

THE CLOZE PROCEDURE AND INTERSENTENTIAL COMPREHENSION IN COLLEGE-LEVEL GERMAN

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Abstract

The intersentential sensitivity of the mechanical deletion cloze procedure was examined in this investigation. A total of 124 college-level students of German participated in the study. One group of subjects completed a sequential cloze task, a second group completed a scrambled cloze task, and a third group completed an imbedded cloze task. The results revealed no significant differences between cloze test scores in the exact word or the acceptable word (synonyms allowed) scoring conditions. It is suggested that the cloze procedure may not yield a valid and reliable assessment of global comprehension in the second-language context.

Reading is generally considered to be one of the most important second language learning skills. Most classroom activities depend on the students' ability to read the target language. The ability to read is also one of the few outcomes of the second-language learning process that students have the opportunity to utilize actively after the completion of their formal training.

The cloze procedure has generally been accepted as a valid and reliable estimate of reading comprehension in the first and second language setting. Researchers such as Oller, (1973), Chihara *et al.* (1977) Cziko (1978), Clarke (1979), and Bachman (1982) proclaim the cloze procedure to be an objective, dependable measure of global comprehension. However, there have been a number of other reading researchers that question the intersentential sensitivity of cloze. MacGinitie (1961), Miller and Coleman (1967), Alderson (1979), and Shanahan *et al.* (1982) posit that the cloze procedure is primarily a sentence-level or subsentence-level processing task that students can successfully complete without attending to intersentential comprehension. Given the widely divergent views with respect to cloze as a measure of global comprehension, it was decided to investigate the matter more closely.

Research Questions

The specific purpose of this study was to determine the extent to which the cloze procedure provides an adequate measure of reading comprehension across sentence boundaries. The following research questions were addressed: 1) To what extent is intersentential comprehension in German affected by a scrambled order of sentences within a cloze passage? 2) Are cloze sentences imbedded in nonrelated passages completed as well as sentences read in the context of the original syntactically and semantically acceptable cloze passage? 3) How does subject proficiency level in German-beginning, intermediate, and advanced-influence performance with respect to the first two research questions?

Subjects

The subjects in the study were 124 college German students in beginning, intermediate, and advanced college-level courses. Three levels of subjects were involved in the experiment. Beginners were operationally defined as those subjects who were enrolled in 103-104 level German courses. The intermediates were drawn from students enrolled in 200 and 499 level German courses. The advanced subjects were those who were taking 600 to 900 level German courses.

Procedures

The University and the instructors involved in the experiment were contacted and their cooperation was obtained prior to the experiments. The subjects were tested in the context of intact classroom groups. All participants in the study were subjected to a thirty minute time limit for completing the cloze task. This was done to minimize the possibility that the subjects might have time to reconstruct a sequential, meaningful cloze task from a scrambled cloze task when given enough time. The researcher monitored the testing for all classes.

The booklets consisting of instructions and cloze passage exercises were distributed at the beginning of the class period. The test booklets were randomly distributed in such a manner that six groups of approximately equal number were formed. The researcher read the instructions aloud and an example of a cloze sentence item was completed to insure that the participants understood the task before beginning the experiment.

Research Design

In the first experiment, a 2x3x2 randomized factorial design was utilized. The first factor consisted of two levels of cloze context passages. The first type of passage was a sequential, unaltered cloze test with an every eighth-word deletion pattern. It was necessary to provide this type of passage to measure the students' performance with a commonly used, unaltered cloze format. The scrambled passage was constructed by randomizing the order of sentences within the text for the purpose of destroying intersentential connections.

The second factor was comprised of three levels of subject proficiency. Beginning, intermediate, and advanced students of German, as previously defined, participated in the study. Three levels of subjects were desired in order to monitor performance variation across different ability groupings.

The third factor consisted of the two different passages (*Die Riesen und die Zwerge* and *Das Kamel*) that were utilized in the experiment. The justification for making use of at least two passages was to enhance the generalizability of the results.

In the second experiment, a 3x3x2 randomized factorial design was used. The first passage condition (imbedded) was constructed by randomly imbedding five sentences from Passage A in the second, nonrelated context Passage B and vice versa. This was done to examine the subjects' ability to complete cloze sentences that were located in a totally nonsupportive context. The second passage condition (nonimbedded), consisted of the sequential cloze texts in which the same five sentences were scored as in the imbedded condition. The third passage condition (scrambled-imbedded) was created by scoring the same five sentences in the scrambled passages.

The second and third factors in the second design were identical to the related factors in the first design. Namely, there were three levels of subjects in the second experiment and two different passages.

Materials

The procedures for constructing a scrambled cloze task posed many problems that needed to be resolved. There was no consensus of opinion on how to complete the scrambling technique. For example, Shanahan *et al.* (1982) lengthened or shortened the sentences in the original text so that the number of words in each sentence conformed to a multiple of five and then scrambled the passages. Henk (1982) posited that such a procedure likely influenced the unique cohesive relationships in the text. According to Henk (1982), Shanahan *et al.* (1982) might

have created an unnatural reading task that was at least partially responsible for the lack of significant differences between sequential and scrambled cloze texts.

Carroll *et al.* (1959), Oller (1975), and Cziko (1978), used a different methodology. They divided sequential second language passages into several orders of approximation varying from 10 to 50 word segments and then scrambled the order of the segments within the passage. However, they did not pay attention to existing sentence boundaries. This scrambling procedure disrupts both within-sentence structures and between-sentence structures. Therefore, the results are difficult to interpret.

Chihara *et al.* (1977) divided a scrambled cloze passages into thirds at sentence boundaries and then systematically randomizing the order of the sentences to produce a list of scrambled sentences. The argument can be made that this procedure is also somewhat artificial with respect to the scrambled cloze task. The subjects who completed a sequential task were exposed to a meaningful cloze passage with an every seventh word deletion rate. The scrambled-task subjects completed an individually numbered list of cloze sentences in which the first blank in any given sentence was not preceded by a fixed number of words. Occasionally, a given sentence ended in a blank and a subsequent sentence began with a blank in the scrambled sentence list. It would seem likely that such a methodology influenced the subjects' perception of the task. Not only were the tasks different with respect to passage order (sequential vs. scrambled), but they were also different with regard to appearance and deletion rate.

Having reviewed the various alternatives for scrambling the order of sentences within cloze passages, this researcher chose to develop a different method for constructing scrambled cloze passages. It was possible to create a scrambled cloze passage that retained the same deletions without altering sentence length or resorting to a scrambled sentence list. The technique employed in this experiment was to scramble the sequential cloze passages within a margin of acceptability. That is to say, the deletion rate in the scrambled passages was allowed to vary from seven to nine. The deletion rate in the sequential passages was fixed at every eighth word. However, in the scrambled condition a small degree of variation did not pose a problem. MacGinitie (1961) asserts that deletion rates fluctuating from every fifth word to every twelfth word do not substantially alter the subjects' performance in most cloze experiments. Moreover, only five blanks deviated from the very eighth word deletion pattern in the 58-blank passage and only five blanks did not conform to the eighth word pattern in the 69 blank scrambled cloze passage. This small ratio of deviation was achieved while also insuring that no consecutive sentences in the sequential passages were located in consecutive positions in the scrambled texts.

By comparison, the imbedded cloze procedure posed fewer problems than the scrambled cloze task. Several sentences were randomly extracted from passage A. Among those sentences, five were randomly selected that fit the selection pattern of passage B within a seventh to ninth word margin of acceptability at the desired locations. The first sentence was inserted near the beginning of passage B. This procedure continued until all five sentences from passage A had been inserted in passage B at equal intervals. Likewise, five sentences were randomly drawn from passage B and inserted in passage A by the same process.

Results

The results with respect to the first research question were decidedly nonsignificant at the $p < .05$ level. There were no significant differences regarding student performance on sequential vs. scrambled cloze tasks. The F-Values for the general analyses of variance that included all of the data were 2.65 (exact score) and .97 (acceptable score) with significance levels of $p < .11$ and $p < .33$ respectively. The significant passage effect in the exact scoring condition $p < .05$ did not render the data difficult to interpret because the results were consistent across all

levels and in all passage conditions without statistical interaction between passage and any of the other variables.

Concerning the second research question, the clear indication is that cloze sentences imbedded in nonrelated contexts are completed equally as well as cloze sentences located in the original, meaningful passages. Once again the results were consistent. There were no significant differences with regard to subject performance on nonimbedded, imbedded or scrambled-imbedded cloze tasks at the $p < .05$ level in this investigation. Once again, the existence of the passage effect in the exact scoring condition was not problematic because of the consistent nature of the results for all student proficiency levels and passage conditions without statistical interaction. The general analyses of variance that included all of the data yielded F-Values of 1.09 (exact score) and .50 (acceptable score). These F-Values would be significant at $p < .34$ and $p < .61$. Thus, the results were even more decidedly nonsignificant with respect to the second research question.

The results concerning the third research question were also easy to interpret. There were significant differences between levels for all passage conditions in the exact and acceptable scoring procedures. Although there were nonsignificant findings on each individual level with regard to passage order, there were highly significant differences between the means of beginning, intermediate, and advanced subjects. The F-Values with respect to the third research question were significant at the $p < .0001$ level.

It should be mentioned that the significant findings concerning levels of student proficiency in German were logical and consistent with the students' actual progress in learning the language. All of the advanced subjects were either near-native or native German speakers. The intermediates were enrolled in 200 to 499 German courses and the beginners were participating in German 103 or 104 courses. These results serve to affirm the credibility of the cloze test instruments that were utilized in this investigation.

Discussion

The significance of this research report for first and second language reading teachers needs careful elaboration. Given the results of this study, one must conclude that the cloze procedure, at least with respect to mechanical deletion, does not provide an adequate measure of intersentential comprehension. It appears that the cloze procedure is primarily a sentence-level problem solving task.

According to Bachman (1982) the cloze test with rational deletion may have greater intersentential sensitivity. There is, nevertheless, an *a priori* selection bias when function words are not included as items on the cloze test. Rational deletion ceases to yield a representative, objective sample of all possible words in the text. Moreover, a rational deletion cloze task is substantially more difficult to complete because of the omission of function words.

The cloze procedure, however, does not encourage the student to attend to global comprehension. Therefore, it would be wise for reading teachers to rely on other reading tests in order to assess intersentential comprehension. Since no existing reading comprehension test can be trusted without reservation, a teacher may consider using a combination of tests, other than cloze, to obtain a reasonably valid and reliable assessment of global reading comprehension.

Further Research

A replication of this research investigation with subjects studying a second language other than German would enhance the generalizability of these findings. Intersentential processes may vary somewhat in different language settings.

There is a need to research the use of a rational deletion procedure with different passage orders to determine if intersentential comprehension scores would be effected. Function words are usually clause-dependent and do not reflect intersentential processes. It should be mentioned, however, that many content words in cloze passages also lack intersentential ties.

Finally, qualitative research projects utilizing retrospective interview techniques to assess global comprehension after the completion of a cloze task may prove to be valuable. Purely quantitative techniques do not necessarily mirror the internal thought processes of the subjects.

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TABLE 1

MEANS AND STANDARD DEVIATIONS:
BEGINNING, INTERMEDIATE, ADVANCED LEVELS
ORDER: SEQUENTIAL, SCRAMBLED
EXACT SCORING PROCEDURE

<i>Order</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Seq	41	34.0	17.4
Scr	43	31.0	15.7
<i>Level</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Beg	43	19.6	9.4
Int	21	40.8	11.1
Adv	20	51.4	6.3

ACCEPTABLE SCORING PROCEDURE

<i>Order</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Seq	41	62.5	23.1
Scr	43	59.7	23.2
<i>Level</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Beg	43	43.7	17.1
Int	21	74.0	11.8
Adv	20	85.0	7.4

TABLE 2

MEANS AND STANDARD DEVIATIONS:
 BEGINNING, INTERMEDIATE, ADVANCED LEVELS
 ORDER: NONIMBEDDED, IMBEDDED, AND SCRAMBLED-IMBEDDED
 EXACT SCORING PROCEDURE

<i>Order</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Nonimbedded	41	23.9	16.4
Imbedded	40	21.5	12.3
Scrambled-Imbedded	43	22.6	13.5

<i>Level</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Beg	63	14.3	9.3
Int	31	28.0	11.5
Adv	30	34.8	13.7

ACCEPTABLE SCORING PROCEDURE

<i>Order</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Nonimbedded	41	46.9	22.1
Imbedded	40	46.1	18.8
Scrambled-Imbedded	43	47.0	21.1

<i>Level</i>	<i>n</i>	<i>Mean</i>	<i>S.D.</i>
Beg	63	31.7	12.6
Int	31	54.2	12.5
Adv	30	70.2	13.4

TABLE 3

ANALYSIS OF VARIANCE
 LEVEL: BEGINNING, INTERMEDIATE, ADVANCED
 ORDER: SEQUENTIAL SCRAMBLED
 EXACT SCORING PROCEDURE

Source	df	SS	F-Value	Probability of Significance
Order	1	.02216574	2.65	.1080
Level	2	.58085116	94.40	.0001
Passage	1	.03525616	4.21	.0437
Order * Level	2	.01182602	.71	.4968
Order * Passage	1	.01182485	1.41	.2385
Level * Passage	2	.00302051	.18	.8353

p < .05

TABLE 4

ANALYSIS OF VARIANCE
 LEVEL: BEGINNING, INTERMEDIATE, ADVANCED
 ORDER: SEQUENTIAL SCRAMBLED
 ACCEPTABLE SCORING PROCEDURE

Source	df	SS	F-Value	Probability of Significance
Order	1	.01734635	.97	.3273
Level	2	2.81573348	78.92	.0001
Passage	1	.02389011	2.71	.1077
Order * Level	2	.01642382	.47	.6242
Order * Passage	1	.01699944	.95	.3321
Level * Passage	2	.03442098	.96	.3858

$p < .05$

TABLE 5

ANALYSIS OF VARIANCE
 LEVEL: BEGINNING, INTERMEDIATE, ADVANCED
 ORDER: NONIMBEDDED, IMBEDDED, SCRAMBLED-IMBEDDED
 EXACT SCORING PROCEDURE

Source	df	SS	F-Value	Probability of Significance
Order	2	.02608900	1.09	.3414
Level	2	.96919873	40.31	.0001
Passage	1	.09759632	8.12	.0052
Order * Level	4	.03446581	.72	.5822
Order * Passage	2	.02087340	.87	.4226
Level * Passage	2	.00382196	.16	.8532

$p < .05$

TABLE 6

ANALYSIS OF VARIANCE
 LEVEL: BEGINNING, INTERMEDIATE, ADVANCED
 ORDER: NONIMBEDDED, IMBEDDED, SCRAMBLED-IMBEDDED
 ACCEPTABLE SCORING PROCEDURE

Source	df	SS	F-Value	Probability of Significance
Order	2	.01674375	.50	.6140
Level	2	3.24742164	96.18	.0001
Passage	1	.04537925	2.69	.1040
Order * Level	4	.06750079	1.00	.4111
Order * Passage	2	.01094993	.32	.7237
Level * Passage	2	.00573929	.17	.8439

p < .05

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