

EFFECT OF FAMILIARITY WITH BACKGROUND MUSIC ON  
PERFORMANCE OF SIMPLE AND DIFFICULT READING  
COMPREHENSION TASKS<sup>1</sup>

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*Summary.*—For 64 undergraduates varied musical selections did not offset scores on Sequential Tests of Educational Progress but scores on the easier sections were higher than those on more difficult ones. Scores made with familiar music were higher than those with unfamiliar music.

Etaugh and Michals (1975) and Wolf and Weiner (1972) have suggested that performance of cognitive tasks is influenced by familiarity with background stimulation. Etaugh and Michals reported that the more frequently undergraduates reportedly studied in the presence of music, the less background music impaired their performance on a reading comprehension test. Wolf and Weiner found that undergraduates correctly answered more arithmetic problems in the presence of background music than when background stimulation was industrial noise. However, in neither study was familiarity with specific background stimulation systematically manipulated: in the former, all subjects experiencing background music listened to presumably familiar music, while in the latter, several parameters may have differentiated the music and the noise. The purpose of the present study was to assess further the effect of variation in familiarity of background music on reading comprehension scores using an experimental manipulation of familiarity. Of interest, too, was the possible interaction of familiarity with the difficulty of the test.

Sixty-four undergraduate volunteers were randomly assigned to eight groups in a  $2 \times 2 \times 2$  factorial design. The independent variables were the difficulty of the test, familiarity with the music, and the music selection; the latter was included to control for possible idiosyncratic effects of the particular choice of music. There were equal numbers of male and female subjects in each condition; however, since this factor did not have significant main or interactive effects, it will not be considered further.

Each subject was told that this was a study of the effect of music on performance. Subjects were instructed to listen to music for 15 min. and that further instructions would be given at the end of that period. They then listened through headphones to one of two tape recorded 3-min. selections (from "Three Scenes from 'Petrouchka': Russian Dance" by Stravinsky or "Divertimento No. 3 in E-flat Major, K 117, Minuetto" by Mozart) played repeatedly at  $80 \pm 5$  dB for 15 min. At the end of this period, subjects were

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given 12 min. to complete a section of the Sequential Tests of Educational Progress, published by the Educational Testing Service (1957). The easy reading comprehension test was appropriate for Grades 7 to 9, while the difficult test was appropriate for Grades 13 to 14. Each test had 12 multiple-choice questions. During performance of the test, each subject repeatedly heard, through headphones, one of the two selections described above. In the familiar music condition, subjects heard the selection which had been presented earlier, while in the unfamiliar condition they heard the other selection.

An analysis of variance of test scores indicated, first, that the main and interactive effects of the specific musical selections heard during performance of the test were not significant ( $p > .20$ ), despite marked differences in instrumentation, rhythm, and style. Mean scores on the easy comprehension test were significantly higher than those on the difficult test ( $F = 48.4$ ,  $df = 1/56$ ,  $p < .001$ ); the mean number correct on the former was 8.0 ( $SD = 1.7$ ), while the mean number correct on the latter was 4.9 ( $SD = 1.9$ ). Although all subjects reported a lack of prior familiarity with the musical selections, the brief exposure to the music apparently was sufficient to influence test performance. Specifically, scores were higher in the presence of familiar background music ( $M = 7.0$ ,  $SD = 2.1$ ) than in the presence of unfamiliar music ( $M = 5.9$ ,  $SD = 2.5$ ). This difference, while not large, was significant ( $F = 6.6$ ,  $df = 1/56$ ,  $p < .025$ ). The interaction of familiarity and task difficulty was not significant ( $F = 1.3$ ,  $df = 1/56$ ).

While prior research has examined effects of familiarity indirectly, the present results are based on systematic manipulation of this variable. However, they support earlier suggestions that performance in the presence of familiar background music is higher than that in the presence of unfamiliar music. The covariation of familiarity and change in heard music is troublesome; subjects exposed to unfamiliar background music performed the comprehension test in the presence of music different from that heard in the initial 15-min. period, while those in the familiar condition performed in the presence of the same music. However, since subjects were not led to expect either change or consistency and since anecdotal observations and debriefing reports suggested that they did not view this as particularly noteworthy, it seems reasonable to conclude that the data show an effect of familiarity of background music.

#### REFERENCES

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