THE EFFECT OF DISTRACTIONS ON TEST RESULTS

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Current practices in test administration specify that the place of testing be free from distractions. For example, Bingham[1] states that the examiner "will secure suitable quarters, free from disturbances and interruptions" but does not define a 'disturbance' nor an 'interruption.' In practice psychometrists realize that the complete elimination of stimuli is impossible to attain and so direct their efforts to reducing distractions to a minimum. That certain disturbances might have a favorable effect on the test situation has been pointed out by Terman and Merrill.[3] According to their observations, familiar sounds "are reassuring to a child who is inclined to be a bit timid." The authors also report that in their experience excellent testing may be done "under very inadequate physical conditions." Apparently the effect of specified distractions on test results needs to be more adequately determined, with the distractions described in sufficient detail for their nature to be clear and with an experimental design which permits the drawing of verifiable conclusions.

The purpose of this experiment was, therefore, to study the effect of certain commonly encountered distractions on test results. On the basis of clinical observations the hypothesis was established that group test scores would not be appreciably affected by commonly occuring distractions.

PROCEDURE

The tests used were the Minnesota Vocational Test for Clerical Workers and the Otis Quick-Scoring Mental Ability Test, Gamma Am. The directions as given in the manual were used with the following changes: on the clerical test, Part II, Name Comparison was given first, and on the Otis the time limit was reduced to twenty minutes. This latter change meant that an IQ could not be calculated, but the nature of the experiment required only that the raw score be obtained.

The subjects were two groups of graduate students, ages twenty-two to thirty-eight, taking a course in testing. There

were thirty in the distracted group and twenty-six in the control group. The division of the class into sections had been made earlier on a random basis for instructional purposes. The Names part of the clerical test was used to determine the equality of the groups as it is a measure of the two abilities measured by the other tests (general intelligence and speed of discrimination); no distractions were planned during its administration.

Since the tests were administered during the regular laboratory period the impression given by the examiner was that they were a demonstration of group test administration and that the results were to be analyzed to ascertain the effect of administering the Names Test before rather than after the Numbers Test.

The instructions for the distractions during the various tests were as follows:

"1. Minnesota Clerical Names Test

"None

"2. Minnesota Clerical Numbers Test

"a) At the end of the second minute of testing the trumpeter will play the scale up, then down, will pause thirty seconds, then play the scale back up. The trumpeter will be in the next room and stand facing the closed connecting door.

"b) At the end of the fourth minute Mr. Hummel will burst into the room, stop short, look around, tiptoe to the examiner in an exaggeratedly quiet manner, whisper hoarsely 'How long are you going to be here?' and then exit on tiptoe, leaving the door slightly ajar.

"3. Otis Test of Mental Ability

"a) While marking the answer to the third question, Miss Furstman will break her pencil point with a loud snap. She will then make a mild exclamation as she drops the pencil, slide the chair back with a scraping noise, get up and walk with ostentatious care to the examiner for another pencil.

"b) At the end of the fourth minute Mr. Hummel and Mr. Appel will walk down the stairs from the fourth floor, arguing loudly on Schwellenbach's suggested ban of the Communist Party. The discussion near the door should last for about one minute. The examiner will have placed himself on the far side of the room so as to arrive at the door at about the time the two men are ready to move on.

"c) At the end of ten minutes the trumpeter will play six bars of 'Home Sweet Home,' falter, recover, and go on to finish the melody. The trumpeter will give the impression that the melody is being played by a novice. The location will be the same as described in 2a) above.

"d) At the beginning of the test, the examiner will set the timer to ring at fifteen instead of twenty minutes. When the bell rings the examiner will pick up the timer, look at it, look at his stopwatch, and announce, 'Go on with the test.'"

The inclusion of musical distractions was not incongruent since the music department uses nearby rooms for practice.

None of the distractions went unnoticed during the test period. One minute after the Minnesota Numbers Test started, the playing of a piano in the room below could be heard. This did not attract as much attention as the trumpet which caused a number of students to look up, some to snicker, and one to inquire facetiously, "Was that intentional?" The examiner shook his head.

The entrance of the examiner's 'friend' caused a few of the students to look up.

The pencil-breaking incident at the beginning of the Otis caused some murmuring among the students in the immediate vicinity.

The argument in the hall was aided by passing students who joined in the discussion, thinking it genuine, and added to the commotion in a realistic way. Several of the subjects looked up and one or two looked out of the door at the disputants.

The trumpeter's second effort resulted in many of the students looking up and a good deal of snickering.

A general reaction of annoyance at the mis-timing of the Otis was expressed by unintelligible muttering.

After the test a few comments on the quality of the trumpeting and the fact that the examinees had been 'cheated out of two seconds' were made. A discussion of the experiment the following week confirmed the belief that none of the class was aware of the real intent of the experiment.

RESULTS

The tests were scored according to standard procedures and the results were tabulated by age and sex for each group. No differ-

ences approaching statistical significance were found for either age or sex, so combined data were used for comparisons.

Table I gives the means, standard deviations, and critical ratios for each of the tests. None of the differences were statistically significant even at the ten per cent level.

TABLE I

Names	Mean	SD	C/R
Experimental Group	148.2	24.54	1.6
Control Group	135.5	34.86	
Numbers			
Experimental Group	132.7	30.62	0.676
Control Group	138.1	27.68	
Otis			
Experimental Group	55.4	8.43	0.75
Control Group	52.1	9.29	

The greatest mean difference obtained was for the Minnesota Names Test which was administered without distractions. The difference of 12.7 points is not statistically significant, since a critical ratio larger than that of 1.6 could be expected in ten cases out of one hundred. Critical ratios larger than .676 and .75 can be expected in more than forty cases out of one hundred.

The conclusion reached is that the distractions were not sufficiently disturbing to affect the performance of the group.

SUMMARY

This experiment was designed to determine whether or not some of the more commonly occurring distractions have an effect on group test results.

Two groups of graduate students were given the Minnesota Vocational Test for Clerical Workers and the Otis Test for Mental Ability. Several commonly occurring distractions were staged for one group during the Numbers part of the Clerical Test and during the Otis Test. None of the subjects was aware of the nature of the experiment.

No statistically significant differences were found. The conclusion was drawn that commonly occurring distractions do not affect test results.

REFERENCES

1) Bingham, W. V. *Aptitudes and Aptitude Testing*, New York, Harper, 1937.

2) Ligon, E. M. "Administration of Group Tests," *Educ. Psychol. Meas.*, 1942, 2, pp. 387–400.

3) Terman, L. M. and Merrill, M. A. *Measuring Intelligence*, Boston, Houghton Mifflin Co., 1937.