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RELATION OF MOSAIC PATTERNS TO SPELLING AND READING IN LOW ACHIEVERS¹

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THE literature on the Lowenfeld Mosaic Test (LMT), while hardly extensive in comparison with that dealing with such other projective techniques as the Rorschach and Thematic Apperception Test, is increasing steadily (Dörken, 1956). Increasing numbers of investigators report using LMT in a variety of ways, as a diagnostic tool in clinical and hospital settings (Colm, 1948), in evaluation of emotional factors and mental ability in the schools (Stewart and Leland, 1955), and in investigations in child development (Ames and Ilg, 1962; Ilg and Ames, 1964).

Lowenfeld's claim that designs made with Mosaic tiles give the best indication of the child's "genuine endowment" has received qualified agreement. Some researchers found a substantial relationship between the Lowenfeld production and intelligence as measured on a standardized intelligence test. Others concluded that LMT is sensitive to intellectual development only during the child's early years. Still others reported Mosaics yield a developmental level or mental age which is not necessarily the same as intelligence.

McCulloch and Girdner (1949) compared designs of mental defectives with their Stanford Binet scores and found a statistically reliable correlation at the .01 level. In a similar study using normal children, Woolf and Gerson (1953) found a "well defined" but not significant relationship. LMT, they stated, measures

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"something correlated with intelligence . . . but not intelligence as measured by the Binet Test (p. 734)."

Lowenfeld productions of children with inadequate school functioning were reported by Colm (1948) to compare positively, but not strongly, with the Stanford Binet, more favorably with the Kent E-G-Y Intelligence Test.

In a sample of first-grade children, studied by Stewart and Leland (1955), "little" relationship was shown between intelligence as measured by school achievement and type of Mosaic made. Nonetheless, these authors concluded that brighter children, generally, made more miscellaneous representational objects. It appears that while they apply intelligence as a criterion in evaluation, they tend to play down its importance in the process. It may be that the word "little" needs clarification.

Ames and Ilg's (1962) use of LMT in providing a basic outline of developmental changes in boys and girls is the most extensive study yet published in this country. This volume gives findings on age changes in the Mosaic product at yearly intervals for 1500 American children, ages two through 16, and thus provides both normative data as well as a detailed study of the types of productions made in this country. Based on their longitudinal investigations the Lowenfeld test "reveals not only the developmental status of the individual at any given age but also, when several tests are available in sequence, the rate and direction of growth (p. 263)."

LMT further showed itself in agreement with other tests used by Ilg and Ames (1964) to estimate school readiness, i.e., Copy Forms and Incomplete Man, especially at the five and six year level.

Most of the studies previously undertaken attempted to demonstrate correspondences between LMT and intelligence or developmental tests. This study investigates the relationship between developmental level as measured by LMT and a standardized achievement test.

Examination of the characteristics of Mosaic structures of children with learning problems permits comparisons of the ways in which these differ from the Ames and Ilg designs of normal children. Present data also provide samples of age trends from the population of children with learning disabilities.

Method. The spelling and reading subtests of the Wide Range Achievement Test (WRAT) were administered to 68 children between the ages of seven and 10 years. These children were enrolled in a special remedial program sponsored by NDEA Title I in the Herricks Schools, Herricks, Long Island, New York. They were identified as slow learners by (a) teacher evaluation, (b) reading level as determined by district-wide tests, and (c) average in classroom tests in all subject areas. On the basis of the grade-level score received in the two subtests, each child was ranked among his peers. Thus every child was ranked in spelling and in reading.

A standard administration of LMT was given to these same children. Through use of the developmental tables and form level ratings according to Ames and Ilg (1962), each child's product was assigned a developmental level and rank.

Results. Using Spearman's Rank-Difference Correlation method, the writer found correlations significant at the .01 level between Spelling and LMT scores of the 7 and 8 year old children. For these age groups there was also a correlation significant at the .05 level between Reading and LMT score. The 9- and 10-year-olds showed nonsignificant, considerably lower correlations, (see Table 1).

Discussion. These findings suggest that up to age eight competence in spelling and reading can be predicted through LMT's assessment of developmental level. They further suggest that processes of development and those of intellectual achievement appear to be somewhat related in the early years. In other words, the acquisition of knowledge and skills in the beginning grades in school is related to the individual's maturity status. As the

TABLE 1
Correlation Coefficients between Wide Range Achievement Test and Lowenfeld Mosaic Test

n	Age	Coefficients	
		Spell.—LMT	Read.—LMT
19	7	.73**	.49*
15	8	.74**	.49*
15	9	.14	.26
19	10	.03	.13

* $p < .05$.

** $p < .01$.

child becomes older, arrests and deviations in growth and development have differential effects on school performance.

Comparisons between the Mosaics of normal and of non-achieving girls show a preponderance of grass, trees, and flowers among the former. Since these products are considered to be feminine symbols, the comparative absence of this type of production among nonachieving girls implies the possibility of inadequate sexual identity.

Among boys who do poorly in school, excessive use of aggressive symbols like bombs and arrows supports Colm's (1948) contention that the Mosaic illustrates the child's difficulties in growing up—difficulties that might be hypothesized as being due, in part, to ineffectual or delayed sublimation of hostile drives.

Greater frequency in the use of animal content in the present study suggests an hypothesis of a child's tendency to cling to infantile modes of thought and ideation. If affects or attitudes expressed in animal productions are assumed to represent the fantasy life of the child, there is some evidence here that the inner drives of youngsters with school difficulties possibly remain unrelated to cognitive capacities.

Summary. Correlations between the Lowenfeld Mosaic Test responses and the spelling and reading subtests of the Wide Range Achievement Test of 68 low-achieving children yielded significant coefficients at ages seven and eight. Acquisition of skills in beginning grades of school appears to be related to individual maturity status. Later, interferences with development have differential effects on school performance. Mosaic shows itself to be useful instrument for establishing readiness or unreadiness for formal instruction in reading and spelling. Differences in the content of Mosaic productions of average and poor students are noted along with possible explanations.

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