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ABSTRACT

Sixty-nine students in grades 9, 10, and 11 were tested with three of Viktor Lowenfeld's visual-haptic tests in an attempt to ascertain whether students at these levels segregated in a fashion similar to Lowenfeld's sample. Respondents were spread over the visual-haptic continuum as Lowenfeld suggested they should be. However, a large and statistically significant difference was found for the Test of Subjective Impressions, when Lowenfeld's percentages were compared with those of this study. (Author/BW)

Viktor Lowenfeld's Visual-Haptic Continuum in Grades 9, 10 and 11

by

Richard M. Schlenker

Introduction

In his, Allegory, Plato refers to two definite imagery types, Jones (1952). His observations were probably not original. From his writings, however, it does seem obvious that man's awareness of different imagery types, within the population, is not a phenomenon of which he has become recently aware.

After a great deal of clinical observation, Lowenfeld (1939) was able to categorize individuals according to their perceptual aptitude. He labeled these two types the visual and the haptic. The extreme visual and the extreme haptic, according to Lowenfeld, occupy the antipodes of a continuum. Within the continuum, there is an area of transposition where individuals can be identified neither as being haptic nor visual. Individuals of one perceptual aptitude can be discriminated from those of the other perceptual aptitude by the way they perceive their environment and in turn, by the way they respond to it.

The visual individual is objective. He views the world essentially as an observer and uses his eyes as the main channel of information acquisition. The visually oriented individual is able to take in and store information with a great degree of facility and when required, is able to reproduce it with great accuracy. This type of individual is able to transform touch sensations into visual images. When viewing scenes, visual people are able

to obtain an overveiw without being lost or confused by the details of the scene.

Haptically perceptive types of individuals use the kinesthetic tactile mode as the main avenue of information acquisition. They are normally satisfied with their haptic perceptions and feel no need to transform their perceptions into visual images. Although of normal visual acuity, the the haptic person uses his eyes only when forced to do so. In viewing scenery, he is lost in the details of the scene without being able to see the entire scene. Essentially, the haptically perceptive individual views the world subjectively and tends to place himself in the center of his perceptions.

The importance of knowing as much as is possible about these perceptual aptitudes seems paramount when taken within the context of our educational system. For example, with the contemporary proliferation of multi-media approaches to curriculum presentation and their increasing acceptance by educators, we are forced to question whether there one treatment best suited for all. One possible answer is to say that there is probably a presentation type which will facilitate the greatest degree of achievement, if the members of the group were of similar perceptual aptitudes. If this is the case, prior to curriculum development, we must measure perceptual aptitudes.

Lowenfeld (1945) devised a series of tests to measure visual and haptic perceptual aptitudes. Analysis of data obtained from administration of his test series showed that of 1128 responses, 47 percent could be definitely identified as visual, 28 percent as haptic and 25 percent fell into the intermediate category. He also found a great deal of consistancy between the way an individual responded on one test and the way he responded on another. In Lowenfeld's (1945) paper, the only information included which describes the sample is that they were adults.

Purpose

Since there is a general scarcity of information in the literature concerning the use of Lowenfeld's original tests to determine perceptual aptitude amongst a variety of age groups and grade levels, it was decided to conduct a pilot study in grades 9, 10 and 11 in an attempt to duplicate Lowenfeld's (1945) percentages.

Sample

A group of 9th, 10th and 11th grade students from Jackman, Maine high school were tested. The sample size was 69 of which 38 were members of grade 9 and 31 were members of grades 10 and 11 combined.

Procedure

All of the students were given the following tests,

using the same procedures and directions as those given in Lowenfeld's work, (tests and procedures included in the appendix). The only information asked of the student other than that given on the test was the students, student number or social security number. This information was collected in order to assure that each student was tested only once. All testing sessions were conducted by the same individual. The test administrator was not the investigator. There was no time limit on any of the tests.

Results

Throughout the remainder of this paper, the following codes are used;

V = visual

I = indefinite

H = haptic

1 = Test of Subjective Impressions, (drawing test)

2 = Test of Subjective Impressions, (picture a building test)

3 = Test of Visual vs. Haptical Word Association

The results for the entire group, N = 69 are presented in table 1; the scoring scheme is included in the appendix.

Table 1

Number of individuals in the sample, N = 69 identified by perceptual aptitude and percentages of the group falling into a perceptual category.

Numbers

	1	2	3
V	43	22	25
I	6	37	18
H	20	10	26

Percentages

	1	2	3
V	62.3	31.8	36.7
I	8.6	53.6	26.1
H	28.9	14.4	37.6

In tables 2 and 3, the data is tabulated in the same manner as it was in table 1; however the sample is divided such that table 2 includes the grade 9, N = 38, information, while table 3 includes the grades 10 and 11 information, N = 31.

I	3	21	9
H	9	4	15

Percentages for N = 38

	1	2	3
V	68.4	34.2	36.8
I	10.5	53.9	23.8
H	23.6	10.5	39.4

Table 3

Numbers for N = 31

	1	2	3
V	17	9	11
I	3	16	9
H	11	6	11

Percentages for N = 31

	1	2	3
V	54.9	29.0	35.4
I	9.6	51.6	29.0
H	35.4	19.3	35.4

While scoring test 3, it became evident that many of the respondents did not complete the test i.e. failed to respond to all of the test items. In order to better analyze the results of test 3, the number of visual responses given by each individual were included in the test 3 column of table 4, to the left of the perceptual type. The number of haptic responses are also included in this column, but to the right of the perceptual type initial. In all, 31 individuals failed to respond to all so of the gerunds. In many of these 31 responses, there were less than 12 visual or haptic answers and so, the respondent was identified as being intermediate for this test. However, if the individual did respond with at least 12 visual or haptic responses, even though he failed to respond to all 20 gerunds, he was labeled as being of that perceptual aptitude. Regardless of the case, the number of visual responses was added to yield the continuum location score. This practice

Table 4

Test Results

Number	Test 1	Test 2	Test 3 V	Test 3	Test 3 H	Total Score
1	V	I	12	V	8	27
2	V	H	12	V	6	22*
3	V	H	8	I	9	18*
4	H	I	2	H	15	7 *
5	V	V	12	V	3	32*
6	V	V	9	I	8	29*
7	V	I	2	H	13	17*
8	V	I	10	I	10	25
9	H	I	10	I	10	15
10	V	I	15	V	5	30
11	V	I	16	V	4	31
12	V	I	12	V	8	27
13	V	I	2	H	13	17*
14	V	V	15	V	5	35
15	V	V	0	H	9	20*
16	H	H	6	H	14	6
17	V	V	13	V	6	33*
18	V	I	4	H	12	19*
19	V	I	20	V	0	35
20	V	V	7	I	8	27*
21	V	I	10	I	7	25*
22	H	I	8	H	12	13
23	H	V	3	H	17	8
24	I	I	6	I	7	16*
25	I	I	13	V	7	23
26	V	I	14	V	6	29
27	I	I	15	V	5	25
28	V	V	0	H	19	20*
29	V	V	5	H	15	25
30	V	H	5	H	14	20*
31	H	I	0	H	20	5
32	V	V	16	V	4	36
33	V	I	8	H	12	23
34	H	I	11	I	9	16
35	V	V	6	I	7	26*
36	V	V	2	H	18	22*
37	H	I	14	V	4	19*
38	H	V	4	H	14	14*
39	H	I	10	I	10	15
40	V	I	8	I	5	23*
41	V	V	8	H	12	28
42	H	I	7	H	13	12
43	V	V	1	I	6	21*
44	V	V	17	V	1	37*
45	I	I	6	H	14	16
46	H	H	13	V	7	13

Table 4 Continued

47	I	I	1 H 15	11*
48	V	H	15 V 5	25
49	V	I	13 V 5	28*
50	H	I	14 V 4	19*
51	V	I	12 V 5	27*
52	I	I	7 H 13	17
53	V	H	10 I 9	20*
54	V	V	8 H 12	28
55	H	V	2 H 18	12
56	V	I	11 V 6	26*
57	V	I	9 I 6	24*
58	V	V	1 H 19	21
59	H	I	5 H 15	10
60	H	I	1 H 17	7 *
61	V	I	10 I 8	25*
62	V	H	13 V 7	23
63	H	H	10 I 10	10
64	H	V	6 H 14	16
65	V	I	11 I 9	26
66	H	I	10 I 10	15
67	V	V	11 V 9	31
68	H	H	12 V 8	12
69	V	V	12 V 8	32

* Indicates those subjects who failed give 20 responses on test number 3.

was followed for all groups listed above, N = 69, N = 38 and N = 31. These ommissions were suggested by Lowenfeld (1945), see appendix.

Since Lowenfeld failed to mention how he treated incomplete responses to test 3, it was decided to evaluate the data after the removal of test series in which the respondent failed to complete test 3. It was felt that this removal would limit the possibility of tabulation bias. In the first retabulation (entire group), the sample size reduced from 69 to 38. The results of the tabulation for N = 38 are included in table 5.

Table 5

Numbers for N = 38

	1	2	3
V	19	11	16
I	4	21	7
H	15	6	15

Percentages for N = 38

	1	2	3
V	50.0	28.9	42.1
I	10.5	55.2	18.4
H	39.4	15.7	39.4

The sample, N = 38, was then split as it had been previously, into two groups. The grade 9 group was N = 19 and the grade 10 + 11 group also turned out to be N = 19. Following the split, the data was analyzed according to the previous scheme. The results of the 9 and 10 + 11 split are to be found in tables 6 and 7 respectively.

Table 6

Numbers for N = 19 (grade 9)

	1	2	3
V	11	4	10
I	2	14	3
H	6	1	6

Percentages for N + 19 (grade 9)

	1	2	3
V	57.8	21.0	52.6
I	10.5	73.6	15.7
H	31.5	5.2	31.5

Table 7

Numbers for N = 19 (grades 10 + 11)

	1	2	3
V	8	7	6
I	2	7	4
H	9	5	9

Percentages for N = 19 (grades 10 + 11)

	1	2	3
V	42.1	36.8	31.5
I	10.5	36.8	21.0
H	47.3	26.3	47.3

The range of scores for the total group, N = 69 was 5 to 37, based upon the total visual scores of the respondents. These data can be found in table 8, frequency of scores within the range for N = 69. The mean score for the group, N = 69, was 21.24.

The percentage data was grouped for comparison. Included in this grouping, were only those individuals who completed test 3. The Lowenfeld data was also included in this grouping, see table 9.

Table 8

Frequency of scores within the range for N = 69

Visual Score	Numbers of Ss per Score
5	1
6	2
7	1
8	1
9	
10	2
11	1
12	3
13	2
14	1
15	3
16	4
17	3
18	1
19	3
20	4
21	2
22	2
23	4
24	1
25	6
26	3
27	4
28	3
29	2
30	1
31	2
32	2
33	1
34	
35	2
36	1
37	1

Table 9

Grouping by Percentages

			Tests		
	Groups	Sample Size	1	2	3
VISUAL	Total Group	N = 38	50.0	28.9	42.1
	Grade 9	N = 19	57.8	21.0	52.6
	Grades 10 & 11	N = 19	48.1	36.8	31.5
	Lowenfeld	N = 224	50.0	52.67	48.21
INDEFINITE	Total Group	N = 38	10.5	55.2	18.4
	Grade 9	N = 19	10.5	73.6	15.6
	Grades 10 & 11	N = 19	10.5	36.8	21.0
	Lowenfeld	N = 224	16.52	14.53	18.79
HAPTIC	Total Group	N = 38	39.4	15.7	39.4
	Grade 9	N = 19	31.5	5.2	31.5
	Grades 10 & 11	N = 19	47.3	26.3	47.3
	Lowenfeld	N = 224	32.04	30.36	30.80

Discussion

Wiggin (1953) suggests that the, Test of Visual vs. Haptical Word Response is not the best instrument for differentiating between visual and haptic perceptual aptitudes. The reason given; however, is not that scoring problems exist but that individuals of the visual perceptive aptitude respond generally with 18 visual responses and the haptics with 18 haptic responses. High scores such as these were generally found not to be the case with this study, an important point since test 3 exerts a marked influence upon the relative position an individual occupies on the visual-haptic continuum. This test was also used by Flick (1960) and Franchak (1971); however, neither of these investigators mentioned the scoring problems which have been encountered here, see table 4.

Both Wiggin and Flick (personal correspondence) indicate that the gerund responses should be scored as subjective or haptic responses. Flick further stated that he and Lowenfeld had discussed this problem of the scoring on test 3 several years ago. The results of the Flick-Lowenfeld discussion were that gerund responses to gerunds place the respondent in the certer of the active scene, and therefore deserve a subjective score.

A study of table 9, indicates that there are gross differences between the results Lowenfeld obtained on the picture a building test and those obtained in this study.

In an attempt to ascertain the possible reasons for these differences, questions "B" and "C" of the test were studied. It seemed logical to assume that if an individual were sure of how many floors there were in his chosen building, he would have to have visualized the building as it appeared from the outside. If one were not quite sure or totally unsure of the number of floors, he would probably need to count the floors singly or think of how many he had to climb. This; however, was not the case. The majority of the respondents checking alternative 2 of question "C", checked alternative 1 of question "B", see table 10. Perhaps the majority of people first read the statement and all of its' accompanying questions, then answered question "C" prior to answering question "B". As a result of such a strategy, one would be forced to indicate that he was sure as a response to question "B". Based upon the available data, further analysis was not possible.

Franchak (1971) used the picture a building test with a group of 7th graders and used the same general scoring scheme as was used here. He does not discuss the problem mentioned here, and does not include his baseline data. Aside from this, the scores from this test are lumped with those obtained from other visual-haptic tests, which effectively eliminates any comparison. There are some noticeable differences between the percentages of Lowenfeld and those of Franchak. Whether tests 2 is the cause, remains obscure.

Table 10

Analysis of questions B and C from test 2, picture a building.

No.	B	C	No.	B	C
1	1	2	45	1	2
2	1	1	46	2	2
3	2	1	47	2	2
4	1	2	48	1	1
5	1	3	49	1	2
6	1	3	50	1	2
7	1	2	51	1	2
8	1	2	52	1	2
9	1	3	53	1	1
10	1	2	54	1	3
11	1	2	55	1	3
12	1	2	56	1	2
13	1	2	57	1	2
14	1	3	58	1	3
15	2	3	59	1	2
16	1	1	60	1	2
17	1	3	61	1	2
18	1	2	62	1	1
19	1	2	63	1	1
20	1	3	64	1	3
21	1	2	65	1	2
22	1	2	66	1	2
23	1	3	67	1	3
24	1	2	68	1	1
25	1	2	69	1	3
26	1	2			
27	1	2			
28	1	3			
29	1	3			
30	1	1			
31	2	2			
32	1	3			
33	1	2			
34	1	2			
35	2	3			
36	1	3			
37	1	2			
38	2	3			
39	1	2			
40	1	2			
41	2	3			
42	2	2			
43	2	3			
44	1	3			

A chi-square analysis was made of the percentages of the total group in this study and those obtained by Lowenfeld (1945). The chi-square values obtained were as follows:

Test 1, $x^2 = 3.88$

Test 2, $x^2 = 131.01$

Test 3, $x^3 = 3.2$

The values for tests 1 and 3 failed to exceed the critical value at 0.001; however, the chi-square value obtained for test 2 exceeded the critical at 0.05, 0.01 and 0.001.

Conclusion

Lowenfeld (1945) states that when considering considering visual and haptic perceptive aptitudes, most persons fall somewhere between the antipodes of a continuum. The results of this study are indicative of Lowenfeld's statements, table 8. The 9th, 10th and 11th grade students at Jackman, Maine high school who were tested are indeed distributed over the visual-haptic continuum. Few in this group reside at the antipodes of the continuum.

There is a large significant difference between the results Lowenfeld obtained on test 2 and the results produced by the respondents in this study. There are at least three possible reasons for these results, all of which seem tenable at this point but none of which can be conclusively proven. First, Jackman, Maine is a community which interfaces two cultures, one English speaking and

the other, Canadian French speaking. There is a possibility that a cross cultural bias was introduced, producing the significant differences between percentages of results. Second, if as Lowenfeld suggests, the tendency to tend more toward one of the continuum than the other is innate and if there is a developmental period prior to assuming the adult perceptual aptitude (which ends sometime after age 12), then the possibility exists that as it concerns this test, the respondents have not yet assumed their adult perceptual aptitudes. The sample size was perhaps too small to yield reliable results on this test.

The chi-square results for tests 1 and 3 indicate that for these tests, the sample composition was not decidedly different from Lowenfeld's sample.

The results of this study raise far more questions than they answer. In the future, these tests should be rerun in a similar demographic area, with sufficient controls to ascertain whether a cross cultural bias is in fact in operation. These tests should be administered to a wide variety of age groups in order to see how perceptual aptitude changes with age. Perhaps in the final analysis, the only way to resolve some of these questions will be to clinically identify or categorize people within each age group and then investigate the way in which they respond to these tests.

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Appendix

TESTS FOR VISUAL AND HAPTICAL APTITUDES

Student or Social Security Number_____

The following are a group of psychological tests designed to identify individuals as being either of the visual or haptic perceptive type or an intermediate. There are no correct or incorrect answers to these items, there are only your answers.

1. TEST OF SUBJECTIVE IMPRESSIONS

This is a drawing test, remember that it is also a psychological test and that it does not depend on your ability to draw. The most primitive drawing will give the same insight as the most perfect. Just draw as you would have if no one had asked you to draw. In the space below;

Draw: A table with a glass on top.

Draw: A table with a chess-board on top.

2. TEST OF SUBJECTIVE IMPRESSIONS

Think of a very familiar building (house of a friend, court house, town hall, dormitory), a building which you know from outside and inside, which is neither your home nor your school nor office building.

A. How many floors has the building?_____

B. Were you (1) sure; (2) not quite sure; (3) unsure of the given number?

C. When you thought of the number of floors, did you think of

(1) how many floors you have to climb?

(2) did you count the floors singly?

(3) did you think of the whole building as it appears from the outside?

3. TEST OF VISUAL VS. HAPTICAL WORD ASSOCIATION

Write down your immediate reaction after reading each single word; if nothing comes to mind, leave the space blank.

greeting_____ pulling_____

walking_____ swimming_____

looking_____ riding_____

climbing_____ running_____

talking_____ jumping_____

lifting_____ listening_____

thinking_____ reaching_____

drawing_____ touching_____

catching_____ stretching_____

hearing_____ breathing_____

Scoring

Tests 1 and 2 were scored in the same manner, as follows; if the test identified an individual as being haptic, no points were allowed, an intermediate received 5 points and a visual received 10 points. With test 3, one point was allowed for each visual response. The lowest possible score a person could receive on test 3 was 0, while the highest possible score was 20. On test 3, an individual had to accumulate at least 12 points to be identified as a visual; scores of 11, 10, and 9 fell into the intermediate category and 8 or fewer points identified an individual as being haptic. A tabular account of the scoring is found in the table below.

	1	2	3
V	10	10	12-20
I	5	5	9-11
H	0	0	0-8

If an individual had a perfest visual score he would accumulate a total of 40 points. The total number of points an individual received, determined his relative position on the visual-haptic continuum.