriedly wrapped up ten yards.

Tussah

Mr. Quigsly discovered that he had falsely ordered a hundred yards of tussah. When Mrs. Canterbury came into the store, he said, "Madam, I have just received a shipment of tussah and I know you will want some." "Oh no," said Mr. Quigsly, "this tussah comes from the Orient where it is made by little worms." "The tussah is six dollars a yard and well worth it," said Mr. Quigsly as he hurriedly wrapped up six yards.

Tussah

Mr. Quigsly discovered that he had falsely ordered a hundred yards of tussah. He wondered how he could sell so much tussah to the American housewife. The tussah was a brown color and could not be effectively dyed. When Mrs. Canterbury came into the store, he said, "Madam, I have just received a shipment of tussah and I know you will want some." "Tussah," said Mrs. Canterbury, as she felt the other materials, "I haven't seen any of that here before." "Oh no," said Mr. Quigsly, "this tussah comes from the Orient where it is made by little worms." "A worm in the tussah?" asked Mrs. Canterbury just before she fainted. "The tussah is six dollars a yard and well worth it," said Mr. Quigsly as he hurriedly wrapped up ten yards.

Tussah

Mr. Quigsly discovered that he had falsely ordered a hundred yards of tussah. He wondered how he could sell so much tussah to the American housewife. The tussah was a brown color and could not be effectively dyed. Mr. Quigsly was determined to convince each of his customers that they needed several yards of tussah. When Mrs. Canterbury came into the store, he said, "Madam, I have just received a shipment of tussah and I know you will want some." "Tussah," said Mrs. Canterbury, as she felt the other materials, "I haven't seen any of that here before." "Oh no," said Mr. Quigsly, "this tussah comes from the Orient where it is made by little worms." "A worm in the tussah?" asked Mrs. Canterbury just before she fainted. "No, no," said Mr. Quigsly as he tried to revive her, "there is no worm in the tussah now." "How much is the tussah?" asked Mrs. Canterbury who wanted to get out of the store before any more mention of worms was made. "The tussah is six dollars a yard and well worth it," said Mr. Quigsly as he hurriedly wrapped up ten yards. "Perhaps this tussah was a good investment after all," thought Mr. Quigsly when Mrs. Canterbury had gone.

APPENDIX B

Amerce

1. One would most likely be amerced for
   a) driving too fast.
   b) murdering someone.
   c) escaping from prison.
   d) writing a scandalous book.
   e) robbing a bank.

2. One would be amerced according to
   a) what the policeman said.
   b) a scale of income.
   c) the rates set in the book.
   d) what the jury decided
   e) what the judge decided.

3. If one were amerced one would need
   a) a good excuse.
   b) a lawyer.
   c) an eye witness.
   d) money.
   e) bail.

4. Being amerced is like being
   a) accused.
   b) fined
   c) acquitted.
   d) convicted.
   e) sentenced.

5. If one committed a crime one would probably be amerced
   a) right where it happened.
   b) at the police station.
   c) in court.
   d) in jail.
   e) when one was caught.

Canard

1. A canard is always intended to
   a) hurt someone's reputation.
   b) be funny.
   c) fool the public.
   d) increase circulation.
   e) favor one company over another.

2. One can recognize a canard because it
   a) is humorous.
   b) is printed in a newspaper.
   c) causes a libel suit.
   d) involves risque characters.
   e) is absurd.

3. The purpose of a canard might be to
   a) publicize local attractions.
   b) expose criminals.
   c) expose corrupt business operations.
   d) sway public opinion.
   e) provide humor on the editorial page.

4. In which of the following would one be <u>least</u> likely to find a canard?
   a) a comic book.
   b) a propoganda leaflet.
   c) an election campaign.
   d) a movie magazine.
   e) a newspaper.

5. A canard consists of
   a) real facts that have been twisted around.
   b) a deliberate lie.
   c) true stories that seem unlikely.
   d) something that is admittedly fiction.
   e) an important finding.

Dizen

1. Which of the following would be most likely to dizen?
    a) one of the world's best dressed women.
    b) a schoolgirl.
    c) a farm woman.
    d) a would-be actress.
    e) a housewife.

2. In which of the following could one <u>not</u> dizen?
    a) an elaborate and expensive gown.
    b) a nurse's uniform.
    c) cotton.
    d) synthetic fabric.
    e) a second-hand dress.

3. It would be most difficult to dizen
    a) in black.
    b) in gay colors.
    c) in summer.
    d) in winter.
    e) in inexpensive clothes.

4. If a woman dizened she would look
    a) lovely.
    b) drab.
    c) attractive but not pretty.
    d) elegant.
    e) flashy.

5. It would be most <u>in</u>appropriate to dizen
    a) at a party.
    b) at home.
    c) at a funeral.
    d) on stage.
    e) at the beach.

Marmoreal

1. Which one of the following would be most marmoreal?
   a) a pillow
   b) rain.
   c) ivory.
   d) ice cubes.
   e) a photograph.

2. If something were marmoreal it could not be
   a) man made
   b) granular.
   c) finite.
   d) smooth.
   e) of long duration.

3. If something were marmoreal it would be
   a) cold and smooth.
   b) white and sticky.
   c) thin and crisp.
   d) old and musty.
   e) hard and metallic.

4. You would be most likely to find something marmoreal if you looked
   a) on the desert.
   b) under the ocean.
   c) at Roman ruins
   d) in an old west ghost town.
   e) at wheat fields.

5. There is probably nothing marmoreal
   a) in the modern city
   b) on a hot summer day
   c) in a museum.
   d) in the jungle.
   e) on a cold winter night.

Pharisaical

1. On Sunday morning a pharisaical person would
   a) go to church.
   b) read the Bible in the privacy of his own home.
   c) do some charity work.
   d) probably sleep in.
   e) probably mow the lawn.

2. At Christmas a pharisaical person would probably
   a) say "Bah humbug."
   b) give toys to the poor.
   c) complain about Christmas being commercial.
   d) feel the true Christmas spirit.
   e) not celebrate at all.

3. Which one of the following people would be most likely to be pharisaical?
   a) a minister.
   b) a nun.
   c) an acknowledged atheist.
   d) a fake miracle healer.
   e) a Sunday school teacher.

4. Pharisaical people are
   a) inwardly religious.
   b) outwardly religious.
   c) not at all religious.
   d) only religious in times of crises.
   e) truly religious.

5. If one were pharisaical one would never
   a) go to church.
   b) read the Bible.
   c) do anything worthwhile.
   d) complain about other people.
   e) pray alone.

Posset

1. A posset contains
   a) giner ale and milk.
   b) flour and water.
   c) eggs and butter.
   d) wine and spice.
   e) cherries and ice cream.

2. A posset should be
   a) frozen.
   b) heated.
   c) stored for several years.
   d) allowed to raise.
   e) eaten with a fork.

3. Posset would probably be served
   a) on a picnic.
   b) at a child's birthday party.
   c) at a cocktail party.
   d) at the local pub.
   e) as the main course for dinner.

4. Posset would be served
   a) in cups or glasses.
   b) on a relish dish.
   c) on a platter.
   d) on paper plates.
   e) hot from the oven.

5. Which of the following people would <u>not</u> eat posset?
   a) one whose religious beliefs forbade eating any animal or animal product.
   b) a member of the temperance union.
   c) someone with an ulcer.
   d) all of these.
   e) none of these.

Pursy

1. Which one of the following people would be <u>least</u> likely to be pursy?
   a) a secretary.
   b) a clown.
   c) a rich man.
   d) an athlete.
   e) a tuba player.

2. If one were pursy one would probably
   a) rest a great deal.
   b) move a great deal.
   c) work very hard.
   d) always be in a hurry.
   e) behave quite stupidly.

3. One would most likely be pursy if one were
   a) never active.
   b) rarely active.
   c) generally active but occasionally inactive.
   d) almost always active.
   e) always active.

4. One would most likely be pursy
   a) in smoggy places.
   b) in the country.
   c) at high altitude.
   d) at low altitude.
   e) outside rather than inside.

5. Pursy people are evidence of
   a) conformity.
   b) a backward society.
   c) a vain society.
   d) a neurotic society.
   e) a rich society.

Saponify

1. Which one of the following people would be most likely to saponify something?
   a) a young child.
   b) a modern housewife.
   c) a person who believed in the good old days.
   d) a butcher.
   e) an engineer.

2. If one saponified something one could
   a) eat it.
   b) feed it to the animals.
   c) use it for cooking grease.
   d) use it in household chores.
   e) use it for fuel.

3. The process of saponification is a
   a) mechanical one.
   b) chemical one.
   c) biological one.
   d) physiological one.
   e) a medical one.

4. The product of saponification is
   a) yellow and soft.
   b) hard and metallic.
   c) white and chewey.
   d) clear and brittle.
   e) white and dough-like.

5. In a modern household the process of saponification probably
   a) occurs daily.
   b) occurs about once a month.
   c) occurs once or twice a year.
   d) occurs once in a lifetime.
   e) never occurs.

Tussah

1. One would be most likely to find tussah at
   a) a hardware store.
   b) a grocery store.
   c) a dry goods store.
   d) an exotic restaurant.
   e) a dime store.

2. The problem with tussah is that it
   a) won't bend.
   b) is drab.
   c) is scarce.
   d) comes from the Orient.
   e) is not preservable.

3. If one bought tussah one would probably
   a) eat it.
   b) throw it out before long.
   c) keep it out of the reach of children.
   d) boil it before using.
   e) make something out of it.

4. Tussah
   a) grows in warm climates
   b) is made by living organisms.
   c) is made out of parts of organisms.
   d) is grown in the Orient.
   e) is manufactured synthetically.

5. Tussah is most like
   a) spice.
   b) tea.
   c) wrapping paper.
   d) wool.
   e) satin.

Answer Key--Concepts from Context

Amerce

1. a
2. e
3. d
4. b
5. c

Canard

1. c
2. e
3. d
4. a
5. b

Dizen

1. d
2. b
3. a
4. e
5. c

Marmoreal

1. c
2. b
3. a
4. c
5. d

Pharisaical

1. a
2. c
3. d
4. b
5. e

Posset

1. d
2. b
3. c
4. a
5. d

Pursy

1. d
2. a
3. b
4. c
5. e

Saponify

1. c
2. d
3. b
4. a
5. e

Tussah

1. c
2. b
3. e
4. b
5. e

APPENDIX C

Instructions

At the top of each of the following pages will be a word and below the word will be several sentences of a story. The words are real English words but they are not frequently used so most people don't know what they mean. Each of the sentences will use the new word once, so read the sentence and try to learn the meaning of the new word. (The number of sentences will vary and in some cases there will not be any sentences below the word.)

When you have studied the sentences, turn the page. There will be five multiple-choice questions about the new word. Answer the questions by circling the letter in front of the right answer. When you have answered all the questions go on to the next page.

When you read a story, try not to substitute a single common word for the new word. If the word had a common substitute (synonym) we would not have used it. Try to think of each word as replaceable only by several other words.

A few sentences may tell the meaning of the word as well as many sentences would, so be just as careful when a few sentences are given as when many are given.

Even if no sentences are given and you don't know the meaning of the word, guess the answers to the questions. Give only one answer to each question.

<u>Please do not leave any question unanswered</u>.