
The Effect of Test-taking Frequency on the Intelligence Quotient

**Christina Adaniel
Tappan Zee High School**

ABSTRACT

To examine if an increase in IQ test taking leads to an augmentation of IQ score, the PPVT-III was administered to thirty-six high school students, two times within three to four months. Results indicate that an increase in test-taking frequency decreases IQ.

This finding is most probably due to a lack of motivation that comes with practice.

number of errors or when all cards have been used, the test is complete. The results correlate to an IQ score.

In order to test the effects of the frequency of test taking, the PPVT-III was given to each subject twice, with a given time interval in between the two administrations. The gain between the two tests serves to measure the effect of test-taking frequency on IQ.

METHODOLOGY

The PPVT-III was administered twice to each of thirty-six subjects over a given time interval. Nineteen males and seventeen females, between the ages of fifteen and seventeen, participated. All were volunteers who responded to a letter distributed throughout Tappan Zee High School (TZHS). This letter described the research goals, the testing situation, and requested volunteers. At responding to this letter, all thirty-six subjects, who were students of TZHS, received a permission slip to be signed by their parents and returned the day of testing. Appointments were scheduled, and on the day of examination subjects reported to a classroom within TZHS, a neutral testing environment.

The PPVT-III, Form A and Form B, was used to test each individual's IQ. A counterbalanced design was employed. In order to control for a gain in IQ resulting from taking an easier second test, eighteen students were chosen at random to take Form A and eighteen to take Form B. The tests were administered individually to each student over an approximate fifteen to twenty-five minute time interval. Prior to each test, the subjects' name, address, age, grade, phone number, and language of the home were

recorded. The format and procedure of the test were first explained and two practice cards were used. After all questions were answered and the subject was ready, the formal testing began.

The examiners consisted of myself and cooperating adults, Katherine Kearney and Brian Adler. Katherine Kearney, TZHS psychologist, oversaw Brian Adler and myself in the first few tests conducted. Prior to any testing, the format of the PPVT-III and its proper administration procedures were collectively reviewed by the three examiners. All tests were given in the same testing environment and the administrators remained the same three people. Identical procedures were followed for each test. The examination of all thirty-six individuals took place over eleven days.

After a period of 12 to 17.7 weeks each subject returned to take the PPVT-III a second time. In order to obtain an estimate of the gain that resulted from taking the same exact test twice and an estimate of the gain from taking the same type of test twice, the two groups of eighteen were randomly separated into four groups. Half of the group that took Form A the first time also took it the second time. The other half took Form B the second time. Likewise, half of the group that took Form B the first time took it the second time as well. The other half of this group took Form A the second time. The four groups are then referred to as AA, AB, BB, and BA – the first letter standing for the first test form taken and the second letter for the second test form taken. Each group consisted of nine students who were all unaware of which test form they were taking. The procedure remained the same as the testing procedure of the first administration. The location was also the same. The only exceptions were that Katherine Kearney did not administer any tests and, due to difficulties in contacting the subjects, the lapse of time in

between the two tests varied for some individuals. The greatest difference between any two subjects in time lapse between first and second administrations was 5.7 weeks.

Katherine Kearney, who assigned a number in replace of each individual's name (in order to maintain confidentiality), scored all tests. The difference in test scores for each subject, between the first and second administration, was then analyzed.

RESULTS

The IQ scores for all tests ranged from 99 to 146. The mean IQ was 119.3. It was concluded that the first test scores were higher than the second. The mean IQ for the first testing was 120.19, whereas the mean for the second testing was 118.42. Thus, scores decreased during the second testing. Among all four groups, the greatest decrease was in the BA group. However, it was found that scores were higher on Test Form B than on Test Form A. The mean IQ score yielded from Test Form A was 116.56 while the mean IQ score for Test Form B was 123.83.

DISCUSSION

The first noticeable aspect of the results is that all but one of the scores is above the mean 100 IQ standard. The average for this particular group of subjects is nine standard deviations above the accepted mean. Although subjects were chosen randomly, according to those who volunteered, a select group resulted. Such a turnout says something about the type of person who responds to such a plea for volunteers. A group

Comparison of test form scores
for first administration

Test Form A	Test Form B
111	130
143	136
121	116
110	130
121	119
108	113
131	111
107	120
117	138
128	113
116	131
122	113
121	132
103	116
113	126
110	146
110	129
<u>106</u>	<u>110</u>
$\bar{x} = 116.56$	$\bar{x} = 123.83$

Comparison of first and second
administration IQ scores

IQ - 1st test	IQ - 2nd test
111	111
143	133
121	120
130	126
136	117
116	122
130	130
119	118
113	109
111	119
120	116
138	143
110	120
121	117
108	118
131	138
107	110
117	122
113	103
131	118
113	110
132	112
116	128
128	121
116	116
122	122
121	120
103	110
113	112
110	114
110	100
106	99
126	126
146	121
129	131
<u>110</u>	<u>111</u>
$\bar{x} = 120.19$	$\bar{x} = 118.42$

Gains in IQ (from first to second test) per group

Second testing

		A	B
First Testing	A	$n = 9$ $\bar{x} = 2.22$ Range, -10 - 7	$n = 9$ $\bar{x} = -1.67$ Range, -10 - 7
	B	$n = 9$ $\bar{x} = -6.26$ Range, -25 - 12	$n = 9$ $\bar{x} = -1.44$ Range, -19 - 8

of above average students was used in this study because these were the students who willfully chose to participate. It can be said that more talented students are more likely to volunteer in an experiment involving the testing of their IQ because of greater confidence, greater curiosity, or a pure search for challenge that others lack. Thus, such high IQs serve to reflect the elite group of students that chose to volunteer.

Perhaps more important to the goals of this research is that the results actually refute the expectation. It would seem probable that an increase in test taking or a greater familiarity with a test would yield higher IQs. However, in this experiment, the mean decrease in scores from the first to the second testing indicates that an increase in test-taking frequency decreases IQ. Practice seems to have a negative effect on IQ. Yet, these results could be explained when the motivation of the students is taken into account.

The second testing brought forth a noticeable change in the students. Where most of the subjects were cooperative and extremely willing to take the test the first time, many were reluctant to take it a second time. During the second testing, many seemed agitated towards the end and others looked at the clock with anxiety. Perhaps the repetition of the practice in test taking made the students uninterested. Where at first they were excited to try something new, the redundant test taking conceivably caused listlessness. Many subjects were hard to track down the second time, and others seemed disinclined to fit the test into their schedules. It required 44 days to administer the second test to all thirty-six subjects, in comparison to the 11 days for the first testing. There is a four-fold difference in this time span. The students were obviously less willing to participate the second time. Since the second testing did take place during the beginning

of the school year, it seems probable that people were busy, and thus less eager to take the test. Towards the end of each test, many subjects appeared to put little effort into answering the questions. As the difficulty increased, many gave up. So, the students had less motivation to do well on the test the second time. This most probably had an effect on their IQ scores, and could account for the decrease. This motivational effect on IQ scores could explain the findings of this study.

Less importantly, it was found that the extreme decrease in group BA could be attributed to the varying degree of difficulty of the two tests. It was found that the mean score for Test Form A was lower than that of Test Form B. Therefore, Test Form B could be said to be easier than Test Form A (for these specific students). Thus, group BA decreased the most because they took a more difficult test the second time. Since they took test form B first, they had the most to fall. Their decrease in scores actually shows regression to the mean. They were at first above average, and then, with the administration of the more difficult test, they decreased to the mean. Hence, the irregular case of group BA can be explained by the greater degree of difficulty of Test Form A.

Thus, the question of whether test-taking frequency has an effect on IQ is answered. Increased test taking has a negative impact on IQ, most presumably due to a decrease in motivation that comes with repetition. As with this particular time lapse, test, and group of subjects, IQ decreased due to a significant lack of motivation during the second testing. It can be concluded that IQ scores are more influenced by motivation than by the test-taking frequency of each student.

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