1989

Relating developmental spelling and drawing stages to learning disabilities

Helene Constance Heuvel
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Heuvel, Helene Constance, "Relating developmental spelling and drawing stages to learning disabilities" (1989). *Master's Theses*. 3076.
DOI: <https://doi.org/10.31979/etd.5mtv-w5uf>
https://scholarworks.sjsu.edu/etd_theses/3076

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book. These are also available as one exposure on a standard 35mm slide or as a 17" x 23" black and white photographic print for an additional charge.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Order Number 1337810

Relating developmental spelling and drawing stages to learning disabilities

Heuvel, Helene Constance, M.A.

San Jose State University, 1989

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

RELATING DEVELOPMENTAL SPELLING AND DRAWING
STAGES TO LEARNING DISABILITIES

A Thesis

Presented to

The Faculty of the Division of Special Education and
Rehabilitative Services
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

By

Helene Constance Heuvel

May, 1989

APPROVED FOR THE DIVISION OF SPECIAL EDUCATION
AND REHABILITATIVE SERVICES

Theodore J. Mentemur

Kathleen Carmona

Mary Male

APPROVED FOR THE UNIVERSITY

Leona W. Stanford

ACKNOWLEDGEMENTS

With sincere appreciation to Dr. Marylou Lewandowski who started me on this ten year journey, and to Dr. Theodore J. Montemurro who helped me complete it.

With equal appreciation to all of the students that I have worked with from September 1949 to June 1989.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vi
 Chapter	
I. THE PROBLEM	1
Purpose of the Study	3
Definition of Terms	3
II. REVIEW OF THE LITERATURE	5
Historical Background of Spelling	5
Historical Background of Art	8
Stages of Art and Spelling	9
Interpretation of the Stages	16
Tests Used in this Study	18
Summary	19
III. METHODOLOGY	21
Subjects	21
Training of the Spelling and Art Examiners	22
Scoring Procedures for Spelling	23
Scoring Procedure for Art	26
Data Collection Procedures	28
Data Analysis	32
IV. RESULTS AND DISCUSSION OF FINDINGS	34

V.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS . . .	38
	Summary	38
	Conclusions	38
	Recommendations	39
	REFERENCES	41

LIST OF TABLES

Table		Page
1.	Summary of Art Stages	15
2.	Summary of Spelling Stages	16
3.	Classifications of the Test of Written Spelling (Larsen & Hammill, 1986, p. 17, 18)	23
4.	Minimum Number Correct for Entry Level of Developmental Spelling Stages	24
5.	Spelling Scoring Guide	25
6.	Art Scoring Guide	27
7.	Spelling and Art Scores	34
8.	Number of Subjects in Each Developmental Stage	36

CHAPTER I

THE PROBLEM

Through the language arts program, elementary students gain knowledge, values, and effective listening, speaking, reading, and writing. The conventions of writing--correct usage, grammar, spelling, punctuation, and capitalization--and handwriting are subsumed under writing. Time is structured for instruction in the visual and performing arts including art, drama, dance, and music (Handbook, 1985). Cognitive development encompasses content and process. Affective development involves a system of values, attitudes, and emotions, while psychomotor development incorporates the physical manipulation of the child's environment.

In kindergarten, content and learning activities serve the social, emotional, and psychomotor needs of the child. Art serves the objective of thinking and knowledge. Concepts are understood through a schema-building process. Art is the language which expresses knowledge. Stages of art development fuse into one another as the child changes his thinking and forms new relationships with his environment (Lowenfeld & Brittain, 1987).

Writing is a recursive process which includes prewriting, drafting, revising, editing, and postwriting activities (Handbook, 1985). Spelling is learned through the writing process and direct instruction.

Reading consists of word recognition and comprehension beginning with readiness skills. Much time is spent on oral language because concept development must be in place before the abstract reading task can begin. Motivation must be there also. First grade teachers work on memory and motor development. Children who do not progress through the developmental reading stages with the majority of students may go to the reading specialist or the resource specialist. Approaches used may include: VAKT (visual-auditory-kinesthetic-tactile) method, DISTAR reading system, Rebus Reading Program, Glass Analysis method, or neurological impress method (Lerner, 1988).

Understanding the theory of cognitive stages is the underpinning for understanding the readiness for certain tasks. The stages of cognitive development change with the child's age (Piaget & Inhelder, 1969). The changes involve assimilation of the new experience with the old knowledge.

Children's spelling stages are developmental and show a significant correlation with Piaget's concept of decentration (Zutell, 1975; Piaget, 1968). Piaget (1959) discovered that cognitive stages of development closely parallel drawing stages of development. "Drawings give a good indication of the child's growth, moving from an egocentric point of view to a gradual awareness of the self as part of a larger environment" (Lowenfeld & Brittain, 1987, p. 44).

Purpose of the Study

The language arts criterion applies equally to all students, including students receiving special education instruction and service. The purpose of the study is to focus on the relationship between spelling and drawing abilities of children with written language disabilities. The study will examine spelling as word lists rather than in the context of the writing process. Each child will receive a spelling score and a drawing score which will place him/her in a spelling stage and an art stage.

It is hypothesized that a low correlation exists between the spelling and art scores in this population with a decision rule to reject the null hypothesis at the .05 level of significance. It is further hypothesized that the proportion of students whose spelling and art stages match, exceeds chance.

Definition of Terms

Learning disability. An educational term that means "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written" (Cartwright, Cartwright & Ward, 1981 p. 191).

Perceptual-motor. "A term describing the interaction of the various channels of perception with motor activity. The channels of perception include visual, auditory, tactual, and kinesthetic" (Lerner, 1988, p. 534).

Schema. "A shorthand notation for an object. It demonstrates the beginning of ordered thought" (Lowenfeld & Brittain, 1987, p. 223).

Stage. A level, degree or period of time in the course of a process.

CHAPTER II

REVIEW OF THE LITERATURE

Historical Background of Spelling

Textbooks for teaching reading and spelling, under the same cover, first appeared in England at the beginning of the sixteenth century. The first spelling book, Coote's The English School Master, was published in 1596, and included not only spelling and reading, but also history, geography, civics, and moral philosophy (Frith, 1980). Spelling and reading have been intimately tied together in the United States due to Webster's English textbook models which either came directly from England or were local reprints of English texts.

Webster (1758-1843) authored a speller, a grammar, and a reader, but his best known legacy is the American Dictionary published in 1828 with definitions for 70,000 words emphasizing rules, rote memorization, and word lists arranged by number of syllables and letter-sound patterns.

Little change took place in the teaching of spelling and reading until the reforms of the mid-nineteenth century. The whole-word reading method began to evolve from Webster's premise that "Spelling is the foundation of reading and the greatest ornament of writing" (Webster, 1783, p. 26). Therefore, reading must be taught by first learning the alphabet and every vowel-consonant combination and every consonant-vowel combination. McGuffey's Readers became

popular, with words and sentences in the first lesson (Frith, 1980).

Spelling reform has been in and out of favor with the political winds of the times. Theodore Roosevelt added it to his list of reforms in 1906 (Frith, 1980). English spelling was and still is a phonemic based writing system that preserves morphemic identity wherever possible. Spelling programs included many and varied kinds of instructional methodologies, with little use being made of Webster's alphabetic principle underlying the American-English orthography.

Bloomfield (1942) noted the alphabetic nature of the language and the value of designing instruction around the principle of associating spoken language (surface level) to the written form. He began the task of tabulating the number of words that would fall into the groups based on this principle. Hanna and Moore (1953) examined 3000 words. They found that 80% of the phonemes were written consistently with spelling patterns in more than half the occurrences of these phonemes in words.

Horn (1960) claimed that less frequently used words beyond the 3000-word sample might show less consistent phoneme-grapheme correspondence. His analysis of 10,000 words showed that each word should be selected for children's study on the basis of how often it appeared in children's writing. Hanna, Hanna, Hodges and Rudorf (1966)

analyzed the phoneme-grapheme correspondence of 17,000 words on computer. Almost all consonant sounds and some vowel sounds were represented by one grapheme over 80% of the time.

Venezky (1970) used a morphophonemic level in combination with surface level structures. This allowed more predictable pronunciations than a simple spelling-to-sound system. Chomsky (Chomsky & Halle, 1968) theorized that underlying syntactic (deep) structures at the meaning level, together with transformational rules, allow the generation of an infinite number of sentences at the surface level. Words are merely surface structure elements.

Chomsky and Halle (1968) believed that minimal phonological and syntactical information is stored in the lexicon and that many words are derived from a single entry. The generative semanticists believed that the conceptual domain was more important and that semantic and relational features of a word were needed to locate it in a space concept in the lexicon. Chomsky's and Halle's (1968) theory of lexical representations differed from Venezky's morphophonemic theory in that "it reflects operations at all cognitive and linguistic levels and brings them to bear on the relationship between orthography and the mind" (Templeton, 1980, p. 23).

During the sixties, new research was being conducted on children's language acquisition. Instead of being concerned

with the type of words children uttered at certain ages, the number of spelling errors children made, and proper pronunciation, researchers began to look at spelling as a residual to the study of language (Read, 1986; Henderson, 1980; Beers, 1980). They hypothesized that children internalize, organize, and construct rules about information, and apply them to spelling (Beers, 1980). When the researchers studied levels of awareness, it led to the theory that all children pass through spelling stages.

Historical Background of Art

Read (1955) was particularly interested in aesthetics--the organization of thinking abilities, the development of perceptual abilities, and the close relationship to emotional capabilities, so that the child would become an harmoniously organized whole. Read believed in two principles of art, vitality and beauty, in the balanced composition of the art work. Lowenfeld (1987) believed that the visual learner represented one end of a continuum and the haptic learner the other end, with most people falling between the two extremes. He believed that art in the elementary classroom was for self-identification and self-expression (Lowenfeld & Brittain, 1987). Read (1955) and Lowenfeld & Brittain (1987) analyzed children's art and classified children into personality types, according to the art work they produced. Read (1955) listed eight types, while Lowenfeld & Brittain (1987) reduced the types to two: visual or haptic.

"Art is not the same for a child as it is for an adult" (Lowenfeld & Brittain, 1987, p. 6). Art is a reflection of the child's growth and development. As the child changes, so does his art. He goes through fairly definite stages, beginning with his first marks on paper and continuing through adolescence.

Stages of Art and Spelling

Stage one. The child develops through fairly predictable stages in both art and spelling. Between the ages of two and four are the beginnings of self-expression. Scribbling has progressed from disordered scribbles through controlled scribbles, due to visual control, to named scribbling. The naming of scribbling, such as, "This is mommy," is an important step because it represents a change of thinking from mere kinesthetic to imaginative (Lowenfeld & Brittain, 1987). It is stage one in art, and is mainly motor activity. Color is not important. It may be two big eyes that represent a person. At four and a half, the child draws the trunk, in which he often includes the navel; and at five, the whole person is easily recognizable with arms and legs. He also draws objects, using simple geometric forms.

The characteristics of children's misspellings lend themselves to grouping by developmental stages. The child in the "named scribbling" art stage will often add a special scribble to the picture, saying that it is writing. He then

begins to ask about letters. He puts them on paper in any direction and in a jumble. Stage one is evidenced by the preschooler who makes marks on paper in a more or less straight line that resemble letters. Read (1970) conducted studies of preschool children's writing and concluded that they chose to spell words phonetically, using the most similar tense vowels for lax ones. They did so on the basis of similarity in the place of articulation. Henderson (1980) called it the prephonetic stage.

Beers (1974) and Henderson (1974) began looking for the linguistic theory underlying Read's work. They analyzed the attempts of first grade children in Laurel, Maryland, over a six month period. They found that sequential spelling strategies were closely related to the child's word knowledge. "A mature concept of word underlies a writer's ability to produce, and to spell correctly, the vast lexicon of English" (Henderson, 1980, p. 6).

Frith (1980) found that orthographic knowledge was necessary for spelling and that such knowledge is acquired primarily through reading. Good readers who are poor spellers may be those who use partial clues from print, never needing to examine the entire word.

Stage two. In stage two, the beginning reader is in the phonetic or alphabetic stage of spelling (Henderson & Templeton, 1986). A reason for believing that the reading experience changes for the beginning reader, the moderately-

able reader, and the proficient reader is suggested by the possibility that learning to read produces an important change in the organization of the internal lexicon because, thereafter, children will have visual-orthographic as well as phonological entries (Ehri, 1978). Elkind (1974) suggested that children cannot deal with letters on a conceptual level until they have attained the level of dealing with letters in more than one dimension.

Zutell (1975) explored the correlation between spelling strategies of primary children and their cognitive stage, using Piaget's model of decentration, conservation, and class inclusion tasks. Preoperational to concrete operational thinking represents movement from intuitive, perception-bound schemata of reality to more mobile, logico-arithmetic, operatory thought processes (Piaget, 1968).

The results obtained suggested that there are developmental stages of word knowledge dependent upon 1) cognitive structures available to the child, and 2) the complexity of the particular word he is trying to spell. These stages are also significantly correlated with decentration. (Zutell, 1975, p. 88)

As the child learns that the written word represents speech, he assimilates this knowledge and accommodates his writing to it, according to Piaget (1968). Piaget classified the main periods of cognition as: sensori-motor (0-2 years), preoperational (2-7 years), concrete

operational (7-11 years), and formal operations (11-15 years). He believed that the stages were maturational and could not be altered. The fact that reading was related to conservation, more important for short vowels than long, suggests the importance of considering cognitive abilities in initial reading instruction.

In the preschematic art stage from approximately four through seven years of age, the child's symbols are constantly changing as he communicates with the self. There is a gradual inclusion of body, fingers, and toes. Art is the expression of the self, "a concrete configuration of the emotional and perceptual experiences that an individual has had in interacting with the environment" (Lowenfeld & Brittain, 1987, p. 410). The child always repeats his schema for a person, tree or house until instruction gradually changes it or an emotional experience impacts on him. Some children will have more elaborate schemata than others.

Stage three. In stage three, children have advanced to the pattern concept of spelling (Henderson & Templeton, 1986). They have learned that vowels are separate from consonants. They know common consonants and blends. They begin learning that there are several patterns for each long vowel, but they are governed by their position. Children also begin to deal with meaning at this level, beginning with the different spellings for past tense. Homophones are

presented as prefixes and suffixes. This is called the letter-name stage (Henderson & Templeton, 1986). This stage corresponds with the schematic art stage, (Lowenfeld & Brittain, 1987) in which the children gain self-assurance through repetition of form symbols. They are developing a figure concept and a space concept. Some are still making pictures in which the inside of a building can be seen as well as the outside. There is a baseline, even though it may not be the ground. A sequence of events may be represented in one drawing.

Stage four. The fourth stage of spelling emerges when children begin to understand joining common inflections to single-syllable words (Henderson & Templeton, 1986). The various long and short vowel patterns must be understood in order to learn whether a consonant is doubled or not. Knowledge of word structure determines what word features children should examine. Some are still in the transitional stage, while others may spell correctly in most instances. They are learning spelling rules, such as those for stressed/unstressed syllables.

Lowenfeld (1987) called this stage, "dawning realism" (p. 316), as the child's art work takes on more realistic lines and he is able to overlap forms without revealing the concealed parts. The baseline format disappears. Rigid schemata no longer prevail.

Stage five. By stage five, there is a great variety in children's art abilities. They are gaining the feeling for details but losing the feeling for action. Greater awareness begins to develop. They are still in the dawning realism, the gang age, from nine through twelve years (Lowenfeld & Brittain, 1987).

In written language, the students are beginning to explore the intricate, but predictable, system of vowel alternations. These entail most of the derivational relationships in English spelling. There is no specific topic with which to end the fifth stage.

Although all children pass through fairly predictable stages in art and spelling, they do not all do so at the same age and, therefore, the stages are only guidelines. Most researchers agree that the number of stages is five, although each gives different names to them. Henderson (1980) named them preliterate prephonetic, preliterate phonetic, letter-name strategy, vowel transition, and correct, while Gentry (1981) called them babbling, prephonetic, phonetic, transitional, and correct. Sometimes he calls the babbling stage, precommunicative, and the prephonetic, semi-phonetic.

In the summary of art and spelling stages (Tables 1 and 2), similarities with respect to schema-building can be noted.

Table 1

Summary of Art Stages

Age	Art Stage
<hr/>	
2-4 yr	Scribbling
	empty spaces may take on meaning
	lines become edges of shapes
	action may be named
	scribble may be named as a person
4-7	Preschematic
	shapes are geometric
	head-feet symbol grows out of scribble
	gradual inclusion of arms, body, fingers, toes
	objects distorted to fit space
	objects unrelated to one another
7-9	Schematic
	drawing shows concept, not percept
	baseline is included
	often skyline is shown, with space between as air
	repeated schema of a person
	exaggeration, omission, or change of schema shows
	effect of experience
9-12	Dawning Realism
	interrelationships between objects begin
	rigid schemata no longer prevail
	baseline disappears and plane emerges
	awareness of details is greater

Table 2

Summary of Spelling Stages

Age	Spelling Stage
5-6 yr	State One - Prephonetic learns about stories/knows what writing is knows how to write letters/knows letter names reflects his concept of form and function of print
7	Stage Two - Phonetic begins formal spelling - long & short patterns begins formal reading accommodates his spelling to reading sight words spells alphabetically, matching sounds & letters
8-9	Stage Three - Within-Word attends simultaneously to sound & to pattern examines long vowel spellings examines r-influenced vowels, vowel digraphs & diphthongs deals with meaning--e,g. past tense/homophones
10	Stage Four - Transition understands rationale of joining common inflections to single syllable words learns consonant doubling
10-12	Stage Five - Correct scans words systematically, syllable by syllable, noting patterns examines common/uncommon vowel patterns in stressed syllables

Interpretation of the Stages

Interpretation of art stages gives the teacher an appreciation of the child. At no time should art be graded, but samples can be collected, dated, and scored, using a set

of criteria as a reflection of the child's total being, giving the teacher insight into his total development. It is of no use, for example, to teach cooperative games to kindergartners before the development of the schema. The introduction of the baseline in the schema shows logical relationships between objects in the environment and, at that point, a meaningful reading program can begin (Lowenfeld & Brittain, 1987).

Interpretation of the spelling stages gives the teacher an appreciation of the child. When the teacher examines the child's misspellings, the conceptualization of written language is inferred. Important judgments can be made concerning the kinds of activities each child needs in order to progress (Gentry & Henderson, 1978).

Since there is overlapping of the stages, the child may sometimes be attempting words beyond his current stage. Knowing this, the teacher will expect spelling commensurate with the child's ability. The problem stems from being expected to spell words for which he is not ready.

Traditional approaches to educating children with learning disabilities can be categorized under perceptual/motor approaches, developmental approaches, linguistic approaches, and diagnostic/remedial approaches. Most teachers use a combination of approaches. Children with reading disabilities may or may not have written language disabilities or mathematical disabilities.

Children with written language disabilities often have difficulty processing what they see and hear. Many have trouble memorizing, following directions, noticing patterns, solving problems, retaining newly presented material, differentiating between shapes, explaining why something is the way it is, completing dictated assignments, and/or generalizing (Lerner, 1988).

Tests Used in this Study

The second edition of the Test of Written Spelling (Larsen & Hammill, 1986) is designed for use with students in grades one through twelve. In Bradley's review (Buros, 1978, p. 1604) for the 1976 test version, grades one through eight, it appeared to be well normed for an individually administered test. The standardization sample consisted of 4,544 students from 22 states. The reviewer felt that, while the Test of Written Spelling had adequate internal consistency beyond the first grade, it was doubtful that it was reliable enough to "accurately pinpoint a child's current level" (p. 1605). One concurrent validity study is reported in the manual.

The Test of Written Spelling (Larsen & Hammill, 1986) is comprised of two subtests in a dictated word format. The examiner says the word in isolation, uses the word in a sentence, and then repeats the word in isolation. It can be administered individually or in groups by an examiner without special training. The two subtests are Predictable

Words and Unpredictable Words. Predictable Words are words that conform to rules and generalizations. Unpredictable Words are words that do not conform to rules. The test yields three types of scores: raw scores, percentiles, and standard scores.

The criterion used in selecting the predictable words was that the rule governing their spelling would apply at least 50% of the time. The unpredictable words could not be spelled correctly when applying the 2000 plus rules (Hanna et al. 1966).

Summary

Collecting art samples of the same subject from different-aged children showed that there are certain characteristics common to particular ages as they relate to their environment in fairly predictable ways. Each stage grows directly out of the last stage. Lowenfeld (1987) believed that the first drawing of a person should be looked at as "an abstraction or schema from a large array of complex stimuli and demonstrates the beginning of an ordered thought process" (p. 223). For the child the value of an art experience is in the process, not the product.

Piaget (Piaget & Inhelder, 1969) viewed knowledge as a biological interaction between the child and his environment, constantly adapting through assimilation and accommodation. The psychological representation is called a schema.

Spelling is a cognitive, linguistic, developmental process in which the child develops a word schema, gradually moving away from strict phoneme-grapheme correspondences toward a highly abstract relational representation of speech in visual form. Children progress through the same stages, yet at varying rates, before spelling correctly (Read, 1986; Beers, 1974; Zutell, 1975; Henderson, 1976; Gentry, 1977).

Research showed that all children, including those with learning disabilities, pass through the art and spelling stages. Children with learning disabilities, especially those with written language disabilities, take longer to pass through the spelling stage because the psychological processes of attention, memory, perception, and thinking are impaired to a lesser or greater degree (Frith, 1980; Gerber, 1985, 1986). Eclectic teaching methods can compensate for their loss.

CHAPTER III

METHODOLOGY

The purpose of the study was to examine the relationship between the developmental stages of spelling and drawing in elementary students with learning disabilities, specifically, disabilities in written language. Based on the review of the literature, it was hypothesized that a correlation of at least .70 existed between the students' spelling scores and their art scores and that this correlation significantly exceeded chance at an alpha level of .05. It was further hypothesized that the proportion of students whose spelling and art developmental stages match exceeded chance and was significant at the .05 level.

Subjects

The study's sample consisted of 30 students, ages 7 to 13, drawn randomly from 60 subjects in six elementary schools in the San Francisco Bay Area district who qualified for special education services according to district criteria. The 60 subjects' names were placed in a hat. Drawing continued until 30 subjects met the criteria. One subject failed to meet the spelling entry criterion level and was replaced by subject number 31. No child failed to meet the schematic drawing entry level criterion. Spelling and art work of subject numbers 58, 59, and 60 were used for examiner training purposes.

Training of the Spelling and Art Examiners

The four examiners were chosen for their expertise in spelling and art. One spelling examiner was a retired San Jose librarian, while the other was an office manager and personal secretary. The two art examiners had backgrounds in the visual and performing arts. One, an American Watercolor Society member, had Indian art work in the Santa Clara Civic Center. The other examiner, a classical guitarist, had taught Adult Education fine arts classes.

The two spelling examiners were trained by practicing with the last three randomly drawn student papers. The researcher scored the papers as examples.

The two art examiners were trained by practicing with the same three students' art papers. The researcher demonstrated the scoring procedure by first placing the Children-In-Action picture on a two-by-three foot sheet of gray paper to avoid distraction, and then putting scores on a student record sheet. If a doubt existed concerning the child's score, the Drawing Designs picture gave clarifying information to help the examiner place the child in a developmental art stage.

In addition to scoring the three examples of student art, the text Creative and Mental Growth, Eighth Edition (Lowenfeld & Brittain, 1987) was used for training the art examiners. Examples of a particular stage were shown to the examiners as well as x-ray examples (whenever the inside of

an enclosure is more important than the outside), overlapping examples, and other criteria that might be present.

Scoring Procedures for Spelling

The scoring procedure for spelling resulted in two independent sets of scores. Each examiner had a copy of the Test of Written Spelling (Larsen & Hammill, 1986), to determine whether each word was correct or incorrect. The examiner had a Classifications of the Test of Written Spelling (Larsen & Hammill, 1986) as shown in Table 3.

Table 3

Classifications of the Test of Written Spelling

Lax vowel words	Predictable (11)	Unpredictable (3)
	bed	much
	him	us
	let	yes
	next	
	plant	
	spend	
	spring	
	stop	
	strong	
	went	
	when	
Tense vowel words	able (4)	eight (6)
	pile	knew
	shake	knife
	strange	name
		nineteen
		she
R-influenced words	hardly (3)	everyone (2)
	storm	sure
	tardy	
Rule-bound words	hospital (2)	fountain (4)
	section	myself
		people
		uncle

Based on the number correct in the classifications of lax vowel, tense vowel, r-influenced or rule-bound for the 40 dictated words, each word was identified. Unpredictable words two, who, and enough were excluded because they were mnemonic. "Unpredictable Words canyon and electricity were excluded because they were too advanced for elementary students in at least five major publishers' lists" (Larsen & Hammill, 1986, p. 18).

The total minimum number correct placed the student in a particular developmental stage, one, two, three, four or five, as shown in Table 4.

Table 4

Minimum Number Correct for Entry Level of
Developmental Spelling Stages

Stage One Prephonetic		Stage Two Phonetic		Stage Three Within-Word		Stage Four Transition		Stage Five Correct	
Lax	3	Lax	5	Lax	7	Lax	9	Lax	12
		Tense	2	Tense	4	Tense	6	Tense	8
				R-influenced	2	R-influenced	3	R-influenced	3
				Rule-bound	1	Rule-bound	3	Rule-bound	4

To confirm that the student was placed in the correct stage, the examiner used a scoring guide similar to that used by Henderson et al. (1984), shown in Table 5.

Table 5

Spelling Scoring Guide

Word	Score
Lax Vowel	
unclassifiable	0
consonant omitted/ substituted/reversed	1
closest lax/tense vowel	2
transitional	3
vowel correct, incorrect form	4
correct form	5
Tense Vowel	
unclassifiable	0
letter name, without <u>e</u>	1
transitional	2
vowel correct	3
vowel correct, incorrect form	4
correct form	5
R-influenced Vowel	
unclassifiable	0
consonant added/omitted/substituted/reversed	1
vowel omitted/substituted	2
transitional	3
vowel(s) correct, incorrect form	4
correct form	5
Rule-bound Vowel	
unclassifiable	0
stressed vowel/consonant omitted/substituted	1
number of syllables correct	2
transitional	3
vowels correct, incorrect form	4
correct form	5

As the scoring guide (Table 5) indicates, a score of 0 is unclassifiable and a score of 5 is correct. A correctly spelled word in predictable or unpredictable words received

a 5. An incorrectly spelled word in the predictable list was examined using the scoring guide criteria, giving from 4 to 0 points. If a doubt existed in the examiner's mind as to the score, the unpredictable list was examined for other examples of similar errors. A higher score was given for a correct vowel than for a correct consonant. For example, hem for him received a 2 because the closest articulated lax vowel was used; while wnt for went received a 1 because the vowel was omitted. Because the vowel and consonant were substituted in the stressed syllable, saxshen for section received a 1. The student's total score included the sum of correct scores in both lists, plus the sum of partial scores of predictable words. The misspelled unpredictable words were examined for corroborating information.

Scoring Procedure for Art

The scoring procedure for art resulted in two independent sets of scores. Pictures entitled Children-In-Action were scored individually by each of the two examiners using a scoring guide based on Lowenfeld's art stages summary charts (Lowenfeld & Brittain, 1987, p. 476-477) to place the student in a particular developmental stage. See Table 6.

Table 6

Art Scoring Guide

Schematic Stage of Development		
Drawing Characteristic	Space Representation	Human Representation
Bold, direct, flat	Baseline	Body made up of geometric shapes
Lines change in intensity or direction	X-ray pictures common	Exaggeration to show effect of experience
	Even distribution across the page	
Dawning Realism Stage of Development		
Drawing Characteristic	Space Representation	Human Representation
Tendency toward realistic lines	Disappearance of baseline	Difference between girls and boys
Shading	Discovery of plane	Begin to look like real people
	Indications of perspective	Decoration or detail in clothing
	Objects in proportion	
	Sense of balance	
	Overlapping of objects	

After the examiners had completed their initial scoring task, there was agreement on the students' stages in 21 out

of 30 cases. The researcher asked the examiners if they would consult and reconsider their evaluations on the other nine works of art. They came to an agreement on each, after consultation.

For this study, the schematic and dawning realism developmental stages were divided into early and late phases. To separate an early schematic drawing from a late one or an early dawning realism from a late one, the examiner looked for details. Stick figures, as a general rule, placed the child in the early schematic stage. If, for example, two pictures showed two girls jumping rope beside a house and a tree, they could be separated into early and late dawning realism. One drawing may include details: a TV antenna, bricks in the chimney, the tree partially visible, and ear rings on one of the girls. (Lowenfeld & Brittain, 1987). Youngsters in the late dawning realism stage, for example, show movement from the concrete to the abstract concepts.

Data Collection Procedures

Using the Test of Written Spelling (Larsen & Hammill, 1986), the resource specialist at each of the six schools dictated 20 rule-governed words from the Predictable list (p. 17) and 20 irregular words from the Unpredictable list (p. 18) to each of the students involved in the study in two 15-minute sessions. The resource specialists were encouraged to choose a time of day when the students were

most apt to do their best. Confidentiality was maintained by coding the students' papers with numerals and initials for identification.

In order to make the art procedure as similar as possible to the spelling procedure, the researcher devised a drawing experience (Lowenfeld & Brittain, 1987) using a detailed lesson plan (Hunter, 1982) to show the child's thoughts and representation of his environment. (See sample) The picture was entitled Children-In-Action.

I Anticipatory Set/Orientation

- a. Teacher reviews previous learning--We + Action + Where.

Example: We Are Playing on the School Grounds.

- b. Teacher establishes lesson objectives
 - . Paint a picture of me and somebody else doing something in an actual place
 - . Stimulate them to greater awareness of their own actions
 - . Involve the children
 - . Have fun

II Presentation/Instruction

- a. Materials Needed
 - . Sets of watercolors
 - . Brushes/paper - 2 sheets each (white, any size)
 - . Action poses of body, hands, and feet

b. Vocabulary

- . We (I and somebody else). (Part of speech, if appropriate)
- . Action (What are we doing?)
- . Where (An actual Place)

c. Key Question

- . Are we doing something somewhere?

d. Teacher demonstrates two people jumping rope on playground

e. Teacher checks for understanding

III Structured Practice

- a. Teacher leads students through different positions for body, hands, and feet
- b. Students respond to questions
- c. Teacher monitors student behaviors, praising body parts and correct practice, and providing corrective feedback for errors.

IV Guided Practice/Closure

- a. Students practice 2 hands, 2 feet positions
- b. Ask the key question

V Independent Practice

- a. Students practice independently in class

Since the examiners were not present during the art experience, it was essential to have the child's ideas, feelings, and emotions on paper. The second drawing, entitled Drawing Designs (Brookes, 1986), was also to help

the child who felt insecure about his drawing skills. (See sample)

I Anticipatory Set/Orientation

- a. Teacher reviews previous learning (The 5 Basic Elements of Shape Chart)
- b. Teacher establishes lesson objectives
 - . Copy the warm-up exercise(s)
 - . Make designs of your own
 - . Talk yourself through your design
 - . Have fun

II Presentation/Instruction

- a. Materials Needed
 - . Felt-tipped markers (different colors/widths)
 - . Newspaper
 - . White paper 8" x 8"/8-1/2" x 11" (2 each of small, 1 each of large)
 - . Overhead projector
 - . The 5 Basic Elements of Shape chart
 - . 3 Warm-up exercise sheets/3 instruction level sheets
- b. Vocabulary
 - . The words on the chart
- c. Key Question
 - . Can I talk myself through a design?

- d. Teacher demonstrates Level 1, 2, or 3 warm-up (depending on group's age) on overhead projector, talking his/her way through it.
- e. Teacher checks for understanding

III Structured Practice

- a. Teacher leads students through warm-up designs on 8-1/2" x 11" paper
- b. Students respond to questions
- c. Teacher monitors student behaviors, praising self-talk and correct practice, and providing corrective feedback for errors

IV Guided Practice/Closure

- a. Teacher gives oral Level 1, 2, or 3 directions for students to follow*
- *Students self-talk through the design.

V Independent Practice

- a. Students practice independently in class.

Data Analysis

Pearson's Product-Moment correlation analysis (Guilford, 1956) was conducted to check the reliability of the scores obtained by the spelling examiners and the art examiners. A minimum reliability level was set at .80. To test hypothesis I, that a high correlation exists between the spelling and art scores, Spearman's rank correlation coefficient (Siegel, 1956) was conducted on the averaged scores.

To test the second hypothesis, that the proportion of students whose spelling and art developmental stages match exceeds chance, the Binomial test (Siegel, 1956) was conducted with p set at .20.

CHAPTER IV

RESULTS AND DISCUSSION OF FINDINGS

The subjects' scores from spelling and art are displayed in Table 7.

Table 7

Spelling and Art Scores

Spelling Scores			Art Scores		
Case	Tester 1	Tester 2	Case	Tester 1	Tester 2
1	136	137	1	8	9
2	41	45	2	6	5
3	40	46	3	5	5
4	55	46	4	8	9
5	30	31	5	7	7
6	33	34	6	9	8
7	70	70	7	6	5
8	49	55	8	11	11
9	45	43	9	7	7
10	73	72	10	5	5
11	73	73	11	11	11
12	136	136	12	5	5
13	77	73	13	11	11
14	73	76	14	6	6
15	49	50	15	5	5
16	41	42	16	4	5
17	44	45	17	4	4
18	35	35	18	3	3
19	35	35	19	8	10
20	35	35	20	6	5
21	53	54	21	7	8
22	75	78	22	11	11
23	47	48	23	3	5
24	84	80	24	5	5
25	50	47	25	6	6
26	44	41	26	5	5
27	49	46	27	7	9
28	43	41	28	5	5
29	110	109	29	10	9
30	43	39	30	3	3

A high correlation existed between the scores of both the spelling examiners and the art examiners as evidenced by the Pearson Product-Moment correlation analysis (Guilford, 1956) as shown in Table 7. The spelling scorers' correlation was .99 and the art examiners' correlation was .99.

To test the null hypothesis that there was low correlation between the spelling and art scores, the Spearman rank correlation coefficient analysis (Siegel, 1956) was conducted on the averaged scores. Averaged scores were used because drawing and spelling scores were so close. The spelling and art scores, with correction for ties, showed a low to moderate correlation of .36 with a confidence level of .02.

To test the research hypothesis that the proportion of students whose developmental stages match in spelling and art exceeds chance, the Binomial test (Siegel, 1956) was conducted, with p set at .20. Table 8 shows the number of subjects in each stage.

Table 8

Number of Subjects in Each Developmental Stage

Art Stages				
Preschematic	Schematic		Dawning Realism	
	Early	Late	Early	Late
0	13	6	10	1
Spelling Stages				
Prephonetic	Phonetic	Within-Word	Transition	Correct
5	15	7	1	2

This study shows that students with written language disabilities in spelling and art have a low to moderate correlation of .36 at the significance level of .02. There were 12 matches between the stages. Seven students who were in the early schematic drawing stage were in the phonetic stage of spelling. Four students in the late schematic drawing stage were in the within-word spelling stage. One student was in the early dawning realism stage and in the transition stage in spelling.

When the Binomial test (Siegel, 1956) was conducted, the one-tailed probability under the null hypothesis with P

set at .20 a z value of 2.51 was obtained with $p = .006$.

The decision was to accept the research hypothesis.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

In summary, the spelling data from this investigation generally supported the argument that children with learning handicaps in written language go through the developmental stages of spelling as do their non-handicapped peers. Spellers need help with a variety of ways to spell non-phonetic words. The majority of the children showed logic in their strategies for dealing with English orthography. All of the children attempted all 40 words, regardless of how difficult the task was for them.

Examining the statistics gave credence to the belief that there is a connection between a child's level of thinking in writing and drawing expression. Communication for some may be at a more sophisticated level in drawing than in writing. An important aspect of the drawing was missed by seeing the product without the process. All of the children attempted both drawings knowing that their efforts would be judged.

Conclusions

For 16 students, art stages were ahead of spelling stages, while only two students were ahead in their spelling stage. The relationship between art and spelling may be due to the dependency of both on visual perception and visual memory (Horn, 1960; Lowenfeld & Brittain, 1987).

The art experiences in the elementary schools in this study were evident in the drawings. The majority of the children were in the early schematic or early dawning realism stage, as expected for the age group 7-0 to 13-0 years. The reason for 16 students doing a higher level of thinking in their art work than in their spelling may be due to the different way that art and spelling are taught and judged.

The art examiners were reluctant to score the drawings. Intuition was used first and then scores were given. For this reason, scores did not always show a progression from a low score to a high score. Scores of students in the early schematic stage ranged from three to seven, while the late stage scores ranged from five to seven.

Recommendations

The researcher has two related recommendations. The first recommendation is that spelling be taught in the context of writing. This is supported by research. Writing should be taught in the context of reading. Reading should be taught in the context of literature and literature should be integrated with the visual and performing arts.

The second recommendation is that a study be carried out to discover the processes used to diagnose schema-building in art and spelling.

REFERENCES

References

- Beers, J. W. (1974). First and second grade children's developing orthographic concepts of tense and lax vowels (Doctoral dissertation, University of Virginia, 1975). Dissertation Abstracts International, 35 (08), 4972A (University Microfilms No. 75-4694).
- Beers, J. W. (1980). Developmental strategies of spelling competence in primary school children. In E. H. Henderson & J. W. Beers (Eds), Developmental and Cognitive Aspects of Learning to Spell (pp. 36-45). Newark, DE: International Reading Association.
- Bloomfield, L. (1942). Linguistics and reading, Elementary English, 19, 125-130, 183-186.
- Brookes, M. (1986). Drawing with children. Los Angeles: Jeremy P. Tarcher, Inc.
- Buros, O. (1978). Mental measurement yearbook (8th ed.) (Vols. 1-2). Highland Park, NJ: The Gryphon Press, 1604-1607.
- Cartwright, G. P., Cartwright, C. A., & Ward, M. E. (1981). Educating special learners. Belmont, CA: Wadsworth Publishing Company.
- Chomsky, N. & Halle, M. (1968). The sound of English. New York: Harper and Row.
- Ehri, L. C. (1978). Beginning reading from a psycholinguistic perspective: Amalgamation of word identities. In L. C. Ehri, R. W. Barron, & J. M. Feldman (Eds), The recognition of words, (pp. 1-30). Newark, DE: International Reading Association.
- Elkind, D. (1974, May). Cognitive development and reading. Paper presented at the annual meeting of the International Reading Association, New Orleans, LA.
- Frith, U. (1980). Cognitive processes in spelling. London: Academic Press.
- Gentry, J. R. (1977). A study of the orthographic strategies of beginning readers, (Doctoral dissertation, School of Education, University of Virginia, 1976-78). American Doctoral Dissertations, 167.
- Gentry, J. R. (1981). Learning to spell developmentally, The Reading Teacher, Jan, 378-381.

- Gentry, J. R. & Henderson, E. H. (1978). Three steps to teaching beginning readers to spell. The Reading Teacher, Mar, 632-637.
- Gerber, M. M. (1985). Spelling as concept-driven problem solving. In B. Hutson (Ed). Advances in Reading/Language Research. (Vol. 3, pp. 39-75). Greenwich, CT: JAI Press.
- Gerber, M. M. (1986). Generalization of spelling strategies by LD students as a result of contingent imitation/modeling and mastery criteria. Journal of Learning Disabilities, 19, 530-537.
- Guilford, J. P. (1956). Fundamental statistics in psychology and education. New York: McGraw-Hill Book Company, Inc.
- Handbook for conducting an elementary program review, (1985). Sacramento, CA: California Department of Education.
- Hanna, P. R., & Moore, J. T. (1953). Spelling--from spoken word to written symbol. Elementary School Journal, 53, 329-337.
- Hanna, R., Hanna, J., Hodges, R., & Rudorf, E. (1966). Phoneme-grapheme correspondence as cues to spelling improvement (OE-32008). Washington, D.C.: U.S. Department of Health, Education, and Welfare.
- Henderson, E. H. (1974). Correct spelling--an inquiry. The Reading Teacher, Nov, 176-179.
- Henderson, E. H. (1976, May). Some cognitive aspects of learning to spell English. Paper presented to the Language Experience Special Interest Group, International Reading Association Annual Convention, Anaheim, CA.
- Henderson, E. H. (1980). Word knowledge and reading disability. In E. H. Henderson & J. W. Beers (Eds), Developmental and Cognitive Aspects of Learning to Spell (pp. 138-148). Newark, DE: International Reading Association.
- Henderson, E. H., & Templeton, S. (1986). A developmental perspective of formal spelling instruction through alphabet, pattern, and meaning. The Elementary School Journal. 86, 305-311.

- Horn, E. (1960). Spelling. In C. W. Harris (Ed), Encyclopedia of educational research (3rd ed.) (pp. 1337-1354). New York: Macmillan Company.
- Hunter, M. (1982). Mastery Teaching. El Segundo: TIP Publications.
- Larsen, S. C., & Hammill, D. D. (1978). Test of written spelling (rev. ed.). Austin, TX: Pro-Ed.
- Lerner, J. W. (1988). Learning disabilities (5th ed.). Boston: Houghton Mifflin Company.
- Lowenfeld, V., & Brittain, W. L. (1987). Creative and mental growth (8th ed.). New York: Macmillan Publishing Company.
- Piaget, J. (1959). Judgment and reasoning in the child. Paterson, NJ: Littlefield, Adams.
- Piaget, J. (1968). Six psychological studies. New York: Random House, Inc.
- Piaget, J., & Inhelder, B. (1969). The psychology of the child. New York: Basic Books.
- Read, C. (1970). Children's perceptions of the sounds of English. Unpublished Doctoral dissertation, Harvard University.
- Read, C. (1986). Children's creative spelling. London: Routledge & Kegan Paul.
- Read, H. (1955). Icon and idea. Cambridge: Harvard University Press.
- Siegel, S. (1956). Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill Book Company, Inc.
- Templeton, S. (1980). What is a word? In E. H. Henderson & J. W. Beers (Eds), Developmental and Cognitive Aspects of Learning to Spell (pp. 15-33). Newark, DE: International Reading Association.
- Venezky, R. (1970). The structure of English orthography. The Hague: Mouton.
- Webster, N. (1783). A grammatical institute of the English language, part I. (Facsimile reprint No. 89) Menston, England: Scolar Press.

Zutell, J. (1975). Spelling strategies of primary school children and their relationship to the Piagetian concept of decentration (Doctoral dissertation, University of Virginia, 1976). Dissertation Abstracts International, 36, 5030A.