HOME ENVIRONMENT AND EMOTIONAL DISTURBANCE IN RELATION TO THE PERFORMANCE OF INSTITUTIONALIZED MENTAL RETARDATES ON THE PEABODY PICTURE VOCABULARY TEST

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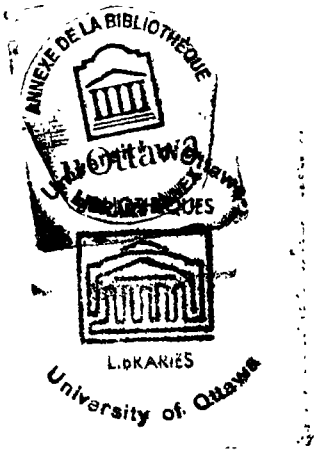

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CURRICULUM STUDIORUM

Gregory J. Soucy was born on May 7, 1938, in Van Buren, Maine. He received the Bachelor of Arts degree in Psychology from Seton Hall University, South Orange, New Jersey, in 1960.

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INTRODUCTION

It has been repeatedly shown that emotionally disturbed children score lower on an individual intelligence scale such as the Wechsler Intelligence Scale for Children or the Stanford Binet Test than do non-disturbed children. It has been claimed that an inadequate home environment, as well as emotional maladjustment, might have a negative effect on an institutionalized mental retardate's intelligence test result. However, other factors besides emotional disturbance and inadequate home environment could account for the lowered test scores: as for instance the presence of items requiring different perceptual abilities, whether such items involve power or speed, and whether the composition of the test requires successive change in mental set. Some of these variables might be eliminated by using a test of homogeneous content requiring a single mental set. Such an instrument is available in the form of a picture vocabulary test.

Up to the present, little has been done in using a picture vocabulary test to compare disturbed retardates with the non-disturbed. Dorothy Shipe, using the Peabody Picture Vocabulary Test compared two such groups as to their relative success on items of human content as opposed to those of non-human content. She found that all groups had more difficulty with the human content items than with the items of non-human content. She also found that the disturbed group had

significantly more difficulty with PPVT items of human content than did the non-disturbed group.

Shipe speculated that past unpleasant interpersonal experiences might have hindered the child's performance on PPVT items of human content because these items unconsciously brought back some of those unpleasant experiences. A temporary state of anxiety might have occurred thereby distracting the subject from the task at hand, and hence resulting in more errors on human items than on items of non-human content. The present study proposes to investigate this speculation. The problem to be studied is whether institutionalized mentally retarded children, classified on the basis of home environment and emotional stability, differ as to their performance on a picture vocabulary test, in identifying a word stimulus with a human content as opposed to identifying a word stimulus with a non-human content.

The present study differs from that of Shipe in two main respects: criteria of home environment are employed in defining the population, and a new rating scale developed by Stott is used to evaluate the emotional stability of the retardates. Both Forms A and B of the Peabody Picture Vocabulary Test were administered, and an item analysis was carried out in an attempt to discover possible reasons for any differences which might occur.

Since Shipe's study is the only one which refers directly to the problem at hand, chapter one, the review of

the literature, will present not only the frame of reference used by Shipe but also some underlying and related considerations. First the problem of emotional disturbance in relation to intelligence test results will be considered. The research of Shipe will then be discussed in detail leading to the present project. Both variables of home environment and emotional stability will be discussed. Studies reviewing the reliability and validity of the PPVT will be cited. A summary of relevant findings and a further elaboration of the problem will complete chapter one.

Chapter two will state the experimental hypotheses, and present the experimental design used to test them. It will describe the methods used in selecting the experimental population and outline the statistical procedures used in analyzing the results.

The results of the study are presented in chapter three, while chapter four discusses these findings and reports the resulting conclusions.

The raw data of the study is presented in Appendix 1. Appendix 2 compares the performance of various groups on PPVT items classified whether their content is human or non-human in nature. The third appendix compares performance of all groups on various sub-classes of PPVT items. A few examples of human and non-human items are given in Appendix 4, and a brief abstract of the present study concludes the report.

CHAPTER I

REVIEW OF THE LITERATURE

In outlining the pertinent literature, the problem of emotional disturbance in relation to intelligence testing will first be discussed. In this context, there will be reviewed in detail a study using the Peabody Picture Vocabulary Test to differentiate emotionally disturbed mental retardates from non-disturbed defectives. The theoretical basis of the proposed project as well as a presentation of the problem will then be given. Home environment, institutionalization, and the term "social deprivation" will be discussed. The personality evaluation of retarded children, the 'Bristol Rating Scale' and related studies will be cited. Literature pertaining to the Peabody Picture Vocabulary Test will be reviewed as well as a summary of relevant findings from the literature.

1. Emotional Disturbance and Intelligence Testing.

As is well known in test administration there are three factors that must be considered in order that a score be valid: first, the test itself must be valid and reliable; second, the test administrator must be competent; and third, the person to be assessed must be in the proper disposition for testing.

Miner[1] mentions three other factors that are responsible for valid intelligence testing--factors which are totally concerned with the person being assessed. The first factor is the physical factor which determines the individual's ability to see, hear, speak, or to perform the necessary motor tasks. These factors are usually considered in choosing the proper test to administer and do not usually present great difficulty. The second factor is a lack of motivation or preoccupation with other thoughts or physical discomfort, and, as well, personality factors such as anxiety, depression, etc., any or all of which may prevent the individual from applying his full ability to the task at hand. The individual then may perform more poorly than he would under other circumstances. The third group of factors makes up the ability the individual brings into the testing situation with him. This, in turn, consists partly of the individual's native potential; that is, his potential, under favorable circumstances, for learning to learn, to reason, to form abstractions, and in general to behave intelligently in life situations. Native potential represents a construct inferred from behavior, rather than directly measured from behavior. Presumably it is neurologically based and therefore relatively

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1 J.B. Miner, Intelligence in the United States, New York, Springer Publishing Co., 1957, quoted by D. Shipe in Discrepancies between the Peabody Picture Vocabulary Test and the WISC as Related to Emotional Disturbance in Children of Retarded and Normal Intelligence, unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1962, p. 5-6.

stable and consistent (barring of course actual tissue damage). As it shows itself in observed behavior, native potential is always modified by the environment of the developing individual, which determines what learning experiences he is exposed to, and by emotional factors, which play a large part in his ability and motivation to take advantage of whatever opportunities exist.

Bayley[2] has stated that observable emotional factors and attitudes present at the time of testing are to some extent related to the test scores, and hence help or hinder the child's intellectual result.

It has been shown by various studies[3,4] that after therapy a disturbed child will probably improve his performance on an intelligence test.

2. Shipe's Study with the Peabody Picture Vocabulary Test.

When assessing the intellectual ability of retarded children diagnosed as emotionally disturbed most examiners use standardized tests such as the Wechsler Intelligence Scale

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2 Nancy Bayley, "On the Growth of Intelligence," American Psychologist, Vol. 10, 1955, p. 805-819.

3 L. Kanner, "Emotional Interference with Intellectual Functioning," American Journal of Mental Deficiency, Vol. 58, 1952, p. 701-707.

4 E.W. Hiller and D. Neswig, "Changes in Intellectual Functions of Children in a Psychiatric Hospital," Journal of Consulting Psychology, Vol. 25, 1961, p. 282-292.

for Children or the Stanford-Binet Intelligence Test. Few studies mention the use of other intelligence tests in assessing emotionally disturbed children. One may question whether a tool, such as the Peabody Picture Vocabulary Test, can be used in differentiating maladjusted retarded children from those assessed as emotionally stable. Dorothy M. Shipe[5] was interested in evaluating the performance of emotionally disturbed mental retardates on the PPVT and on the WISC. She wanted to study the relationship between discrepancies in performance on the PPVT and WISC and indices of the presence, severity, and type of emotional disturbance in institutionalized children, both mentally retarded and of normal intelligence.

To investigate this problem, Shipe devised her own "Behavior Rating Scale" consisting of fifty-three individual items of which twenty-five measure 'withdrawn behavior' and twenty-eight items measure 'acting-out behavior'. Each item was rated on a five-point scale ranging from normality to pathology. The sum total of all ratings was taken from each individual; those subjects with high withdrawn scores were placed in the withdrawn psychotic class, and those with high acting-out scores were placed in the acting-out class. After

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5 D. Shipe, Discrepancies Between the Peabody Picture Vocabulary Test and the WISC as Related to Emotional Disturbance in Children of Retarded and Normal Intelligence, unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1962, vi-78 p.

the scale was validated on ten institutionalized mental retardates, Shipe asked two raters to assess ninety children on the basis of this scale. The withdrawn psychotic group of retarded subjects was chosen by selecting the twenty individuals who scored highest on the withdrawn scale. Twenty of the remaining subjects, who scored highest on the acting-out items, were placed in the acting-out disturbed group. The twenty with the lowest scores on both classes of items were placed in the non-disturbed group. The Wechsler Intelligence Scale for Children (WISC) and the Peabody Picture Vocabulary Test (PPVT), Form B, were administered individually by one of three examiners.

Subsequent comparison revealed that the withdrawn psychotic group did not have more discrepancies in favor of the PPVT than the other two groups. For all subjects the WISC performance IQ's tended to be higher than the WISC verbal IQ's, and there was a significant difference between the retarded and normal subjects in discrepancies obtained. In general, the retarded group had PPVT scores above those of the WISC and the normal group had PPVT IQ's below those of the WISC.

Retarded subjects who had obtained a large discrepancy between PPVT IQ and WISC verbal IQ were likely to be described by ward personnel as being uncooperative, moody, stubborn, angry, hostile, sullen, and generally described as trouble

makers. Individuals whose PPVT IQ's exceeded the IQ received on the WISC Performance Scale were described as untrustworthy, stubborn, hostile, unhappy, sullen, and bad-tempered. It seems likely that the greater degree of verbalization and interpersonal interaction involved on the WISC Verbal Scale makes it more difficult for those disturbed individuals to respond to the verbal items correctly.

Shipe[6] also was interested in knowing whether emotionally disturbed mental retardates had more difficulty with PPVT items classified as human than with PPVT items classed as non-human. She found that all subjects had more difficulty with the human content items than with the PPVT items of non-human content. But it was also found that the disturbed subjects had significantly more difficulty (.05 level) with items of human content than did the subjects rated as non-disturbed. Shipe explained her results by stating:

> More specifically one may ask what accounts for the relationship of emotional to intellectual performance. Here it seems reasonable to assume that a history of disturbed interpersonal relationships may play a role. Such a history could affect intellectual performance in at least two ways. First the interpersonal stimuli or human content in the testing situation may arouse anxiety and thus lower the efficiency of performance. Second, the history of interpersonal difficulty may have led the child to avoid these situations where interpersonal and human-related knowledge would likely be acquired. Thus, even if the individual was not anxious in the testing situation, the repertory of human related learning may be limited. Consequently, in either case, the measured intellectual deficit should be greater on those tasks associated with interpersonal and human stimuli.[7]

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6 Ibid., p. 25.

7 D. Shipe, R. Cromwell and L Dunn, "Responses of Emotionally Disturbed and Non-disturbed Retardates to PPVT Items of Human Versus Nonhuman Content," in Journal of Consulting Psychology, Vol. 30, No. 5, 1966, p. 439-440.

From this conclusion is derived the theoretical basis of the present research. The specific problem to be investigated is whether institutionalized mentally retarded children, when classified according to home environment and emotional disturbance, differ in their ability to identify word stimuli of a human content, as opposed to words of non-human content in a picture vocabulary test.

Shipe's study investigated emotionally disturbed children and their responses on human and non-human items on the Peabody Picture Vocabulary Test, Form B. The present study will not only investigate emotionally disturbed children but will take into account their home environment as well. A more structured rating scale in evaluating emotionally disturbed children will be employed. Both Forms A and B of the Peabody Picture Vocabulary Test will be used, and an item analysis on the PPVT items of human and non-human contents will be computed.

Before the project is presented and discussed in detail, it is advisable that the variables of home environment and emotional disturbance be evaluated. The literature pertinent to the PPVT will also be reviewed in a separate section.

3. Home Environment and Institutionalization.

The influence of institutionalization and home environment on the personality development of a child has been investigated by several authors. Some research findings with retardates have indicated very clearly that institutionalization is associated with a decrement on intelligence test results in several respects. Lyle[8] found that institutionalized mental retardates had a lower verbal score than did the non-institutionalized mental retardates, but there was no difference in their performance scores. Such differences were more noticeable when the subjects were mongoloids. Cutts and Lane[9] found similar results among institutionalized retardates regardless of the duration of their confinement. Schlanger,[10] in another study, reports that institutionalization reduced the level of the child's abstracting ability, while Badt[11] states that institutionalization interferes with the child's

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8 J. Lyle, "The Effect of an Institution Environment upon the Verbal Development of Imbecile Children: 1. Verbal Intelligence," Journal of Mental Deficiency Research, Vol. 3, 1959, p. 122-128.

9 R.A. Cutts and M. Lane, "The Effect of Hospitalization on Wechsler Bellevue Subtest Scores by Mental Defectives," American Journal of Mental Deficiency, Vol. 51, 1947, p. 391-393.

10 B.B. Schlanger, "Environmental Influences on the Verbal Output of Mentally Retarded Children," Journal of Speech and Hearing Disorders, Vol. 19, 1954, p. 339-345.

11 M.I. Badt, "Levels of Abstraction in Vocabulary Definitions of Mentally Retarded School Children," American Journal of Mental Deficiency, Vol. 63, 1958, p. 241-246.

ability to conceptualize. Abel[12] mentions that institutionalization increases the child's orientation towards punishment.

Goldfarb[13] compared fifteen institutionalized children of supposedly normal intelligence, with fifteen children placed in foster homes. The institutionalized were admitted at an average age of five months and then transferred to a foster home at an average age of three years and eleven months. The control group lived in foster homes all their lives. The children were studied at a mean age of twelve years, and it was found that the institutionalized children had lower IQ scores as well as lower Vineland Social Maturity scores. They also had more difficulty in forming normal interpersonal relationships.

On the other hand, Beres and Ober[14] obtained different results when they investigated thirty-eight young adults who were separated from their mothers in infancy and institutionalized for at least four years. They found that the young adults had made some degree of favorable social adjustment.

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12 T.M. Abel, "Moral Judgments Among Subnormals," Journal of Abnormal and Social Psychology, Vol. 36, 1941, p. 378-392.

13 W. Goldfarb, "Emotional and Intellectual Consequences of Psychologic Deprivation in Infancy, A Re-evaluation," in P. Hoch and J. Zubin, Psychopathology of Childhood, New York, Grune and Stratton Inc., 1955, p. 109.

14 D. Beres and S. Ober, "The Effects of Extreme Deprivation in Infancy on Psychic Structure in Adolescence: A Study in Ego Development," The Psychoanalytic Study of the Child, Vol. 5, New York, International Universities Press, Inc., 1950.

Bowlby[15] states that severe deprivation of maternal care before the ages of two or three, either of physical absence or psychological rejection may damage the personality development of the child. In a study to investigate this hypothesis, he found differences in the emotional adjustment of children with maternal deprivation when compared to children in adequate home environments. The differences, although not high enough to substantiate his hypothesis, did favor children raised in a non-separated family environment.

Casler[16] does not emphasize maternal deprivation but suggests that the lack of proper sensory stimulation might have a longer lasting effect on a child. Clark and Clark,[17] referring to variables which might have a diverse effect on a child's emotional adjustment, lists social isolation, cruelty and neglect, institutional upbringing, adverse child-rearing practices, and separation experiences, in about that order of severity of influence on the child.

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15 J. Bowlby, M. Ainsworth, Mary Barton and D. Rosenbluth, "The Effects of Mother Child Separation, A Follow-up Study," British Journal of Medical Psychology, Vol. 29, 1956, p. 211-247.

16 L. Casler, "Maternal Deprivation: A Critical Review of the Literature," Monogram Social Research Child Development, Serial No. 80, Vol. 26, 1961, p. 2, quoted in A. Baumeister, Mental Retardation, Chicago, Aldine Publishing Co., 1967, p. 120, quoted in Boyd R. McCandless, Children: Behavior and Development, Toronto, Holt, Rinehart and Winston, Inc., 1967, p. 159-160.

17 A.D.B. Clark and A.M. Clark, "Some Recent Advances in the Study of Early Deprivation," Child Psychology and Psychiatry, Vol. 1, 1960, p. 26-36, quoted in B. McCandless, Children: Behavior and Development, Toronto, Holt, Rinehart and Winston, Inc., 1967, p. 160.

It has been concluded by Rheingold and Bayley[18] that a child will have adjustment problems if he is separated from his mother during the ages of six to eighteen months. Provence and Lipton[19] found that language development is the first area to be handicapped by infant maternal separation. They also found a sharp drop in developmental quotient among institutionalized infants aged forty to fifty-two weeks, whereas similar children placed in foster homes evidenced only a slight decrease in developmental quotient.

The concept of social deprivation has been extensively developed by Zigler in a series of interrelated research projects. Zigler[20] found greater persistence in a socially reinforcing task among institutionalized retarded children who had come from a socially deprived home background. After two years the same subjects were re-examined by Zigler and Williams[21] and it was found that all persisted longer at the time of re-examination than they had on their first study.

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18 H.L. Rheingold and N. Bayley, "The Later Effects of an Experimental Modification of Mothering," Child Development, Vol. 30, 1959, p. 363-372.

19 S. Provence and R. Lipton, Infants in Institutions, New York, International Press Inc., 1962, p. 171.

20 E. Zigler, "Social Deprivation and Rigidity on the Performance of Feebleminded Children," Journal of Abnormal and Social Psychology, Vol. 62, 1961, p. 413-421.

21 E. Zigler and J. Williams, "Institutionalization and the Effectiveness of Social Reinforcement: A Three-year Follow-up Study," Journal of Abnormal and Social Psychology, Vol. 66, 1963, p. 197-205.

The increase in persistence was greater for children from a non-deprived home environment than for children from socially deprived homes. From these results, Zigler and Williams drew the conclusion that institutionalization is more socially depriving for subjects from an already socially deprived background.

In another study, Green and Zigler[22] found that institutionalized retarded children persist longer on a monotonous task than non-institutionalized retarded children. Zigler[23] also found that children placed in special schools for the mentally retarded persisted on a task for a longer period than children staying at home. In this study Zigler gave all verbal reinforcement as well as individual attention, in order to motivate the subjects in responding to the tasks.

In a different kind of study, Butterfield and Zigler[24] investigated two types of institutions, and concluded that different institutions might have different effects on

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22 C. Green and E. Zigler, "Social Deprivation and the Performance of Retarded and Normal Children on a Satiation Type Task," Child Development, Vol. 33, 1962, p. 499-508.

23 E. Zigler, "Social Reinforcement, Environment and the Child," American Journal of Orthopsychiatry, Vol. 33, 1963, p. 614-623.

24 E. Butterfield and E. Zigler, "The Influence of Differing Institutional Social Climates on the Effectiveness of Social Reinforcement in the Mentally Retarded," American Journal of Mental Deficiency, Vol. 70, 1965, p. 48-56.

retarded children. That is, children residing in a cold, restrictive institution show a higher motivation for adult support and approval, than children residing in an institution having a warm, accepting, social climate.

From these conclusions, Butterfield[25] believes that children need a lot of adult attention. Many institutions cannot give each child all the adult attention that he needs, unless a totally new system of training is adopted by the institutions. This system of training must focus on the child as an individual person; ~~by-whom~~ the adult is there to assist the child in learning to cope with his everyday confrontation. If the child does not receive the added counseling, then he will rely less on his own ability and assets. Most retardates know that they cannot rely solely on themselves and have to go to an adult counselor for reassurance. He believes that there is a need for more positive interaction between the adult counselors and the residents of an institution.

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25 E. Butterfield, "The Role of Environmental Factors in the Treatment of Institutionalized Mental Retardates," in Baumeister, op. cit., p. 132-133.

4. Rating Scales and the Bristol Social Adjustment Guide.

Gallagher[26] believes that the measurement of personality development in the mentally retarded child has lagged far behind the measurement of his intellectual skills and social maturity. What he finds lacking is an instrument that is as easy to apply and interpret as the Taylor Anxiety Scale, or F Scale, or WISC.

Gallagher then cites three methods used in personality evaluation of a retarded child. The first method is the self report. The person evaluated by this method must be able to read, at least at the third grade level, and he must be sufficiently perceptive and honest about his own inner feelings to report pertinent information. The mentally retarded child will not be able to meet all three of these requirements for a valid self report personality evaluation. The second method of personality measurement is projective technique. Retarded children usually give a low verbal production. They do not give deep unseated feelings but only give an immediate reaction to the stimulus, so the projective technique with the retarded is only as good as the clinician who interprets it. The third method of personality assessment for the mentally retarded child is the observation

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26 J. Gallagher, "Measurement of Personality Development in Preadolescent Mentally Retarded Children," American Journal of Mental Deficiency, Vol. 64, 1949, p. 296-301.

technique. In this method the examiner questions not the child himself but others who have worked with the child. In other words, the child can be placed in a standardized environment and he is observed on how he approaches the problems he faces. Therefore, this method is subjected to the bias and prejudices of the untrained observer, and by the shaking assumption that the sample of behavior was typical.

The solution to the problem as stated by Gallagher is that, since the child is not able to relate verbally his true feelings, then one must rely on the observers of a child. These observers must report actions rather than interpretations of the actions. The people rating the child must be observers who know the child thoroughly and have worked with the child for an extended period of time.

The type of rating suggested by Gallagher can be found by the selection of a proper rating scale, because an objective rating scale appears to be the best available method for identifying emotional disturbance among mentally retarded children. Shipe's[27] Behavior Rating Scale might be a useful scale but no norms were given. Dreger's[28] Behavior Classification proved to be insufficient. The Devereux Child

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27 Shipe, op. cit., p. 58.

28 R. Dreger, P. Lewis, K. Miller, T. Rick, M. Reid, D. Overlode, C. Taffel and E. Flemming, "Behavioral Classification Project," Journal of Counseling Psychology, Vol. 28, No. 1, 1964, p. 1-13.

Behavior Rating Scale[29] was tried in a pilot study and proved to be unreliable, as the rater had to compare the retarded child to a normal child on a five- to eight-point continuum. The range for error was too wide, and the term "normal" proved to be too ambiguous. The Stott Bristol Social Adjustment Guide No. 3: The Child in Residential Care [30] seems to be the best rating scale available for the personality evaluation of a retarded child. On this scale the rater does not have to compare a child with normal children, but simply underlines the items that are pertinent to the child being evaluated.

Stott[31] states in his introduction that the Bristol Social Adjustment Guides offer a method for detecting and diagnosing maladjustment, unsettledness, or other emotional handicaps in children of school age. They constitute a clinical instrument by which the psychologist is furnished with a comprehensive report and systematic interpretation of how the child behaves and reacts in real life situations.

The scale consists of 240 items which measure withdrawn behavior, hostility towards adults and children,

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29 G. Spivack and J. Spotts, Devereux Child Behavior Rating Scale Manual, Devon, Penn., Devereux Foundation, 1966, 31 p.

30 D.H. Stott, The Social Adjustment of Children (Manual to the Bristol Social Adjustment Guides), third ed., London E.C. 4, University of London Press Ltd., 1966, 71 p.

31 Ibid., p. 7.

unforthcomingness, attention seeking from adults and other children, nervous dispositions, knavery or positive rejection of an adult and his moral values, unsettledness, and minor maladjustment, and depression and restlessness.

In constructing the scale, the empirical method of item selections was used, as the authors accumulated all potential items of child maladjustment. These were charted and then modified by others. The classifications had to be based on understanding rather than just correlations. All data were visibly presented on charts so as to help with the inductive process. On the first trial the data were used on 168 children, then, after all items were screened, the items were tried on 335 different children. And, if the incidence of a sample of behavior was very great among the maladjusted children, sparse among the stable, and midway between the two in the intermediate group of unsettled, then the item could be accounted as a good indicator of maladjustment. After this test quite a few items were dropped, and a final test of the items was done using 613 children, aged five to fifteen. A few more items were dropped, leaving 111 items significant at .001 level, while forty-four items were significant at .05 to .01 levels, and forty items proved non-significant. Stott, in exploring the Bristol Social Adjustment Guide, states:

> It has been the aim of this study to attempt to objectify and to quantify phenomena which in the past have mainly been within the preserves of literature, clinical practice and general worldly wisdom. In the present study the considerable elements of subjectivity to which the study of human behavior lends itself have been minimized by asking the observer to report, not upon inferred traits or qualities, but upon 'bits of behavior' or upon emotional expression interpretable at the level of animal instinct.
> The alternative adopted in this study has been to derive concepts about the underlying factors empirically from the study of observed behavior.[32]

Stott's study is an attempt to detect the retarded child's more basic response patterns and to discover the modes of his conditioning. The child continually has emotional experiences and these experiences can be used for predictive purposes.

In research projects reviewed, a combined Stott score was employed, that is, subjects having a total score of 0-4 were labeled stable; a score of 5-9 indicated quasi-stable; a score of 10-19 indicated an unsettled person; and those with a score of 20 plus were labeled maladjusted. Stott[33] himself, however, does not adhere to this classification method. He feels that a total maladjustment score does not indicate anything, as he states that a withdrawn person is not synonymous to a hostile person. But for general research these terms can be employed, but caution has to be used.

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32 Ibid., p. 46

33 Ibid., p. 44

There have been quite a few studies concerned with Stott's rating scale, but few have been done in North America. Different uses of the scale have been found, ranging from the selection of withdrawn children to the differentiation of poor readers from good readers. The scale has also been used in evaluating delinquents. Petrie[34] had a warden evaluate twenty-three delinquents as most disturbed, disturbed, and non-disturbed; these subtests were then evaluated on the Bristol Social Adjustment Guide, and he found the differences significant at the two per cent level of probability. In a similar study, Seidel[35] found the Bristol Guide useful in differentiating delinquents from non-delinquents.

Chazon[36] found marked differences in social adjustment between educationally subnormal children and their normal controls. The mean score for educationally subnormal children was 17.1, while the mean score for the control group was 8.9. The predominant type of behavior disturbance present among

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34 I.R.J. Petrie, "Residential Treatment of Maladjusted Children: A Study of Some Factors Related to Progress in Adjustment," British Journal of Educational Psychology, Vol. 32, 1962 , p. 29-37, quoted by Stott, The Social Adjustment of Children, p. 22-23.

35 C.F. Seidel, quoted by Stott, The Social Adjustment of Children, p. 23.

36 M. Chazon, "Maladjustment, Attainment, and Sociometric Status," Collegiate Faculty of Education Journal, Swansea, p. 4-7, quoted by Stott, The Social Adjustment of Children, p. 29-30, 1963

mentally retarded children according to Stott[37] was "unforthcomingness" or an inability to adjust to new people and new ideas. A relationship between social adjustment and home background for 117 children, aged 7 - 11, was obtained by Carney.[38] Of the eighty-seven children exposed to familial stress, fifty-seven or 65% had a Stott score of sixteen plus, while thirty-four or 85% of the forty controls had a Bristol score of nine or below. Cooper,[39] in an unrelated study in Australia, found that boys had a higher Stott score than girls; 62.6% of the boys had a plus twenty score, while only 45.5% of the girls had a maladjusted score. No reference was made to the source of the population. Belfield,[40] in 1963, used a sociometric test and chose the seventy least accepted, from twelve classes totalling 479 school children of a mean age of 10 years, 9 months. The mean Bristol Social Adjustment Guide scores, in which those

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37 D. Stott, "Delinquency Proneness and Court Disposal of Young Offenders," British Journal of Criminology, Vol. 4, 1963, p. 37-42, quoted in Stott, Social Adjustment of Children, p. 30.

38 P. Carney, A Study of the Relations Between Home Background, Attainments and Social Adjustment Among Children in a Junior School, unpublished Master's of Education thesis, University of Manchester, England, quoted by Stott, The Social Adjustment of Children, p. 30-31, 1963.

39 L. Cooper, R. Eacott, M. Howitt and J. Tranberg, The Social Adjustment of Children in Institutions in Brisbane, unpublished study, University of Queensland, quoted by Stott, The Social Adjustment of Children, p. 24, 1961.

40 D.J. Belfield, The Social Adjustment of Most Accepted and Least Accepted Children in Junior Schools, unpublished Master's of Education thesis, University of Manchester, England, quoted by Stott, The Social Adjustment of Children, p. 31, 1963.

indicating definite maladjustment were given double weighting, were as follows: the most accepted had a mean score of 5.6, while the least accepted had a mean score of 22.0. Thirty-seven of the seventy had a maladjusted score, while fifty-four of the most accepted had a stable score. In a further study, Belfield,[41] in 1964, visited the schools and discussed problems of social adjustment with the teachers. After a year he completed the guides a second time for sixty-five children in the least accepted sociometric category. The mean Social Adjustment Guide score was down to 13.75. A critical ratio of 3.38 was obtained between the two mean scores, and this proved significant at the .001 level.

5. The Peabody Picture Vocabulary Test.

The Peabody Picture Vocabulary Test constructed by Lloyd M. Dunn[42] was designed to provide an estimate of a subject's verbal intelligence through his oral vocabulary. It is composed of 150 tables, consisting of four pictures per table; and the testee has to pick one picture that corresponds to the stimulus word. It is used with the mentally retarded as well as normal school children. The sum total of the

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41 Ibid., p. 31.

42 Lloyd Dunn, Expanded Manual for the Peabody Picture Vocabulary Test, Minneapolis Minn., American Guidance Service, 1965, 51 p.

items passed is the total raw score. A mental age, percentiles, and IQ scores can be derived from this raw score. A basal age is obtained when the subject passes eight complete items, and the ceiling is obtained when the subject fails six out of eight items. Of the 186 items used with mentally retarded children, 105 are of non-human content and eighty-one are of human content.

The advantages of the PPVT are many: it has a high interest value thereby facilitating the establishment of good rapport. Extensive specialized preparation is not needed for its administration which requires approximately ten to fifteen minutes. Scoring is completely objective and quickly accomplished in one or two minutes. It is completely untimed, and thus is a power rather than a speed test. No oral response is required and therefore it can be given easily to a handicapped child. Alternate forms of the test are provided to facilitate repeated measures, and the test covers a wide range from two-and-a-half years to adult.

Dunn[43] standardized the test on 4,012 cases with 384 at the eleven-year level, and ninety-two at the three-year level. Only white children living around the Nashville, Tenn. area were included, but different procedures were used in selecting the population.

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[43] Ibid., p. 27.

Reliability studies found correlations ranging from fifty-four[44] to ninety-seven.[45] The standardizing group[46] showed a correlation range of .67 to .84. Norris[47] gave alternate forms of the PPVT to sixty fifth-graders in a counterbalanced order and found no significant difference between the two forms.

Correlations between the Peabody Picture Vocabulary Test and other intelligence tests have averaged from good to fair. Dunn and Brooks[48] tested 371 educable mental retardates from age six-and-a-half to eighteen years. Stanford-Binet and WISC results were obtained one to three years earlier. The correlation between the WISC and PPVT was found to be .61. Correlation between the PPVT and the mental age of thirty-seven students previously tested on the Stanford-Binet was .76; but when the Stanford-Binet IQ was employed, the correlation dropped to only .36.

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44 J.W. Moss, An Evaluation of the Peabody Picture Vocabulary Test with the PMA and 1937 Stanford-Binet on Trainable Children, unpublished paper, Urbana, Ill., University of Illinois, Institute for Research on Exceptional Children, 1962, quoted by Dunn, op. cit., p. 31.

45 L. Dunn and R.K. Harley, "Comparability of Peabody, Ammons, Van Alystyne, and Columbia Test Scores with Cerebral Palsied Children," Exceptional Children, Vol. 26, 1959, p.70-74.

46 Dunn, op. cit., p. 30.

47 R. Norris, J. Hottel and S. Brooks, "Comparability of Peabody Picture Vocabulary Test Scores under Group and Individual Administration," Journal of Educational Psychology, Vol. 51, 1960, p. 87-91.

48 L. Dunn and S. Brooks, "Peabody Picture Vocabulary Test Performance of Educable Mentally Retarded," Training School Bulletin, Vol. 57, 1960, p. 35-40.

Burnett[49] found a correlation of .43 between the Stanford-Binet and Peabody IQ's. Two hundred and thirty-eight educable mental retardates aged 8 - 21 were used. The correlation for the same subjects between the PPVT and Wechsler-Bellevue full-scale IQ was .40.

Mein[50] used eighty mentally retarded patients aged from 10 - 30 years. The mean mental age of the subjects was fifty-eight months, with a standard deviation of fourteen months. The correlation of the mental ages of the Stanford-Binet and the Peabody was found to be .71. Below a mental age of fifty-five months, the mental age on the Peabody is lower than the Binet; at a mental age of 60 - 71 months there is little difference between the two means, but above the mental age of seventy-one months the mental age on the Peabody is higher.

Kicklighter[51] gave the Peabody Picture Vocabulary Test and the Stanford-Binet Test to sixty-six educable mentally retarded aged from 6½ - 16½ years. The mean IQ obtained from

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49 A. Burnett, "Comparison of the PPVT, Wechsler-Bellevue, and Stanford-Binet on Educable Retardates," American Journal of Mental Deficiency, Vol. 69, 1965, p. 712-715.

50 R. Mein, "Use of the Peabody Picture Vocabulary Test with Severely Subnormal Patients," American Journal of Mental Deficiency, Vol. 67, 1962, p. 269-273.

51 R. Kicklighter, Comparison of PPVT and RSB Test Scores of Educable Mentally Retarded Children, Atlanta, Ga., State Department of Education, 1964, quoted by Dunn, op. cit., p. 36.

the Stanford-Binet was 73, while the mean IQ score obtained from the Peabody was also 73. Correlating the mental ages obtained from both scales yields a coefficient of .87, whereas when calculated on the basis of IQ, the coefficient dropped to .71.

Kaufman,[52] McArthur and Wakefield,[53] and Wells[54] all found higher correlations between the mental ages obtained from the Peabody Picture Vocabulary Test and the Stanford-Binet or Wechsler mental ages. However, when the IQ's obtained of both tests were used, the correlations were lower.

Hamill and Irwin[55] gave the Peabody Picture Vocabulary Test to 245 educable retardates (IQ +50) and 141 retardates (IQ -50) aged from six to fifteen years. In comparing the PPVT with the Stanford-Binet he took results from the files of a past previously administered Stanford-Binet and he found

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52 H. Kaufman and J. Ivanoff, "Evaluating the Mentally Retarded with the Peabody Picture Vocabulary Test," American Journal of Mental Deficiency, Vol. 78, 1968, p. 396-398.

53 C. McArthur and H. Wakefield, "Validation of the PPVT with the Stanford-Binet LM and the WISC on Educable Mental Retardates," American Journal of Mental Deficiency, Vol. 73, 1968, p. 465-467.

54 D. Wells and D. Pedrini, "Relationships Between the Stanford-Binet, Form L-M, Goodenough Harris, and PPVT with Institutionalized Retardates," American Journal of Mental Deficiency, Vol. 72, 1967, p. 412-415.

55 D. Hamill and O. Irwin, "Factors Affecting Equivalency of PPVT and Revised Stanford-Binet when used with Mentally Subnormal Children," American Journal of Mental Deficiency, Vol. 71, 1967, p. 793-796.

a close similarity with the test data as applied to the trainable retardates; i.e., when the mental ages were no greater than six and the chronological ages were no greater than ten. However, as the chronological age increased, the difference between the two intelligence tests also increased, until at fourteen years the difference of mental ages was 1.3 years.

Thus, it was found that the Stanford-Binet and Peabody tests were more comparable with trainables than educables.

To find out the reason for this discrepancy, these authors divided their sample into three groups; a non-brain-damaged or familial type group, a brain-damaged group, and a non-classified or etiology unknown group. When the brain-injured group was excluded, the trainable and educable retardates could not be differentiated on the basis of their test scores.

Dunn and Hottel[56] tested 229 trainables on the Peabody and correlated these results with a Stanford-Binet test administered from six to twenty-four months before. The mental age correlation between the two tests was .66. Correlation between order of presentation and order of difficulty

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56 L. Dunn and J.R. Hottel, "Peabody Picture Vocabulary Test Performance of Trainable Mentally Retarded Children," American Journal of Mental Deficiency, Vol. 65, 1961, p. 448-452.

was .98, and mental age correlation between Form A and Form B was .84.

Dilorenzo and Brady[57] summarize most of the criticisms made of the PPVT in their paper in which they give the major limitations of the Peabody Picture Vocabulary Test. One limitation is the use of large six-month age intervals in the table of norms. They report that as many as thirteen IQ points separate adjacent age groupings. There is a large discrepancy between the Peabody Picture Vocabulary Test IQ scores and other established tests of intelligence. These authors found a mean difference of 8.83 IQ points between the Stanford-Binet and Peabody for 563 preschool children, in spite of a correlation of .79 for Form A and .78 for Form B. A further limitation of the PPVT is a lack of comparable growth required in moving from one age level to another. That is, the PPVT assesses only one intellectual function of the child, but when one tries to maintain an IQ of 100 for a three- to four-year-old, or a three-and-a-half to four-and-a-half-year-old child, or a four-and-a-half to five-and-a-half-year-old child, it requires raw score gains of 13-10-10 respectively; whereas, from the ages of four to five only an eight-point gain is needed. A fourth limitation

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57 L. Dilorenzo and J. Brady, "Use of the Peabody Picture Vocabulary Test with Pre-school Children," Psychological Reports, Vol. 22, 1968, p. 247-251.

of the Peabody states that the IQ tables are not equivalent for a given test score at a specified age level. For example, a four-year-old has a raw score of 32, his IQ score is 85; but a five-year-old with the same raw score of 32 has an IQ score of 67, which gives him a difference of eighteen points. Again, a four-year-old has a raw score of 52, his IQ is 114; but a five-year-old with a 52 raw score has an IQ score of 103, which gives him a loss of eleven points. Therefore, the tables objectively report an IQ loss of eight points greater for the below-average child than for the above-average child. From these limitations the authors have concluded that the use of Peabody Picture Vocabulary Test IQ data in the evaluation of pre-school children's programs could produce invalid results.

6. Summary of Relevant Findings from the Literature.

As mentioned in the review on the Peabody Picture Vocabulary Test, there have not been many studies using the PPVT in assessing or evaluating personality disorders. Most of the studies using the PPVT are concerned with the test's reliability and validity. The Stanford-Binet and the Wechsler Intelligence Scale for Children have been used with emotionally disturbed children and distinctive results have been found.

It has been found that emotionally disturbed children[58] score lower on intelligence tests than do non-emotionally disturbed children. It has also been shown that children treated successfully for their emotional disturbance will improve their IQ ratings.

When the Stanford-Binet and Wechsler Intelligence Scale for Children are given, the testee is faced with an unlimited number of unrelated tasks. For one item he has to use inductive reasoning, while deductive reasoning is needed for the next item. He has to use his practical knowledge, count, and solve simple arithmetic problems. He has to handle different test materials and, in general, do many unrelated tasks. The testee is also subjected to timed items which might hinder his test scores. So, when one receives a low score it is quite difficult to explain why the score was low. One wonders how an emotionally disturbed retarded child will react if he is administered a test which has eliminated the above variables. Will his test score be any different than the score of a non-disturbed mentally retarded child?

More specifically, Shipe[59] found that emotionally disturbed retardates had more difficulty in identifying human

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58 M. Levine, "Psychological Testing of Children," in Review of Child Development Research, Vol. Two, New York, Russell Sage Foundation, 1966, p. 281-284.

59 Shipe, op. cit., p. 50.

content items than did non-disturbed children. She suggested that, in the case of an emotionally disturbed child, a past history of troubled interpersonal relationships might have interfered with efficiency in responding to PPVT items with human content. It is felt that when a disturbed child is faced with a human item on the PPVT he becomes slightly anxious, and therefore is distracted from the stimulus word and, in accordance, gives an incorrect response. When the child is faced with a non-human item, there is no tenseness or distraction and therefore the child is more apt to come up with a correct response. Shipe also mentions that a history of interpersonal difficulty may have led the child to avoid these situations where interpersonal and human-related knowledge would likely be required.

The present study is a direct outgrowth of the foregoing statement. The specific problem to be investigated is whether institutionalized mentally retarded children, when classified according to home environment and emotional disturbance, differ in their ability to identify word stimuli of a human content as opposed to those of a non-human content in a picture vocabulary test.

CHAPTER II

EXPERIMENTAL DESIGN

The previous chapter presented a review of the literature upon which this study is based. It also stated the problem to be investigated. The present chapter will state the null hypotheses, present details of the subjects to be investigated, and present techniques of statistical analysis. The item analysis used with the Peabody Picture Vocabulary Test will be discussed in detail.

1. Null Hypotheses.

In null form the experimental hypotheses of the present study are:

> Using as a criterion measure the difference between incorrect responses on human content items and incorrect responses on non-human content items on the Peabody Picture Vocabulary Test,
>
> 1) there is no significant difference in the responses of institutionalized retardates classified according to the adequacy of their home environment;
>
> 2) there is no significant difference in the responses of institutionalized retardates classified according to emotional disturbance;
>
> 3) there is no significant difference in the responses of institutionalized retardates classified simultaneously as to adequacy of home environment and emotional disturbance.

2. Population.

The subjects used in the experiment are all retarded children living at the Rideau Regional Hospital School, in Smiths Falls, Ontario. The residents at the hospital were classified at a medical conference whereby the Superintendent of the hospital school employed the classification used by the American Association on Mental Deficiency. The subjects for this study were: a classification of either cultural familial, undetermined etiology, childhood psychosis, or primary behavior disorder; and their birthday had to fall between January 1, 1956, and December 31, 1961. Younger subjects could not be used because their production on the PPVT would have been too small for test analysis; older subjects would have given a too wide age range for investigation. Out of the whole hospital population of twenty-five hundred residents, 107 residents satisfied the two criteria of classification and age.

The next step was to classify these 107 residents according to their home environment, either as adequate or inadequate homes. The criteria for inadequate home environment was adopted from Zigler[1] who states that a child comes from an inadequate home environment if:

1) he comes from an orphanage or has lived in several foster homes;

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1 E. Zigler, The Effect of Pre-institutional Social Deprivation on the Performance of Feebleminded Children, unpublished doctoral dissertation, University of Texas, Austin, Texas, 1958, p. 80-84; table on p. 83.

2) his parents are divorced or separated;

3) the child was abused (physical punishment, sex play) or neglected (inadequately fed or clothed), to the extent that legal action was taken to remove him from his home;

4) the child comes from his original home in which he experienced considerable abuse or neglect, but no legal action was taken to remove the child from the home;

5) the mother or father is institutionalized (mental hospital, colony for the feebleminded, or jail).

If the file described any one of these five criteria, then the child was placed in the inadequate home environmental class. If none of these criteria was present, and the child went on frequent home probations, and written correspondence with his family was established, then the child was placed in the adequate home environment class.

Out of 107 residents in the appropriate sample fulfilling the two basic requirements for the study, ninety-three were classified according to home environment. Fourteen subjects were rejected because of insufficient data to substantiate their previous diagnosis as well as lack of information in order to evaluate objectively the adequacy of their home environment. Of the ninety-three residents chosen for study, forty-six were placed in the adequate home environment group, while forty-seven were placed in the inadequate home environment group.

All were individually administered both forms of the Peabody Picture Vocabulary Test[2] in random order. Both forms were given in order to increase the number of test items and

2 Lloyd Dunn, Expanded Manual for the Peabody Picture Vocabulary Test, Minneapolis, Minn., American Guidance Service, 1965, 51 p.

their subsequent categorizations. At the same time two members of the ward staff, one senior (one with more work experience with retardates) and one junior (one still in training) rated each child on Stott's Bristol Social Adjustment Guide No. 3: The Child in Residential Care.[3] Using a combined rating on this scale, a total score of thirty-nine or above indicated emotional disturbance, while a total score of twenty-four or below indicated emotional stability.

Out of the ninety-three subjects classified according to home environment, sixty were selected by the Bristol Social Adjustment Guide for investigation. Thirty had scores of 39 and above and were placed in the emotionally disturbed group, while thirty had scores of 24 and below and these were placed in the emotionally stable group.

In the final analysis, the two major classes of emotional stability and adequacy of home environment were sub-divided into four groups with fifteen persons each. These groups were: Inadequate Home Emotionally Disturbed (IHD), Adequate Home Emotionally Disturbed (AHD), Inadequate Home Emotionally Stable (IHS), and Adequate Home Emotionally Stable (AHS).

Table I provides an over-all description of the various subgroups involved in the study. It gives the means

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3 D.H. Stott, The Social Adjustment of Children, Warwick Lane, London E.C. 4, University of London Press, 1966, 71 p.

Table I.-

Means and Standard Deviations of Total Groups and Subgroups on: PPVT IQ Scores, Stott's Rating Scale, Chronological Age, and Length of Institutionalization.

Group[a]	N		PPVT IQ's Form A	PPVT IQ's Form B	Stott Ratings Rater A	Stott Ratings Rater B	C.A. Yrs.	Years in Institution
IHD	15	Mean	32.5	40.5	27.3	27.3	11.4	4.75
		S.D.	25.9	20.8	7.6	9.3	2.0	1.94
AHD	15	Mean	35.5	37.0	23.0	27.5	11.0	4.69
		S.D.	25.1	16.1	7.2	2.4	1.7	1.76
AHS	15	Mean	43.0	46.3	5.9	8.1	11.9	3.78
		S.D.	28.9	21.0	3.0	3.6	1.0	1.77
IHS	15	Mean	44.7	46.3	8.9	7.3	11.4	4.46
		S.D.	18.5	13.3	4.0	3.9	1.6	2.43
ED	30	Mean	33.8	38.7	25.2	27.4	11.2	4.72
		S.D.	25.4	18.7	7.5	7.5	1.8	1.85
ND	30	Mean	43.8	46.3	7.4	7.7	11.6	4.12
		S.D.	24.3	17.5	3.8	3.8	1.4	2.14
IH	30	Mean	38.3	43.4	18.1	17.3	11.4	4.61
		S.D.	23.5	17.6	11.0	12.2	1.8	2.41
AH	30	Mean	39.3	41.7	14.4	17.8	11.4	4.24
		S.D.	27.3	19.2	10.2	10.7	1.5	1.79
Total	60	Mean	38.8	42.6	16.3	17.6	11.4	4.42
		S.D.	25.5	18.5	10.8	11.5	1.6	2.02

a Groups are designated as follows:
IHD Inadequate homes disturbed
AHD Adequate homes disturbed
AHS Adequate homes stable
IHS Inadequate homes stable
ED Emotionally disturbed
ND Non-disturbed
IH Inadequate homes
AH Adequate homes

and standard deviations for the total group, the four subgroups, and the four individual groups, on the IQ's obtained from both forms of the PPVT, the two separate Stott ratings, the length of institutionalization, and the chronological age of the subjects.

3. Peabody Picture Vocabulary Test and Item Analysis.

The Peabody Picture Vocabulary Test items used totalled ninety-one for Form A and ninety-five for Form B. Of these 186 items, 81 can be classified as having human content, while 105 items are of non-human content. Items are classified as being of human content when a human stimulus is presented on one of the plates; if no human stimulus is presented then the item is classified as being of non-human content. This criterion has been adopted from Shipe's study.[4] A percentage score based on the number of items failed, over the number of items attempted (from basal to ceiling) for human and non-human categories was computed for each subject. Each human item was categorized in three classes: Nouns, Verbs, and Others. Each non-human item was also categorized in three classes: Animals, Nouns, and Others. These items were categorized in order to complete an item analysis on the

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[4] Dorothy Shipe, Discrepancies between the Peabody Picture Vocabulary Test and the WISC as Related to Emotional Disturbance in Children of Retarded and Normal Intelligence, unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1962.

Peabody Picture Vocabulary Test. A percentage score was calculated for all six individual classes.

The reasons for the three classes of human items are as follows: Nouns refer only to those human items which are pertinent to some kind of person, such as a carpenter or a queen. Verbs indicate a human item in action, like skiing, catching, and baking. The third class of human items is the "others" class. In this category falls all the human items which are not included in the first two classes. There are non-human items which are included in the human class because one of the other three pictures on the PPVT plate has a human stimulus. Other types of items included in the human items classified as others are human content adverbs, adjectives, or occurrences. For example, the word ceremony shows two humans holding a candle; this picture is a noun, but it does not refer to a particular person but to an activity. There are twenty-two potential human items for the Noun category, thirty-four potential human items classified as Verbs, and twenty-five potential human items placed in the third class or Others.

The reasons for the three classes of non-human items are as follows: The Animal class refers to those non-human items that ask the subject to select the proper animal corresponding to a given stimulus word. The Noun category includes all non-human items that are objects. The non-human

items classed as Others include all the non-human items that have not been covered by the first two classes. These are verbs, adjectives, adverbs, and events, i.e., accident or time. There are seventeen potential non-human items for the category Animals, seventy-six for non-human Nouns, and twelve for category non-human Others.

4. Statistical Treatment of the Results.

All scores obtained on the PPVT were converted into percentages. The number of items failed was divided by the number of items attempted for each class of PPVT item. These percentages are presented in Appendices 1 and 2, Tables V to VIII for individuals and Table IX for groups. Percentages were used instead of raw scores in order to give equal weights to each individual tested on the PPVT. Percentages were also used to give equal weights amongst the PPVT items classified according to human and non-human contents.

A two-dimensional analysis of variance[5] was computed by subtracting the percentage of non-human items failed from the percentage of human items failed. To this number the constant of 32 was added to each individual score in order to make all differences positive. This analysis of variance is computed in order to see whether PPVT items of human content

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5 L. Dayhaw, Manuel de Statistique, Ottawa, Editions de l'Université d'Ottawa, Ontario, 1958, p. 431-448.

are more difficult to solve for retarded children classified on the basis of home environment and emotional stability than PPVT items of non-human content. A second analysis of variance was computed for the same purpose with the exception that items used were only those human items classed as verbs and those non-human items classified as nouns. The constant used to make all differences positive in this analysis was 35.

Means, standard deviations, and standard error of means[6] were computed for all groups. "t" tests of significance were also computed for all groups to find out the extent of the differences obtained on PPVT items classified as human or non-human contents for the sixty retarded children classified on the basis of home environment and emotional stability. These "t" tests of significance were also computed to find out the differences between each individual category of human and non-human items on PPVT

Correlations[7] were computed using raw scores, mental ages, and IQ scores between Forms A and B of the Peabody Picture Vocabulary Test. Another correlation was computed to seek the relationships between the senior and junior raters on the Bristol Social Adjustment Guide No. 3.

The results of the experiment follow in Chapter III.

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6 B. Underwood, C. Duncan, J. Taylor and J. Cotton, Elementary Statistics, New York, Appleton-Century-Crofts, 1954, p. 48-53, 110-114, 121-134.

7 Dayhaw, op. cit., p. 128-135.

For the purposes of analysis, it has been assumed that the population investigated was randomly selected under the following aspects. The subjects studied were all institutionalized mental retardates, aged 7-14, who were diagnosed non-brain damaged or as either cultural familial, emotionally disturbed, or etiology undetermined. Out of a hospital population of 2500, one hundred and seven met those requirements. Fourteen of those subjects had to be eliminated because of some ambiguity in their classifications. The remaining ninety-three subjects were evaluated for both the adequacy of their home environment and their emotional stability. They were also administered both forms of the PPVT. Therefore, all the children in the population studied had an equal chance to be included for analysis, but the sample was eventually reduced to sixty with home environment and emotional stability becoming fixed variables.

No reference could be found stating what type of psychological statistic should be used with percentages, therefore differences were used in evaluating the retarded children performance on PPVT items classified as human and non-human contents. Differences were used because they were found to be less complicated to work with than, for example, sums of squares, or proportions.

CHAPTER III

PRESENTATION OF RESULTS

The results of the experiment just described will now be set forth. For the purpose of clarity the results will be presented in the following order: (1) reliability of the instruments; (2) analysis of variance pertaining to the experimental hypotheses; and (3) results tabulated from classes of Peabody Picture Vocabulary Test items.

1. Reliability of the Instruments.

Interrater reliability for the Bristol Social Adjustment Guide was computed for the two classes of raters (senior ward staff and junior ward staff), on ninety-three residents classified on the variables of adequate or inadequate home environments. The Pearson r coefficient from this relationship was .675, a rather high correlation considering that this type of instrument is a rating scale. Although staff could agree on who was disturbed and who was not, they could neither agree as to the extent of the disturbance nor as to its nature.

Three correlations were calculated comparing IQ's obtained on Forms A and B of the Peabody Picture Vocabulary Test. The mean IQ for ninety-three institutionalized mental retardates, classified according to adequate and inadequate

home environments, was 52.3 for PPVT Form A, and 52.3 for PPVT Form B, yielding a correlation of .828 between the two IQ's. A correlation of .879 was computed when the raw scores were used. When the mental ages obtained on both forms of the PPVT were used, the correlation rose to .937; this is consistent with the findings of McArthur and Wakefield[1] that the mental age is more reliable than the IQ.

2. Analysis of Variance Pertaining to Experimental Hypotheses.

Table II gives the results of the first two-dimensional analysis of variance, using sixty subjects. The analysis of variance was calculated on the basis of the percentage of non-human items failed, subtracted from the percentage of human items failed; to this number the constant of 32 was added in order to make all values positive.

Hypothesis one stated that there was no significant difference between institutionalized retarded children coming from inadequate home environments and those coming from adequate home environments, on their successes on PPVT items of human content as opposed to those of non-human content. This hypothesis was accepted since the differences between the two groups on PPVT items of human and non-human content were not significant.

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1 C. McArthur and H. Wakefield, "Validation of PPVT with the Stanford Binet, Form L-M and the WISC on Educable Mental Retardates," American Journal of Mental Deficiency, Vol. 73, 1968, p. 465-467.

Table II.-

Summary of Analysis of Variance on PPVT Human and Non-human Items for Sixty Institutionalized Mental Retardates Classified on the Variables of Home Environment and Emotional Stability.

Source	SS	df	MS	F	P
ES[a]	720.80	1	720.80	5.068	0.05
HE[b]	2.82	1	2.82	0.020	0.00
ES x HE	684.74	1	684.74	4.814	0.05
Error	7538.63	56	142.23		
Total	8946.99	59			

a Emotional Stability: emotionally disturbed and emotionally stable mental retardates as evaluated by the Bristol Social Adjustment Guide.

b Home Environment: adequacy or inadequacy was determined in terms of Zigler's criteria.

The difference between those mental retardates rated as emotionally disturbed and those rated as emotionally non-disturbed, on successes on PPVT items of human and non-human content, was significant at the .05 level. This finding rejected hypothesis two which stated that there was no significant difference between institutionalized retarded children rated as emotionally disturbed, and children rated as emotionally stable, on their successes on PPVT items of human content as opposed to items of non-human content.

Hypothesis three was also rejected. This hypothesis states that there is no significant interaction between the degree of emotional disturbance of mentally retarded residents and the adequacy of their home environment, on their successes on PPVT items of human and non-human content. However, the interaction between the degree of emotional disturbance and the adequacy of the home environment showed a difference significant at the five per cent level. "t" tests were computed to find the source of this interaction. Table III demonstrates that the emotionally disturbed mentally retarded, coming from inadequate home environments, had more difficulty with PPVT items classified as human content, than the other three groups; i.e., emotionally disturbed coming from adequate home environments, and the emotionally stable mental retardates coming from both adequate and inadequate home environments.

Table III.-

Interaction between Institutionalized Mental Retardates Rated on a Degree of Emotional Stability and Classified according to Home Environment, on their Degree of Difficulty with PPVT Human and Non-human Items on the Peabody Picture Vocabulary Test.

Groups	Stan.Error of a Diff.	"t" Scores	Sign.
Inadequate homes disturbed vs. inadequate homes stable	3.82	3.58	.01
Inadequate homes disturbed vs. adequate homes disturbed	3.56	2.15	.05
Inadequate homes disturbed vs. adequate homes stable	3.68	1.86	.10
Adequate homes disturbed vs. adequate homes stable	4.60	0.17	.00
Adequate homes disturbed vs. inadequate homes stable	4.74	1.27	.00
Adequate homes stable vs. inadequate homes stable	4.85	1.40	.00

The means, standard deviations, and "t" tests of significance were computed for each group comparing the percentage of human and non-human items failed. These are presented in Table X found in the appendix. For all groups, human items were significantly more difficult to solve than non-human items. This supports Shipe's[2] finding that human items are more difficult to solve. The mentally retarded, rated as emotionally disturbed and coming from inadequate home environments, found human items significantly (at the .001 level) more difficult than non-human items.

3. Results Tabulated from Classes of Peabody Picture Vocabulary Test Items.

In an attempt to identify the nature of the difficulty present in identifying stimuli of a human content on the PPVT, an item analysis was performed. All human items were categorized as either nouns, verbs, or others; all non-human items were categorized as either animals, nouns, or others.

A second analysis of variance was computed using only the human items signified by action, or verbs; and the non-human items referring to objects or nouns. As shown in Table IV, the variation between those mental retardates rated as

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2 Dorothy Shipe, Discrepancies between the PPVT and the WISC as Related to Emotional Disturbance in Children of Retarded and Normal Intelligence, unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1962, p. 38.

Table IV.-

Summary of Analysis of Variance on PPVT Human "Verbs" and Non-human "Nouns" for Sixty Institutionalized Mental Retardates Classified on the Variables of Home Environment and Emotional Stability.

Source	SS	df	MS	F	P
ES[a]	2076.81	1	2076.81	5.94	.025
HE[b]	1135.35	1	1135.35	3.25	.100
ES x HE	904.82	1	904.82	2.59	-
Error	19570.67	56	349.48		
Total	23687.65	59			

a Emotional Stability: emotionally disturbed and emotionally stable mental retardates as evaluated by the Bristol Social Adjustment Guide.

b Home Environment: adequacy or inadequacy was determined in terms of Zigler's criteria.

emotionally disturbed, and those rated as emotionally stable on successes on PPVT human items classified as verbs, and PPVT non-human items classified as nouns, was significant at the .05 level.

In comparing retardates coming from adequate or inadequate home environments there was no significant difference in their success on PPVT human verb items and PPVT items with non-human noun content.

The interaction between the degree of emotional disturbance and the adequacy of the home environment showed some differences but the result was not significant at the .05 level.

Means, standard deviations, and "t" tests were computed for all six classes of PPVT items. Each group is represented in eight individual tables found in Appendix 3. For all sixty mental retardates in this study, the PPVT human items classified as verbs proved to be the most difficult items to solve. For the thirty retardates, rated as emotionally disturbed, significant differences were found at the .001 level between human items categorized as verbs and the following items: human nouns, non-human animals, non-human nouns, and non-human others. For the other thirty retardates rated as emotionally stable, significant differences ranged from .01 to .05 levels between human verbs and human nouns, non-human nouns, and non-human animals.

Other significant differences were found between PPVT items of human verbal content and the other five classes of PPVT items, for the four individual groups under investigation. This includes the two groups of fifteen retarded children from inadequate home environments; one group rated as emotionally disturbed, and the other group as emotionally stable; the third and fourth groups coming from adequate home environments, one group rated as emotionally stable, and the other group as emotionally disturbed.

The human items found most difficult by all groups were those classified as human verbs. Furthermore, it was discovered that human verbs are significantly more difficult than all other human and non-human items. In addition, the emotionally disturbed mental retardates found human items significantly more difficult (at .02 level) than did the retardates rated as emotionally stable.

A discussion of these results follows in Chapter IV.

CHAPTER IV

DISUCSSION OF RESULTS

This chapter will discuss the results presented in the last chapter. First, it will detail the performance of mentally retarded children on PPVT items of human and non-human content. Second, an item analysis dividing human and non-human items into subclasses will be considered in relation to the classification of the subjects on the basis of home environment and emotional stability.

1. Human Items vs. Non-human Items.

It was speculated by Dorothy Shipe[1] that when emotionally disturbed mentally retarded children were confronted with PPVT items of human content, their test performance would become lowered. She suggested that this temporary inadequacy encountered with the human content items might stem from past emotional traumas as well as from poor interpersonal relationships: the human element in the test item might have precipated certain anxieties associated with past experiences,

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1 Dorothy Shipe, R. Cromwell and Lloyd Dunn, "Responses of Emotionally Disturbed and Nondisturbed Retardates to PPVT Items of Human Versus Non-human Content," Journal of Consulting Psychology, Vol. 30, No. 5, 1966, p. 439-440.

thereby hindering test productivity. However, Shipe explained that emotionally stable mental retardates might not become anxious when confronted with test items of human content because of a lack of unpleasant interpersonal relationships and a more stabilized emotional and environmental background.

In an attempt to assess the contentions of Shipe in the present study, three hypotheses were set up to find out whether institutionalized mental retardates, classified on the basis of home environment and emotional stability, differ in performance in identifying a word stimulus of a human content, as opposed to identifying a word stimulus of a non-human content. Accordingly, the breakdown of items classified as to human vs. non-human content will be considered separately for each of the subject categories, viz, home environment and emotional stability.

a) Classification Based on Home Environment.- The first hypothesis was formulated to test whether institutionalized retarded children coming from inadequate home environments had more difficulty with PPVT items with human content than children coming from adequate homes.

Results indicated that children coming from both adequate and inadequate home environments had more difficulty with human items than with non-human items. It was also revealed that children coming from adequate home environments

found human items more difficult than did children coming from inadequate homes, but the difference was not statistically significant. Thus, retarded children coming from adequate home environments do not have significantly more difficulty with human items than children coming from inadequate homes. Therefore, hypothesis one has to be accepted. Results confirming this hypothesis are shown in Tables II, IX and X.

It might be questioned whether the length of institutionalization adversely affected these results. The average length of institutionalization ranges from 3.78 for the fifteen retardates coming from adequate home environments and rated as emotionally stable, to 4.75 years for fifteen retardates rated as emotionally disturbed and coming from inadequate home environments. Of the sixty subjects used, forty-seven have been institutionalized for a period of at least three years; however, these were found to be distributed equally among all four subgroups. Accordingly, duration of institutionalization does not appear to have exerted any undue influence.

Past studies have shown that institutionalization hinders an individual's intellectual ability. Lyle[2] stated

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2 J. Lyle, "The Effect of an Institutional Environment upon the Verbal Development of Imbecile Children: 1. Verbal Intelligence," Journal of Mental Deficiency Research, Vol. 3, 1959, p. 122-128.

that institutionalized retardates have a lower verbal score; Goldfarb[3] stated that institutionalized mental retardates have a lower IQ rating. Clark and Clark[4] referred to social isolation, cruelty, neglect and institutional upbringing as a hinderance to the child's potential intellectual development as well as to his adequate social adjustment.

Zigler[5] found a greater persistence in a socially reinforcing task among institutionalized retarded children who came from socially deprived homes, but he also noted in another study[6] that institutionalization is more socially depriving for subjects coming from a socially deprived background. Zigler[7] also found a greater persistence among institutionalized children on a monotonous task than among non-institutionalized children.

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3 W. Goldfarb, "Emotional and Intellectual Consequences of Psychologic Deprivation in Infancy, a Re-evaluation," in P. Hoch and J. Zubin, Psychopathology of Childhood, New York, Grune and Stratton Inc., 1955, p. 109.

4 A.D.B. Clark and A.M. Clark, "Some Recent Advances in the Study of Early Deprivation," Child Psychology and Psychiatry, Vol. 1, 1960, p. 26-36, quoted in B. McCandless, Children: Behavior and Development, Toronto, Holt, Rinehart and Winston, Inc., 1967, p. 159-160.

5 E. Zigler, "Social Deprivation and Rigidity on the Performance of Feebleminded Children," Journal of Abnormal and Social Psychology, Vol. 62, 1961, p. 413-421.

6 E. Zigler and J. Williams, "Institutionalization and the Effectiveness of Social Reinforcement, A Three-year Follow-up Study," Journal of Abnormal and Social Psychology, Vol. 66, 1963, p. 197-205.

7 C. Green and E. Zigler, "Social Deprivation and the Performance of Retarded and Normal Children on a Satiation Type Task," Child Development, Vol. 33, 1962, p. 499-508.

Since most of the subjects used in this project have been institutionalized for at least three years, there is a possibility that the effect of an institutionalized environment might have some indirect bearing on the results. It is also possible that the classifications of home environments suggested by Zigler[8] leave something to be desired. Nevertheless, the results indicated that, for institutionalized mental retardates, prior home environment seems to have little effect or influence on a child's ability to respond accurately to PPVT items of human and non-human content. A similar study should be repeated using non-institutionalized mentally retarded children, as well as using a better criteria for home evaluation.

b) Classification Based on Emotional Stability.- The second hypothesis was set out to measure whether institutionalized mental retardates, rated as emotionally disturbed, had more difficulty with PPVT items of human content than children rated as emotionally stable.

It was found that all children had more difficulty with PPVT items of human content as opposed to those of non-human content. It was also discovered that emotionally disturbed retardates had significantly more difficulty with human items than did the non-disturbed. Thus, hypothesis two was rejected. The results are found in Tables II, IX and X.

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8 E. Zigler, Preinstitutional Social Deprivation and Rigidity in the Performance of Feebleminded Children, unpublished doctoral dissertation, University of Texas, Austin, 1958, p. 83.

The fact that all retardates used in the experiment had significantly more difficulty with PPVT human items than with items of non-human content supports Shipe's[9] earlier findings, that all children have more difficulty with human items on the PPVT than with non-human items. That emotionally disturbed children have more difficulty with human items than do non-disturbed children also supports Shipe's earlier findings. Further discussion of these findings will be presented under the heading of item analysis.

c) Classification Based on Home Environment and Emotional Stability.- A third hypothesis was set out to measure whether there was any significant difference in response to PPVT items of human and non-human content by institutionalized retardates classified simultaneously as to adequacy of home environment and emotional stability.

This hypothesis was also rejected, as significant differences were found--as presented in Table III. It was also noted that all groups, with the exception of children coming from inadequate homes and rated as emotionally stable, found PPVT human items significantly more difficult to solve than non-human items. It was also shown that the emotionally disturbed children coming from inadequate homes had significantly more difficulty with PPVT human items than did the

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9 Shipe, op. cit., p. 441-442.

other three groups. The discussion of these findings will be presented under the heading of item analysis.

2. Item Analysis.

As the foregoing results have indicated, human items were more difficult to solve, for most groups, than were non-human items. An item analysis was performed to find out the major source of difficulty amongst the human items. As explained in the chapter on experimental design, the human items were categorized in the following classes: Nouns, Verbs, and Others, while the non-human items were classified as: Animals, Nouns, and Others.

The sixty institutionalized retardates used in the study failed 40.5% of all human items; in comparison, 31.3% of the non-human items were failed. Of the 40.5% human items failed 27.45% were of Noun content, 47.55% of Verb content, and 35.5% of Others content. Of the 31.3% non-human items failed 35.05% were of Animal content, 30.23% of Noun content, and of Others content there were 38.15% items failed. Therefore, for all groups the PPVT human items classified as Verbs were the most difficult to solve. On the other hand, the items classified as Nouns for both human and non-human content were found by all groups to be the easiest to solve. The fifteen mental retardates rated as emotionally stable and coming from inadequate home environments, found the non-human

PPVT items classified as Others more difficult to solve than the human items classified as Verbs. The difference between the means of these two classes was not significant however.

It is known that the number of potential items used in each category is not equivalent, and therefore certain caution has to be exercised when interpreting these results. The percentage range for category Others, for both human and non-human items, has been 100. This is due to a minimum number of items available in each class. For example, one subject might have one or two of these items available and, if the subject fails both items then he receives a percentage score of 100, whereas, if he passes both items, then his percentage score is 00. This wide range accounts for the extremely high standard deviations, particularly amongst these two classes.

a) Classification Based on Home Environment.- A second analysis of variance was computed using only those human items classified as Verbs and those non-human items classified as Nouns. These two classes were used because both classes had the highest number of potential items and the human Verbs had the highest average of items failed.

For all groups, human Verbs were found more difficult to solve than the non-human Nouns. The children coming from adequate home environments found human Verbs, as opposed to non-human Nouns, more difficult to solve than did the children

coming from inadequate homes. The differences were not statistically significant however. Results are tabulated in Tables IV and XI.

Since all human items classified as Verbs were significantly more difficult to solve than non-human Nouns, then it may be concluded that on the PPVT, Noun items are easier to cope with than Verbs. In acquiring language an infant learns first by coming in contact with nouns or objects. Only after he has learned to identify objects will an infant start using qualifying verbs. Therefore, in identifying PPVT items, a mentally retarded child might find nouns easy to solve, but verbs difficult to identify. A noun is easy to solve as it refers only to a single object and is quite concrete: the child is asked to select one object from a group of four that corresponds to a given stimulus word. For example, the child might be asked to find an arrow, from among the following objects: net, hook, arrow, or parachute. All he has to do is point to the right picture. But with a verb, the process is twofold: the child has to identify an object or person and then state the action the person or object is undergoing. For example, a child is asked to identify the word "teaching" from a list of four pictures. One has a man skiing, another a woman teaching a child, the other picture shows a little girl baking a pie, while the last picture shows a boy hammering a nail. With the word "teaching" the child has first to find

a teacher and then attribute to her the action taking place, and then select the word teaching. This task being more complex may therefore be more difficult to solve than an item with a noun content.

For this reason it would appear that nouns are easier to identify than verbs and, therefore, it is expected that a child will have more success in responding to an item that requires concrete thinking than to an item requiring complex thinking. However, with the PPVT, only those items falling between the basal age and the ceiling age are used. It has been shown by Dunn[10] that the difficulty of items increase progressively with their position in the test. Since the test was not constructed in terms of the concept of human and non-human items, the number for each category of items is not equal. Taking all this into account, and assuming that Dunn's claim is valid, it could be cautiously inferred that all six item categories are equally difficult to solve.

b) Classification Based on Emotional Disturbance.- The present study has revealed that children rated as emotionally disturbed had significantly more difficulty with human items classified as Verbs tha did children rated as emotionally stable.

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10 Lloyd Dunn, Expanded Manual for the Peabody Picture Vocabulary Test, Minneapolis, Minn., American Guidance Service, 1965, 51 p.

The tentative explanation elaborated by Shipe[11] will have to be altered in view of these findings. Shipe stated that the reason for poorer performance on items of human content was that these human content items unconsciously stimulated the child into an anxious state. Because of this anxiety, the child became distracted and thereby erroneous in his response. Shipe felt that children became handicapped when confronted with PPVT items of human content, because these items would unconsciously bring back an unpleasant personal experience.

As discussed previously, the emotionally disturbed retarded subjects had difficulty with items of human content, but this was generally true of all retardates used in the study. It was found that not all items of human content were difficult to identify but only those categorized as human verbs. It was stated that human verbs were more difficult to solve because of the complex requirements needed for these items. A noun may be easy to identify since it refers to a specific object which is quite concerete, but with a verb the requirement is two-fold, the child has to select the person doing the task and finally select the activity that the person is performing. This task of selecting PPVT items classified as verbs, is more complex and therefore more difficult than an item with a noun concept.

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11 Shipe, op. cit., p. 439-440, 442

Still one cannot deny the fact that the emotionally disturbed retarded children had significantly more difficulty with PPVT items with human verb content, than did the emotionally stable retardates. The suggestion that PPVT human verbs presented a problem of greater complexity for retarded children does not totally explain the differences obtained. It was found that when a retarded child rated as emotionally disturbed was given a PPVT human item classified as Nouns or Others, there seemed to be little disruption of performance. However, when the child was asked to respond to items of human content classified as Verbs, the disruption of performance was greater.

It is possible that Shipe's[12] explanation for poor performance on items of human content for her emotionally disturbed subjects is plausible. That is, a child's past unpleasant experiences hinder his performance in identifying PPVT items with a human content. The emotionally disturbed retardates, according to Shipe, have difficulty with PPVT items of human Verb content, perhaps because these items may revive past unpleasant experiences thereby hindering the child from responding accurately. This is only one suggestion for interpretation of the results. More similar projects will have to be undertaken before this interpretation can be generally accepted.

c) Classification on the Basis of Home Environment and Emotional Stability.- It was shown in Table XI that children rated as emotionally disturbed and coming from

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12 Ibid., p. 440

adequate home environments had the most difficulty with the human Verbs, while the retardates rated as emotionally stable and coming from inadequate home environments had the least difficulty with the PPVT items categorized as human Verbs. In fact, this group found PPVT items classified as non-human Others more difficult to solve than the human Verbs.

It was also found that retarded children rated as emotionally stable and coming from adequate home environments, had more difficulty with PPVT human Verbs than did the children rated as emotionally stable and coming from inadequate homes. The results can be explained by taking into account the fact that the retarded children rated as emotionally stable, and coming from an adequate home environment, might have undergone some type of traumatic experience when they were transferred from an adequate home environment to an institutional environment. This transfer might have stimulated feelings of insecurity and rejection, and distrust in others, thus assisting the child in having difficulty in solving PPVT items classified as human Verbs.

It was found, as shown in Table XVIII, that the children coming from inadequate home environments, and rated as emotionally stable, did not have any more difficulty with human Verbs when compared to the other five categories. These children, with a poor home environment, might have found the transfer to an institutional environment rewarding, non-traumatic,

and a change for the better. They might have found that a transfer from a poor environment (the home) to that of a better one (the institution) led to feelings of acceptance, security, and non-inferiority, thus accounting for the successes on PPVT human Verbs.

For the children rated as emotionally disturbed and coming from both adequate and inadequate home environments, the effect of institutionalization might be at a minimum. The home environment might not have been properly evaluated to distinguish an adequate from an inadequate home environment. Zigler's[13] criteria for socially deprived background may have to be revised to include the child's social behavior at home. It could be conceived that some unmeasured circumstances associated with the home might have precipitated the disturbances among these children, and hence show that retarded children, coming from adequate and inadequate homes and rated as emotionally disturbed, have more difficulty with PPVT items classified as human Verbs than did retardates rated as emotionally stable.

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13 Zigler, op. cit., 1958, p. 83.

SUMMARY AND CONCLUSIONS

It is known that an emotionally disturbed mental retardate tends to respond differently to a structured individually administered intelligence test than does an emotionally stable retardate. But how would such a child respond to a picture vocabulary test? Will institutionalized mentally retarded children, classified on the basis of home environment and emotional stability, differ in performance on a picture vocabulary test in identifying a word stimulus of a human content as opposed to identifying a word stimulus of a non-human content. It has been proposed by Dorothy Shipe that emotionally disturbed retarded children who have had difficulty in their past social relationships will become anxious when confronted with Peabody Picture Vocabulary Test items of human content, thereby hindering their ability to concentrate on the task at hand, and thus producing more errors on items of human content than on items of non-human content.

Ninety-seven institutionalized mental retardates aged seven to thirteen and diagnosed as either cultural familial, emotionally disturbed, or etiology unknown, were selected for this study. These children were evaluated for adequacy of home environment and rated for emotional stability by two ward personnel using the Bristol Social Adjustment Guides.

This resulted in sixty subjects, or four groups of fifteen children each: inadequate homes, emotionally disturbed; adequate homes, emotionally disturbed; inadequate homes, emotionally stable; adequate homes, emotionally stable. Both forms of the Peabody Picture Vocabulary Test were administered in a random order to all subjects in order to increase the number of items and their subsequent classifications. PVVT items were classified as having human (Nouns, Verbs, or Others) content or non-human (Animals, Nouns, or Others) content.

To investigate the results of the study, three null hypotheses were set up:

> Using as a criterion measure the difference between incorrect responses on items of human content and incorrect responses on items of non-human content on the Peabody Picture Vocabulary Test, it was hypothesized that:
>
> 1. there is no significant difference in the responses of institutionalized retardates classified according to the adequacy of their home environment;
> 2. there is no significant difference in the responses of institutionalized mental retardates classified according to the basis of emdional disturbance;
> 3. there is no significant difference in the responses of institutionalized retardates classified simultaneously as to adequacy of home environment and emotional disturbance.

Results of the study showed that all subjects found the human items more difficult to solve than items of non-human content. Since the children coming from inadequate home environments did not find human items more difficult to solve

than did children from adequate homes, the first hypothesis was accepted. Because children rated as emotionally disturbed found human items more difficult to solve than did children rated as emotionally stable, hypothesis two was rejected. The third hypothesis was also rejected because the retardates rated as emotionally disturbed coming from inadequate home environments had significantly more difficulty with PPVT items of human content than did the other three groups. The group having the least difficulty with human items were the fifteen retardates coming from inadequate home environments and rated as emotionally stable.

It was found that of the human items only those classified as verbs were difficult to solve. The other two classes of human items were not significantly more difficult to solve than any of the three classes of non-human items. It was suggested that the human verbs were difficult for the retardates because of the greater complexity of the task. Accordingly, in this study the emotionally disturbed retardates had more difficulty in solving PPVT items classified as human verbs than did the emotionally stable retardates. It is possible that Shipe's speculation could be accepted; she proposed that some anxiety, stimulated by the PPVT items with human content, distracted the child from accurately identifying the concept asked by the stimulus word. However, this only applies to

to PPVT human items classified as verbs and not with the other two classes of human items.

In lieu of these conclusions, the following recommendations are suggested. The criteria of home environment used in this study do not seem to measure the full depth of the home, therefore a new method using the child's social behavior in the home should be developed. The Stott rating scale has great potential but it should be standardized on a representative Canadian sample. From the results obtained in this study and that of Shipe's, it appears that the PPVT could be used in detecting personality maladjustments among mentally retarded children. Further work with the PPVT towards this goal is recommended. Studies repeating the experimental design of this investigation should be conducted employing retardates attending community schools, as well as those diagnosed as brain damaged, Downes syndrome, and other etiological classifications. Additional investigations might shed further light on the use of the PPVT as a tool in measuring personality traits among the retarded.

BIBLIOGRAPHY

Dunn, Lloyd M., Expanded Manual for the Peabody Picture Vocabulary Test, Minneapolis, Minn., American Guidance Service, 1965, 51 p.

This manual gives all data pertinent to the PPVT and has a resume of the studies undertaken with the test prior to 1965.

Gallagher, James J., "Measurement of Personality Development in Preadolescent Mental Retarded Children," American Journal of Mental Deficiency, Vol. 64, No. 2, 1949, p. 296-301.

This study raises the question of the objective evaluation of a retarded child's personality. This led to the selection of the Stott Bristol Social Adjustment Scale in the present investigation.

Shipe, Dorothy, Discrepancies between the Peabody Picture Vocabulary Test and the WISC as Related to Emotional Disturbance in Children of Retarded and Normal Intelligence, unpublished doctoral dissertation, George Peabody College for Teachers, Nashville, Tenn., 1962, vi-78 p.

The present research project is based on this study. The concepts of human and non-human content have been introduced, as well as the comparison of children rated as emotionally disturbed with normal subjects on PPVT and WISC intelligence tests.

Shipe, Dorothy, R. Cromwell and L. Dunn, "Responses of Emotionally Disturbed and Non-disturbed Retardates to PPVT Items of Human versus Non-human Content," Journal of Consulting Psychology, Vol. 30, No. 5, 1966, p. 439-443.

This study gives better detail of Shipe's study and provides the theoretical basis for the project undertaken in this thesis.

Stott, D.H., The Social Adjustment of Children, Warwick Lane, London, England, E.C. 4, University of London Press, 1966, 71 p.

This manual reviews all the latest research projects dealing with the Stott Social Adjustment Guide and gives the author's rationale in constructing the scale.

Zigler, E., Preinstitutional Social Deprivation and Rigidity in the Performance of Feebleminded Children, unpublished doctoral dissertation, University of Texas, Austin, 1958, vi-119 p.

From this study the criteria for inadequate home environment have been selected.

APPENDIX 1

RAW DATA FOR THE STUDY

APPENDIX 1

RAW DATA FOR THE STUDY

All individual PPVT IQ's for Forms A and B are included in the following four tables. These results range from an IQ of below ten to ninety. In scoring the PPVT, each individual tested needs a basal and a ceiling age, only the items falling between these two ages are used in the calculating of the IQ. For the purposes of this study, the percentage of items failed among all items attempted is computed for each individual for both the human and the non-human items separately.

All children used in the study were rated by two ward personnel on the Bristol Social Adjustment Guides, No. 3. Chronological age and time spent in the institution are presented in years and months.

Also included in these tables are the order of PPVT administration, evaluations of inadequate homes, and the sex of each child. Of the sixty subjects used in the study, 43 were males while only 17 were females. Because of the small number of females tested, a comprehensive study on sex differences in identifying PPVT items of human and non-human content could not be objectively computed. Therefore, further work will have to be done to investigate the presence of sex differences in solving PPVT items of human and non-human content.

Table V.-

Individual Data for Fifteen Institutionalized Mental Retardates Rated as Emotionally Stable and Coming from an Adequate Home Environment.

Subject	PPVT IQ Form A	PPVT IQ Form B	Stott Ratings[b] A	Stott Ratings[b] B	Sex	C.A.	Time in Instit.	Percentage of Items Failed[c] Human	Percentage of Items Failed[c] Non-human
1	90	88	02	04	M	12-10	3-07	35.0	25.9
2	12	22	02	05	M	12-00	3-01	46.1	29.9
3	65*[a]	61	00	08	F	11-07	3-09	25.9	27.4
4	59*	55	06	03	M	13-02	4-05	44.0	20.2
5	62	64	04	06	M	11-11	4-01	48.0	23.2
6	58	53	06	05	M	12-03	2-06	43.5	27.1
7	34	32	06	06	F	13-01	7-07	46.1	22.9
8	56	47	08	06	M	11-10	5-00	29.4	21.4
9	10	20	06	08	M	12-00	3-01	55.5	32.1
10	71	63	09	09	M	12-09	1-00	32.1	33.3
11	46*	48	06	12	F	12-04	4-11	25.0	36.2
12	-10*	19	12	07	F	8-09	3-02	30.0	39.1
13	-10	11	05	14	F	12-02	6-11	47.6	43.4
14	42*	46	06	14	M	12-01	1-10	30.3	29.2
15	60*	66	10	14	M	10-02	2-03	40.0	22.8

a Asterisk gives order of PPVT administration; with asterisk Form A was given first, without it Form B was administered first.

b Stott A indicates rating given individual by senior staff on a ward. Stott B indicates rating given individual by junior staff on a ward.

c The percentage of human and non-human items failed on the PPVT is given for each individual.

Table VI.-

Individual Data for Fifteen Institutionalized Mental Retardates Rated as Emotionally Stable and Coming from an Inadequate Home Environment.

Subj.	PPVT IQ Form A	PPVT IQ Form B	Stott Ratings[b] A	Stott Ratings[b] B	Home Env.[c]	Sex	C.A.	Time in Instit.	Percentage of Items Failed[d] Human	Percentage of Items Failed[d] Non-human
1	21*[a]	42	01	01	2	M	12-11	9-11	38.4	30.4
2	-10*	22	01	03	1	M	13-02	6-07	54.5	32.4
3	81*	80	07	05	1	M	10-01	1-04	35.0	36.3
4	47	48	11	02	2	F	12-10	5-02	47.4	37.3
5	46	35	07	07	2	M	12-01	2-09	61.5	25.0
6	42*	42	07	09	1	M	9-05	6-04	23.5	42.9
7	44	42	10	07	1	M	7-11	1-00	46.1	25.9
8	47*	48	09	10	1	F	13-01	6-05	30.0	33.9
9	66	54	11	08	1	M	12-11	4-02	32.0	39.1
10	53	37	12	07	2	M	12-10	5-05	27.5	28.0
11	42	36	12	07	1	M	9-11	0-05	32.0	39.3
12	43*	47	15	05	1	M	10-01	6-04	43.8	37.2
13	41*	42	06	16	1	M	11-05	3-09	44.0	36.5
14	30*	56	14	09	2	M	10-06	3-11	27.6	44.9
15	67	64	10	14	1	M	12-00	3-09	30.4	35.9

a Asterisk gives order of PPVT administration; with asterisk Form A was given first, without it Form B was given first.

b Stott A indicates rating given by a senior staff on a ward. Stott B indicates rating given by a junior staff on a ward.

c Environment numbers correspond to those given by Zigler to evaluate an inadequate home environment. Ref. on p.33-34.

d The percentage of human and non-human items failed on the PPVT is given for each subject.

Table VII.-

Individual Data for Fifteen Institutionalized Mental Retardates Rated as Emotionally Disturbed and Coming from an Adequate Home Environment.

Subject	PPVT IQ Form A	PPVT IQ Form B	Stott Ratings[b] A	Stott Ratings[b] B	Sex	C.A.	Time in Instit.	Percentage of Items Failed[c] Human	Percentage of Items Failed[c] Non-human
1	-10*[a]	10	43	33	F	9-02	5-01	52.6	42.3
2	-10	19	28	36	M	9-05	0-11	31.5	41.9
3	61*	56	31	27	M	12-06	5-08	47.1	36.5
4	79	57	20	34	M	7-05	3-11	50.0	28.0
5	60*	69	25	28	F	10-10	3-03	17.8	22.2
6	32	41	15	29	M	11-11	4-09	38.9	31.1
7	14*	23	25	27	M	9-04	3-05	48.0	34.2
8	25	28	16	34	M	10-01	6-01	30.7	37.5
9	34	28	25	23	M	12-07	9-06	51.3	31.4
10	55	52	23	24	M	13-02	5-08	61.1	24.4
11	11*	23	13	33	M	10-00	5-02	42.3	38.1
12	55	28	19	23	M	13-02	2-02	44.0	37.5
13	49*	47	24	18	M	10-01	5-07	42.9	40.0
14	36*	43	20	21	M	12-09	5-00	41.3	27.5
15	42*	31	18	22	M	12-06	4-09	29.9	31.7

a Asterisk gives order of PPVT administration; with asterisk Form A was given first, without it Form B was administered first.

b Stott A indicates rating given individual by senior staff on a ward. Stott B indicates rating given individual by junior staff on a ward.

c The percentage of human and non-human items failed on the PPVT is given for each individual.

Table VIII.-

Individual Data for Fifteen Institutionalized Mental Retardates Rated as Emotionally Disturbed and Coming from an Inadequate Home Environment.

Subj.	PPVT IQ Form A	PPVT IQ Form B	Stott Ratings[b] A	Stott Ratings[b] B	Home Env.[c]	Sex	C.A.	Time in Instit.	Percentage of Items Failed[d] Human	Percentage of Items Failed[d] Non-human
1	-10*[a]	20	42	44	4	F	12-02	4-03	52.0	28.6
2	10*	26	20	52	4	F	12-07	6-11	48.1	40.0
3	61*	60	40	20	2	F	13-02	5-08	38.5	16.4
4	15*	17	30	31	1	M	8-07	5-10	47.6	35.5
5	46*	44	28	28	2	M	12-08	2-10	24.0	29.0
6	76*	86	29	27	3	M	8-00	5-05	33.0	32.7
7	61*	65	26	30	1	F	13-03	3-08	42.1	36.9
8	18*	29	30	24	2	M	10-09	1-06	42.3	33.3
9	30*	38	29	24	1	F	13-00	3-00	34.8	36.3
10	22	31	32	18	1	F	9-11	4-01	37.5	35.3
11	58	59	27	23	1	M	12-04	7-05	63.6	11.5
12	14	18	16	27	5	M	7-04	5-07	50.0	29.2
13	31	34	27	17	2	M	13-01	5-10	51.6	36.5
14	-10	17	20	20	4	F	13-01	8-03	35.0	34.6
15	58	64	14	25	1	F	11-07	0-06	50.0	16.6

a Asterisk gives order of PPVT administration; with asterisk Form A was given first, without it Form B was given first.

b Stott A indicates rating given by a senior staff on a ward. Stott B indicates rating given by a junior staff on a ward.

c Environment numbers correspond to those given by Zigler to evaluate an inadequate home environment. Ref. on p. 33-34.

d The percentage of human and non-human items failed on the PPVT is given for each subject.

APPENDIX 2

PERFORMANCE ON HUMAN VS. NON-HUMAN PPVT ITEMS BY VARIOUS SUB-GROUPS

APPENDIX 2

PERFORMANCE ON HUMAN VS. NON-HUMAN PPVT ITEMS BY VARIOUS SUB-GROUPS

The three following tables compare the performance of various groups of retardates on PPVT items classified as to human and non-human contents. Table IX shows that all four groups have a higher percentage of failure on PPVT human items than on the non-human items. In fact significant differences between the two classes of items have been found for three of the four groups of subjects.

Table X shows that emotionally disturbed mentally retarded children found human items significantly more difficult to solve than did children rated as emotionally stable. The emotionally disturbed children from inadequate home environments found human items more difficult to solve than did the disturbed retardates coming from adequate homes.

Table XI includes only those human items classified as verbs and non-human items classified as nouns. All subjects found human verbs more difficult to solve than non-human nouns. Significant differences were found between the emotionally disturbed and emotionally stable subjects. Among the emotionally stable retardates, the results show that the children from adequate home environments found human verbs more difficult to solve than did the children from inadequate homes.

Table IX.-

Significance of Differences in Percentage of Failures on PPVT Human Items and on Non-human Items for Sixty Institutionalized Mental Retardates Classified on the Basis of Emotional Adjustment and Home Environment.

	Inadequate Homes Emotionally Disturbed (N:15)		Adequate Homes Emotionally Disturbed (N:15)	
	Human Items	Non-human Items	Human Items	Non-human Items
Mean	43.3	29.9	42.0	33.4
Std. Dev.	9.73	8.30	10.40	5.85
Std. Error	2.60	2.22	2.78	1.56
Difference	13.4		8.6	
S.E. Diff.	3.42		3.19	
"t" Test	3.92 P= .001		2.696 P= .02	

	Inadequate Homes Emotionally Stable (N:15)		Adequate Homes Emotionally Stable (N:15)	
	Human Items	Non-human Items	Human Items	Non-human Items
Mean	38.2	35.0	38.6	29.2
Std. Dev.	10.74	5.54	8.99	7.00
Std. Error	2.87	1.48	2.40	1.87
Difference	3.2		9.4	
S.E. Diff.	3.23		3.04	
"t" Test	0.91 P= -		3.092 P= .01	

Table X.-

Significance of Differences on PPVT Items, Categorized as Human and Non-human Content, for Sixty Institutionalized Mental Retardates Classified on the Basis of Home Environment and Emotional Stability.

	Emotional Ratings		Environmental Ratings	
	Emotionally Disturbed (N:30)	Emotionally Stable (N:30)	Inadequate Homes (N:30)	Adequate Homes (N:30)
Mean[a]	44.47	37.99	41.42	40.99
Std. Dev.	9.80	13.28	12.21	12.18
Std. Error	1.82	2.47	3.20	2.26
Difference	6.48		0.43	
S.E. Diff.	3.07		3.20	
"t" Test	2.11[b]		0.11	

	Emotionally Disturbed		Emotionally Stable	
	Inadequate Homes (N:15)	Adequate Homes (N:15)	Inadequate Homes (N:15)	Adequate Homes (N:15)
Mean	48.25	40.59	34.58	41.39
Std. Dev.	5.72	11.79	13.14	12.54
Std. Error	1.53	3.15	3.51	3.35
Difference	7.66		6.81	
S.E. Diff.	3.50		4.85	
"t" Test	2.189[b]		1.404	

a Mean scores are derived by subtracting each individual percentage; that is, the percent of non-human items failed from the percent of human items failed. To this number the constant of thirty-two is added.

b Significant at .05 level of probability.

Table XI.-

Significance of Differences on PPVT Items, Classified as Human Verbs and Non-human Nouns, for Sixty Institutionalized Mental Retardates Classified on the Basis of Home Environment and Emotional Stability.

	Emotional Ratings		Environmental Ratings	
	Emotionally Disturbed (N:30)	Emotionally Stable (N:30)	Inadequate Homes (N:30)	Adequate Homes (N:30)
Mean[a]	58.53	46.77	48.30	57.00
Std. Dev.	18.46	19.57	22.92	15.16
Std. Error	3.45	3.63	4.26	2.82
Difference	11.76		8.70	
S.E. Diff.	5.01		5.11	
"t" Test	2.35[b]		1.70	

	Emotionally Disturbed		Emotionally Stable	
	Inadequate Homes (N:15)	Adequate Homes (N:15)	Inadequate Homes (N:15)	Adequate Homes (N:15)
Mean	58.07	59.00	38.53	55.00
Std. Dev.	20.94	15.54	20.37	14.50
Std. Error	5.60	4.16	5.45	3.88
Difference	0.93		16.47	
S.E. Diff.	6.99		6.67	
"t" Test	0.014		2.469[b]	

a Mean scores are derived by subtracting the percent of non-human items failed from the percent of human items failed. To this difference the constant of thirty-five is added.

b Significant at .05 level of probability.

APPENDIX 3

PERFORMANCES OF ALL GROUPS ON VARIOUS SUB-CLASSES OF PPVT ITEMS

APPENDIX 3

PERFORMANCES OF ALL GROUPS ON VARIOUS SUB-CLASSES OF PPVT ITEMS

In Tables XII to XIX, PPVT items have been categorized into six classes: three for human items (Nouns, Verbs, and Others) and three for non-human items (Animals, Nouns, and Others).

For most groups, the human Verbs proved to be the most difficult items to solve. The fifteen retardates rated as emotionally stable and coming from inadequate home environments proved to be an exception, because this group found both classes of human and non-human Others more difficult than the human Verbs. The non-human Others class also proved to be quite difficult for both groups coming from adequate home environments; i.e., the emotionally disturbed and the emotionally stable.

For all groups the human and non-human Nouns presented the least difficulty, while the human Others and non-human Animals proved to be moderately difficult, but the human Verbs and the non-human Others were the items that proved to be the most tasking.

Table XII.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Thirty Institutionalized Mental Retardates Rated as Emotionally Stable.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	29.40	41.70	38.13	36.83	30.00	41.77
Std. Dev.	19.83	15.33	27.53	14.84	9.08	30.72
Std. Error	3.17	2.85	5.11	2.76	1.69	5.70

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	8.73	6.30	1.386	-
HN-HV	12.30	4.65	2.645	.02
HN-NA	7.43	4.60	1.620	-
HN-NN	.60	4.05	0.138	-
HN-NO	12.37	6.78	1.824	.10
HO-NA	1.30	5.81	0.224	-
HO-NN	8.13	5.38	1.512	-
HO-NO	3.64	7.66	0.475	-
HV-HO	3.57	5.85	0.610	-
HV-NA	4.87	3.97	1.227	-
HV-NN	11.70	3.31	3.535	.01
HV-NO	.07	6.37	0.011	-
NO-NA	4.94	6.33	0.780	-
NO-NN	11.77	5.95	1.981	.10
NA-NN	6.83	3.17	2.150	.05

"t" at .10 is 1.701
" .05 " 2.048
" .02 " 2.467
" .01 " 2.763
" .001 " 3.674

Table XIII.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Thirty Institutionalized Mental Retardates Rated as Emotionally Disturbed.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	25.50	53.40	32.97	35.27	30.47	34.53
Std. Dev.	18.96	20.42	30.40	11.76	8.06	26.00
Std. Error	3.52	3.79	5.65	2.18	1.50	4.83

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	7.47	6.66	1.122	-
HN-HV	27.90	5.17	5.397	.001
HN-NA	9.77	4.60	1.620	-
HN-NN	4.97	4.05	0.140	-
HN-NO	9.03	5.98	1.510	-
HO-NA	2.30	6.06	0.380	-
HO-NN	2.50	5.85	0.427	-
HO-NO	1.56	7.45	0.214	-
HV-HO	20.43	6.80	3.004	.01
HV-NA	18.13	4.37	4.149	.001
HV-NN	22.93	4.08	5.620	.001
HV-NO	18.87	6.14	3.327	.01
NA-NN	4.80	2.65	1.810	.10
NA-NO	.74	5.30	0.140	-
NN-NO	4.06	5.06	0.802	-

"t" at .10 is 1.701
" .05 " 2.048
" .02 " 2.467
" .01 " 2.763
" .001 " 3.674

Table XIV.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Thirty Institutionalized Mental Retardates Coming from Inadequate Home Environments.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	31.23	44.70	36.50	33.47	32.07	34.33
Std. Dev.	16.17	19.34	29.26	10.94	8.20	31.64
Std. Error	3.00	3.59	5.43	2.03	1.52	5.88

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	5.27	6.20	0.850	-
HN-HV	13.47	4.68	2.878	.01
HN-NA	2.24	3.62	0.619	-
HN-NN	.84	3.34	0.250	-
HN-NO	3.10	6.60	0.470	-
HO-NA	3.03	5.50	0.551	-
HO-NN	4.43	5.33	0.831	-
HO-NO	2.17	8.00	0.271	-
HV-HO	8.20	6.51	1.260	-
HV-NA	11.23	4.12	2.726	.02
HV-NN	12.63	3.90	3.238	.01
HV-NO	10.37	6.89	1.505	-
HA-NN	1.40	2.54	0.550	-
NA-NO	.86	6.22	0.014	-
NN-NO	2.26	6.07	0.372	-

"t" at .10 is 1.701
" .05 " 2.048
" .02 " 2.467
" .01 " 2.763
" .001 " 3.674

Table XV.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Thirty Institutionalized Mental Retardates Coming from Adequate Home Environments.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	23.67	50.40	34.60	38.63	28.40	41.97
Std. Dev.	21.68	18.18	28.94	14.73	8.58	24.81
Std. Error	4.03	3.38	5.37	2.74	1.59	4.61

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	8.10	6.71	1.629	-
HN-HV	26.73	5.26	5.082	.001
HN-NA	14.96	4.87	3.070	.01
HN-NN	4.73	4.33	1.089	-
HN-NO	18.30	6.12	2.990	.01
HO-NA	4.03	6.03	0.668	-
HO-NN	6.20	5.60	1.107	-
HO-NO	7.37	7.08	1.041	-
HV-HO	15.80	6.35	2.488	.02
HV-NA	11.77	4.35	2.706	.02
HV-NN	22.00	3.74	5.882	.001
HV-NO	8.43	5.72	1.474	-
NA-NN	10.23	3.22	3.177	.01
NA-NO	3.34	5.36	0.631	-
NN-NO	13.57	4.88	2.781	.01

"t" at .10 is 1.701
" .05 " 2.048
" .02 " 2.467
" .01 " 2.763
" .001 " 3.674

Table XVI.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Fifteen Institutionalized Mental Retardates Coming from Inadequate Home Environments and Rated as Emotionally Disturbed.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	31.60	51.13	30.07	33.00	29.27	27.40
Std. Dev.	11.62	19.40	27.32	14.08	5.29	26.87
Std. Error	3.10	5.19	7.30	3.76	1.41	7.18

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	1.53	7.94	0.193	-
HN-HV	19.53	6.04	3.233	.01
HN-NA	1.40	4.87	0.287	-
HN-NN	2.33	3.40	0.685	-
HN-NO	4.20	7.82	0.537	-
HO-NA	2.93	8.21	0.292	-
HO-NN	.80	7.43	0.108	-
HO-NO	2.67	10.24	0.261	-
HV-HO	21.06	8.96	2.350	.05
HV-NA	18.13	6.41	2.828	.02
HV-NN	29.86	5.38	4.063	.01
HV-NO	23.73	8.86	2.678	.02
NA-NN	3.73	4.02	0.928	-
NA-NO	5.60	8.10	0.691	-
NN-NO	1.87	7.32	0.255	-

"t" at .10 is 1.761
" .05 " 2.145
" .02 " 2.624
" .01 " 2.977
" .001 " 4.140

Table XVII.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Fifteen Institutionalized Mental Retardates Coming from Adequate Home Environments and Rated as Emotionally Disturbed.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	19.40	55.67	35.87	37.53	31.67	41.67
Std. Dev.	25.46	21.16	32.94	15.03	9.47	21.63
Std. Error	6.81	5.66	8.81	4.02	2.60	5.78

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HO	16.47	11.13	1.480	-
HN-HV	36.27	8.86	4.094	.01
HN-NA	18.13	7.91	2.292	.05
HN-NN	12.27	7.29	1.683	-
HN-NO	22.27	7.82	2.848	.02
HO-HV	19.80	10.47	1.891	.10
HO-NA	1.66	9.68	0.171	-
HO-NN	4.20	8.81	0.477	-
HO-NO	5.80	10.53	0.651	-
HV-NA	18.14	6.94	2.614	.05
HV-NN	24.00	6.23	3.852	.01
HV-NO	14.00	8.09	1.731	-
NA-NN	5.86	4.79	1.223	-
NA-NO	10.00	6.34	1.577	-
NN-NO	4.14	7.04	0.588	-

"t" at .10 is 1.761
" .05 " 2.145
" .02 " 2.624
" .01 " 2.977
" .001 " 4.140

Table XVIII.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Fifteen Institutionalized Mental Retardates Coming from Inadequate Home Environments and Rated as Emotionally Stable.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	30.87	38.27	42.93	33.93	34.87	41.27
Std. Dev.	19.69	18.90	29.72	7.18	9.53	33.51
Std. Error	5.26	5.05	7.95	1.92	2.55	8.96

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HV	7.40	7.29	1.015	-
HN-NO	12.06	9.53	1.265	-
HN-NA	3.06	5.60	0.555	-
HN-NN	4.00	5.85	0.678	-
HN-NO	10.40	10.38	1.002	-
HO-NA	9.00	8.18	1.100	-
HO-NN	8.06	8.35	0.965	-
NO-NO	1.66	11.97	0.139	-
HV-HO	4.66	9.42	0.495	-
HV-NA	4.38	5.40	0.803	-
HV-NN	3.40	5.66	0.601	-
HV-NO	3.00	10.27	0.292	-
NA-NN	0.94	3.19	0.289	-
NA-NO	7.34	9.16	0.801	-
NN-NO	6.40	9.31	0.687	-

"t" at .10 is 1.761.

Table XIX.-

Percentage of Failures on Various Sub-classes of PPVT Items and Their Comparison for Fifteen Institutionalized Mental Retardates Coming from Adequate Home Environments and Rated as Emotionally Stable.

	Classes of Human Items			Classes of Non-human Items		
	Nouns (HN)	Verbs (HV)	Others (HO)	Animals (NA)	Nouns (NN)	Others (NO)
Mean	27.93	45.13	33.33	39.73	25.13	42.27
Std. Dev.	16.02	12.55	24.21	14.37	6.01	27.63
Std. Error	4.28	3.36	6.47	3.84	1.61	7.39

Classes Compared	Mean Diff.	Std. Error of Diff.	"t"	Level of Probability
HN-HV	17.20	5.44	3.162	.01
HN-HO	5.40	7.76	0.696	-
HN-NA	11.80	5.75	2.050	.10
HN-NN	2.80	4.57	0.610	-
HN-NO	14.34	8.54	1.679	-
HO-NA	6.40	7.52	0.851	-
HO-NN	8.20	6.67	1.229	-
HO-NO	8.94	9.82	0.910	-
HV-HO	11.80	7.29	1.620	-
HV-NA	5.40	5.10	1.059	-
HV-NN	20.00	3.73	5.362	-
HV-NO	2.86	8.12	0.522	-
NA-NN	14.60	4.21	3.468	.01
NA-NO	2.54	8.33	0.305	-
NN-NO	17.14	7.56	2.267	.05

"t" at .10 is 1.761
" .05 " 2.145
" .02 " 2.624
" .01 " 2.977
" .001 " 4.140

APPENDIX 4

EXAMPLES OF PPVT ITEMS CLASSIFIED AS HUMAN AND NON-HUMAN CONTENTS

APPENDIX 4

EXAMPLES OF PPVT ITEMS CLASSIFIED AS HUMAN AND NON-HUMAN CONTENTS

Human Content		Non-human Content	
Nouns	Baby	Animals	Chicken
	Girl		Bee
	Queen		Kangaroo
	Teacher		Peacock
	Cobbler		Bronco
	Pedestrian		Thoroughbred
Verbs	Blowing	Nouns	Fan
	Building		Caboose
	Pledging		Net
	Yawning		Capsule
	Directing		Funnel
	Soldering		Tread
Others	Boat	Others	Accident
	Key		Time
	Tumble		Balancing
	Argument		Shining
	Ceremony		Stunt
	Jubilant		Dwelling

Reference to method of classifying PPVT items is found in the chapter on experimental design, p. 37-39.

APPENDIX 5

ABSTRACT OF

Home Environment and Emotional Disturbance in Relation to the Performance of Institutionalized Mental Retardates on the Peabody Picture Vocabulary Test

APPENDIX 5

ABSTRACT OF

Home Environment and Emotional Disturbance in Relation to the Performance of Institutionalized Mental Retardates on the Peabody Picture Vocabulary Test[1]

In classifying Peabody Picture Vocabulary Test items, Dorothy Shipe found that while non-disturbed retarded children had more difficulty with human than with non-human items, emotionally disturbed retardates had the most difficulty with items of human content. She suggested that the human content items may have revived past unpleasant experiences for the disturbed children, thus creating an anxiety state and lowering test performance. In the light of this claim, the present study attempts to ascertain whether institutionalized mental retardates, classified according to their prior home environment and emotional stability, differ in performance on a picture vocabulary test, in identifying word stimuli of a human content as opposed to those with a non-human content.

Sixty institutionalized mentally retarded children aged seven to thirteen years were selected according to home environment and emotional stability. The criteria for inadequate home environment were adopted from Zigler, while the children were rated for emotional adjustment by ward personnel using the

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1 Gregory J. Soucy, Master's thesis presented to the Faculty of Psychology of the University of Ottawa, Ontario, May 1970, x-96 p.

Bristol Social Adjustment Guide. Simultaneous classification on both criteria resulted in four groups of fifteen subjects each: inadequate homes, emotionally disturbed; adequate homes, emotionally disturbed; adequate homes, emotionally stable; and inadequate homes, emotionally stable. In order to increase both the number of test items and their subsequent categorization, both forms of the Peabody Picture Vocabulary Test were administered randomly to each individual.

Statistical analysis indicated that all subjects found items of human content more difficult to solve than items of non-human content. It was found that retarded children from inadequate home environments had no more difficulty with PPVT items of human content than did children coming from adequate home environments. However, emotionally disturbed retardates had far more difficulty with human items than did children rated as emotionally stable. Of the emotionally disturbed children, it was discovered that those from inadequate home environments had the greatest difficulty with human items as opposed to non-human items.

In an attempt to account for the extreme difficulty experienced by the subjects in correctly identifying those PPVT items classified as human, an item analysis was computed, classifying all human items as Nouns, Verbs, or Others, while all non-human items were categorized as Animals, Nouns, or Others. As with the human items, it was found that the human

Verbs was statistically the most difficult of all classes to solve. Again it was found that the emotionally disturbed mental retardates had more difficulty with human Verbs than the children rated as emotionally stable.

In proposing possible explanations for the difficulty among the retardates in solving PPVT items of human Verb content, it was suggested that PPVT human Verbs gave the most difficulty because of a twofold mental process needed to solve such items. First, the child must perceive the humans on the PPVT card, and second, attribute to the proper picture the activity called for by the stimulus word. It was argued that in the case of the more complex task, association might prevent an emotionally disturbed child from making a correct response because the items of human content, classified as Verbs, might have stimulated some past unpleasant interpersonal experience, thus distracting the child and inducing error. A past unpleasant experience might have also caused inhibition thereby preventing an emotionally disturbed retarded child from accurately identifying a PPVT item with a human verb content.

It was recommended that the potential uses of the PPVT for identifying certain types of personality maladjustment should be investigated in full. This study should be duplicated using non-institutionalized retardates as well as other classes, besides the cultural familial type and those of undetermined etiology. More refined methods of assessing both home environment and emotional stability should also be sought.