The influence of passage repetition and presentation time on the learning of connected discourse

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Subjects learned a 25-word passage of connected discourse. The learning conditions consisted of a factorial combination of three total presentation times (30, 45, and 60 sec) and three conditions of repetition (one, two, and three repetitions). For both learning time and trials to criterion, only the main effect of repetitions was significant.

In the learning of a two-sentence passage, 25 words in length, a large number of temporal dimensions can be manipulated to determine their influence on learning. When the learning material is presented on film and a motion-analysis projector used as a delivery apparatus, careful control can be exerted over a number of temporal factors. A previous article (King, 1975) reviewed such temporal factors as exposure interval, interitem interval, intertrial interval, recall interval, and placement of unequal interitem intervals. In general, the overall results of studies related to these factors suggest rather small effects except when taken to extremes. One study (King, 1975) did report a consistent difference in the learning of such a passage where, under a variety of equal presentation times, the passage was presented either once or a number of times. With presentation time held constant, the repetition condition was always superior to the nonrepetition condition. In the aforementioned study, however, the time and repetition conditions were confounded (to keep presentation time constant). The present study examines the effect of repetition in factorial combination with three total presentation times.

METHOD

The learning material was again the same 25-word passage of two sentences. The passage read: "The early morning sun shining through the yellow curtain gave the bedroom a translucent quality. George opened one eye and quickly closed it in disgust." The learning material was prepared on 16-mm film as follows. Each frame of the film contained one word, with a blank frame between each word. After the completion of the above 25-word passage and following a blank frame, the material was repeated a second and then a third time.

The general design of the study was a 2 by 3 by 3 factorial. Sex was the dichotomous dimension, the number of repetitions (once, twice, or three times) the second dimension, and the total presentation time (30, 45, or 60 sec) the third dimension. Each cell contained five individuals, for a total of 90 subjects. (Of 93 subjects, 3 were discarded for failure to learn the material within a reasonable period of time.) The learning material was presented on a motion-analysis projector that allowed alteration in the speed of the presentation per frame

to accommodate the nine conditions of presentation time and number of repetitions. Subjects (psychology students) were assigned to the various treatment conditions at random within the limitations of numerical balance. Following the presentation of each treatment condition, the subjects wrote their recall "as close to the original as possible" on a sheet of paper provided. Subjects were tested one at a time, with trials continuing to a criterion of one perfect recall (excluding minor spelling errors).

The dependent variables given primary emphasis were the number of trials to criterion and the total learning time (the time, in seconds, from the start of the first presentation to the completion of a perfect recall).

RESULTS AND DISCUSSION

The total learning time data were subjected to a 3 by 3 by 2 ANOVA resulting in one significant effect. The repetition dimension was significant [$F(2,72) = 5.10$, $p < .01$]. The mean total learning times (in seconds) for the one-, two-, and three- repetition conditions, respectively, were 443.0, 374.7, and 309.7. A similar analysis on the trials-to-criterion data yielded similar findings. The repetition dimension was the only significant effect [$F(2,72) = 6.14$, $p < .01$]. The mean numbers of trials to criterion for the one, two, and three repetitions were 3.2, 2.8, and 2.3, respectively.

The results are consistent for both dependent variables, not only in the singularity of the significant effects of repetitions but also in the linear decrease in both dependent variables as repetitions increased. In general, the finding of the superiority of repetitions is consistent with the results previously cited (King, 1975). As mentioned, the previous results had deliberately confounded the effects of repetitions and time of presentation. The present study clearly shows the importance of the repetition influence as contrasted with and independent of the time of presentation.

It should be carefully noted that the preparation of the learning material allowed for one blank frame between each word. Furthermore, even the treatment condition requiring the most rapid rate of presentation (three repetitions in 30 sec) is not at a rate so fast

as to approach any limit for learning efficiency (e.g., see Figure 1, King 1974a). We presume that, under the conditions of this experiment, considerable rehearsal of the learning material is possible. Previous studies (e.g., King, 1971) have reported rehearsal activity by nearly all subjects learning connected discourse. The repetitions of the learning material provide subjects with the opportunity to check their rehearsed learning and make corrections as appropriate. Increasing the speed of projection to too fast a rate could reverse this advantage of the repetitions effect.

Consistent with a number of other studies in connected discourse learning, the lack of any significant main or interaction time effects does not support the total time hypothesis. In general, this finding supports the previous speculation that "except at the briefest of total presentation times . . . for connected discourse, the relationship between total presentation time and total learning time is nil" (King, 1974a, p. 588). Similar lack of support for unconnected material was reported by Roberts (1972). The lack of a signif-

icant time effect on trials to criterion is also consistent with previous findings on total presentation time as related to trials to criterion (King, 1974b, Figure 1).

REFERENCES

KING, D. J. Influence of interitem interval in the learning of connected discourse. *Journal of Experimental Psychology*, 1971, **87**, 132-134.

KING, D. J. Total presentation time and total learning time in connected discourse learning. *Journal of Experimental Psychology*, 1974, **103**, 586-589. (a)

KING, D. J. Total presentation time and trials to criterion in connected discourse learning. *Bulletin of the Psychonomic Society*, 1974, **4**, 27-28. (b)

KING, D. J. The influences of repetition vs. no repetition given equal presentation time on the learning of connected discourse. *Bulletin of the Psychonomic Society*, 1975, **5**, 501-503.

ROBERTS, W. A. Free recall of word lists varying in length and rate of presentation: A test of total-time hypothesis. *Journal of Experimental Psychology*, 1972, **92**, 365-372.