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The Effectiveness of an Integrated Curriculum on Literacy Achievement Among First Graders

Kathleen A. Provost

The College at Brockport, kprovost@hudson.k12.ma.us

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SUNY COLLEGE AT BROCKPORT

**The Effectiveness of an Integrated Curriculum on Literacy Achievement
among First Graders.**

By

Kathleen A. Provost

**A Thesis submitted to the Department of Education and Human
Development in partial fulfillment of the requirements for the degree of
Master of Science in Education**

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SUBMITTED BY:

Kathleen A. Probst
Candidate

2/27/03
Date

APPROVED BY :

Arthur Smith
Thesis Advisor

3/3/03
Date

Grace L. Beyer
Second Faculty Reader

3/11/03
Date

Patricia E. Baker
Director of Graduate Studies

3/13/03
Date

Abstract

The purpose of this study was to investigate the effectiveness of an integrated curriculum on literacy achievement. Twenty-four first graders from western New York elementary schools were the subjects of this research study. Twelve of the students received an integrated curriculum approach for first grade, while the other twelve did not. An integrated curriculum model is an interdisciplinary approach to guiding learners, accessing multiple intelligences through thematic curriculum, utilized by all teaching professionals. All twenty-four students also received supplemental Reading Recovery instruction. Running reading records and written vocabulary lists from all twenty-four students were analyzed over a twelve-week period to assess whether or not an integrated approach model increased literacy growth among these students.

The research hypothesis stated that with an integrated curriculum, students' literacy levels would increase. A *t* test was used to compare the change in reading levels of the two groups. A 95 % confidence level was chosen to report the data. According to the data from running records of reading levels, there was not enough evidence to support the hypothesis, as the *p* value was 0.054 using the 95% confidence level. However, a second *t* test was calculated to examine the change in word count. This analysis concluded that there was enough evidence ($p = 0.006$) to support the research hypothesis.

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CHAPTER I

Statement of Problem

Purpose

The purpose of this study was to investigate the effectiveness of an integrated curriculum on literacy achievement.

Introduction

There has been a resurgence of thought in regard to how students learn best. This resurgence is due in part to Howard Gardner's Multiple Intelligence Theory, which claims that everyone possesses nine distinct intelligences. According to Gardner, all learners have a verbal – linguistic intelligence, which gives sensitivity to meaning and order of words. They also possess a logical – mathematical intelligence, which is the ability to handle chains of reasoning and to recognize patterns and order. The musical – rhythmic intelligence is sensitivity to pitch, melody, rhythm, and tone. The bodily – kinesthetic intelligence gives learners the ability to use the body skillfully and handle objects easily. The visual – spatial sense is the ability to perceive the world accurately and to recreate or transform aspects of the world. Possessing the interpersonal intelligence gives one

the ability to understand people and relationships, while the intrapersonal intelligence gives people access to their own emotional lives as a means to understand others and themselves. The eighth intelligence, the naturalist intelligence, is a sensitivity to aspects of the natural world. It is the ability to recognize patterns in nature (Goodnough, 2001). The recent addition of the ninth intelligence, as described by Gardner as the existential intelligence is “the proclivity to pose (and ponder) questions about life, death, and ultimate realities” (2000, p. 72).

As a result of this theory, many educators believe it is their duty to access as many of these intelligences as possible in each student. It is believed that each intelligence is present in everyone, with some being better developed than others. In response, many researchers have tested and studied the implementation of teaching with an integrated curriculum. Integration, as defined for the purpose of this study is an interdisciplinary approach to guiding learners, accessing multiple intelligences through thematic curriculum, utilized by all teaching professionals.

Need for Study

It seems that teaching using the multiple intelligence theory in a truly integrated curriculum has been the goal of dedicated teaching professionals for many years. Through professional development training

and journal and research articles, teachers are continuously bombarded with new and current teaching theories that propose to be the 'up and coming' way to teach children. Howard Gardner and other seasoned professionals have stood by the theory of teaching to student interest and ability through an integrated approach to education.

The research studies cited in the following chapter lend credence to the implementation of such programs in a more holistic way. Many have found that it was extremely difficult to "test" some of these intelligences because of their aesthetic value. It does seem as if educators have a strong case for the continuance of such integrated programs because of the increased interest of students in their individualized education. As a result, it was the intention of this study to attempt to give more concrete evidence to the value of an integrated curriculum. The following sections give a review of several integrated research studies, as well as related achievement through the use of the multiple intelligence theory through integration.

CHAPTER II

Review of Literature

Integration

Currently there is great interest in an integrated, interdisciplinary approach to education, tying the arts to all curricular studies. For the purpose of this study, integration is defined as an interdisciplinary approach to guiding learners, accessing multiple intelligences through thematic curriculum, utilized by all teaching professional. This interest in an integrated curriculum has been sparked by Gardner's theory of multiple intelligences and new brain research. Dean and Gross, Eisner, and Hanna all report, "Advocates of the arts in education have linked art, music, dance, and drama activities to a variety of academic, social, and personal benefits for students" (cited in Smith, 2000, p. 646). Musical activities are strongly associated with non-musical curricular outcomes, which can enhance academic performance (Smith, 2000).

Many recently published articles have shown that music is extremely powerful as a catalyst for brain development. "Exploring the neurobiology of music, researchers discovered direct evidence that music stimulates specific regions of the brain responsible for memory, motor control, timing and language" ("Beautiful Music", 1998, p.2). Researchers

have also discovered that the brain can interpret written musical notes in a special area on the right side of the brain. That same region corresponds to an area on the opposite side of the brain, which is known to handle written words and letters. This means that researchers have uncovered an anatomical link between music and language ("Beautiful Music", 1998). Weinberger (1998) also discussed the link music can create for facilitating language acquisition, reading readiness, and general intellectual development. He believes learning and performing will exercise the brain by strengthening synapses between brain cells. The major functional systems that depend upon synaptic strength are the sensory and perceptual systems: auditory, visual, tactile, and kinesthetic; the cognitive system which includes symbolic, linguistic, and reading; motor coordination which includes fine and gross motor muscle action and coordination, as well as learning memory (Weinberger, 1998). When we make music, we engage all of these systems. The critical phonemic stage of spoken sounds is where we see the most dramatic influence by musical sound discrimination and reading ability. When we teach students good pitch discrimination, we give them related awareness for our sound – symbol relationships in reading (Weinberger, 1998).

Hansen and Bernstorf (2002) also see a direct correlation of music learning to reading instruction. They compared reading text, music

symbols, and music text reading in six different literary areas. The skills of phonological awareness, phonemic awareness, sight identification, orthographic awareness, cueing systems awareness and fluency were compared to track the relationship between skills used in music text reading and traditional reading skills. "In a practical sense, then, instruction in music can be a particularly rich source of support for achieving reading literacy" (Hansen & Bernstorf, 2002, p. 18).

Smith (2000) provided examples of singing and song writing activities to support early literacy learning. English speakers have learned the names of the alphabet letters more easily to the tune of *Twinkle Twinkle Little Star*, enabling them to match the tune with the printed alphabet letters. Print conventions can be taught in a musical version of the language experience approach. Phonemic awareness has been taught with the traditional song *Oopies and Boo-noo-noos* which gets students to create silly new words as they substitute the five long vowel sounds into the words (Yopp & Yopp, 1997). Word identification has been taught through a musical adaptation of shared reading called shared singing, while songwriting directly correlates to the shared writing activities of a language arts classroom.

The musical connection to mathematics was reiterated in an article by Begley about how neurons are wired in a young child's brain. "Circuits

for math reside in the brain's cortex, near those for music. Toddlers taught simple concepts, like one and many, do better in math. It is also believed that when children listen to classical music, they are strengthening the same circuits used for mathematics" (Begley, 1996, p. 56). Music lessons may also help develop spatial skills. In a practical sense,

learning music helps students to turn around grades and attitudes because it permits self-expression, teaches new ways to communicate, builds poise and self-confidence, requires effort and concentration, and brings out smiles, joy and passion. Music education is as important as science, social studies, or any other 'core' subject. Music may be an elective, but it is no frill (Urbanski, 1999, p.9).

The Music Educators Journal recently published a study completed by Synder titled "Connection, Correlation and Integration" (2001). In this study, three different types of interdisciplinary designs were studied and applications of these designs were discussed. Bresler also published a similar study called "Three Orientations To Arts in the Primary Grades: Implications For Curriculum Reform" (1993) that proposed three different types of art models and discussed their success for integration. The three types of programs discussed in this study claimed to integrate the regular curriculum with music instruction.

The first model, the Connection, was found to be the most popular but least meaningful way of linking disciplines. Regular classroom teachers utilize materials or concepts from the music class to reinforce a concept in another curricular area (Snyder, 2001). Children are supposedly learning through music, but not learning about music. Connections can be very powerful and can instill great enthusiasm, but do not truly integrate the curriculum. However, it is a first step to true integration.

In the study conducted by Bresler, art education also had a similar type of model that closely resembled the Connections model. The Little Intervention Orientation model was characterized by open-ended assignments, freedom to pursue and explore individual projects, and supportive feedback (Bresler, 1993). This model also had less pressure and accountability. The visual arts most commonly used this approach. It was also deemed the least supportive of a truly integrated curriculum.

The second form discussed in Snyder's research was Correlation. A correlation is made between two or more disciplines through shared materials or activities completed at the same time (Snyder, 2001). Communication begins to grow between professionals, but does not produce a truly integrated curriculum. At this stage, students do become more creative and begin to see connections between disciplines.

However, no true plan is made to develop important ideas across curricular areas for true generalizations. Characteristically, schools that adopt this type of structure still maintain traditional schedules and there is a heavy emphasis on language and math. Focus is on increasing or maintaining standardized test scores.

The Production-Oriented Curriculum model studied by Bresler (1993), was one that was closely related to the Correlation model. Typically students and teachers correlate the learning of new songs, school decorations, and production of arts for an upcoming holiday or activity. Teachers correlate learning for a purpose, but this is where the collaboration stops. This model offered little expressive or interpretive sensitivity (Bresler, 1993).

The third, and most successful models as determined by both Snyder's and Bresler's studies, were Integration and the Guided-Exploration Orientation. In both of these models, a broader theme is chosen that includes all disciplines and intelligences. Moving students to the application or synthesis level is encouraged. The key ingredient in a successful Integration model is to include sound, image, gesture, words, symbols and logic (Snyder, 2001). Moving from correlation to this stage usually signals a change in school goals and in the daily scheduling. Themes in the lower grades are usually conceptual, and the focus in the

intermediate and upper grades is on learning and the creative processes, problem solving, and life skills. They are more process-oriented in the upper grades. Once the theme is chosen, the next step is to focus on three or four “big questions” (Snyder, 2001). Together, specialists determine those questions that students should be able to answer at the end of the unit. This keeps the entire team focused on common objectives. Each special area can then adapt its curriculum to assist students to learn using the multiple intelligences. The common goal is key to true integration.

In the Guided-Exploration Orientation, the artist’s role is central: learning to look and observe, to listen, and to communicate (Bresler, 1993). This required intensive teaching, effort, concentration, awareness and thought on the part of the students. The world of interdisciplinary and arts-infused curriculum models is rich, varied, and open to explorations large and small. It is an opportunity for teachers to forge new relationships with students, other teachers, and the content of learning (Snyder, 2001). Bresler’s study found that the Guided Exploration model existed more in the upper intermediate and secondary schools. Her recommendation was that this model be part of the primary curriculum.

Current arts education advocates for an emphasis on the cultivation of critical experience and thinking through the development of a

vocabulary to incorporate activities that allow students to experience these qualities and to explore new experiences (Bresler, 1993). For students to integrate this information, it takes more than a mere exposure to the new ideas, content, and exploration. There needs to be an infusion of integration into all curricular areas to be successful.

A school that has incorporated this integrated approach is St. Augustine School of the Arts in South Bronx, NY. A study of this school was conducted and reported to the National Conference of State Legislatures in 1993. This school was in the poorest district in the nation. It is a K – 8 Catholic school located in what was called the “war zone.” Since the infusion of arts in their curriculum, St. Augustine now boasts a 95% literacy rate and 98% of its students meet New York academic standards (Loyacono, 1993). This was not always the case, however. In 1986, this school faced closure due to low enrollment. The school received state funding from the New York Council on the Arts and families paid \$900 yearly tuition, \$2,000 less than it actually cost to educate a student in New York public schools in 1986 (Loyacono, 1993). This research report showed that the school has been successful because of parent involvement. Arts generally seem to draw parents in because the arts can be more accessible for parents with less schooling. “The

connection between the arts and math is especially strong”

(Loyacona, 1993, p. 29).

A study conducted by the director of the National Arts Education Research Center at New York University showed a significant increase in students' abilities to transform, evaluate, remember and generate ideas. Female students raised their math scores from a mean score of 47.85 to 80 after participation in a visual arts program (Loyacono, 1993). Studies also indicate that SAT scores are consistently above the mean in the verbal and math sections for students who concentrate in the arts.

One question raised by this study was, “Why then, even with such compelling reasons to incorporate the arts in the curriculum, are so many schools cutting back on the arts?” (Loyacona, 1993, p. 30) It is estimated that only 6% of a school budget is spent on the arts. Arts education may be under-funded because many administrators are not familiar with the benefit of an integrated curriculum.

Many schools are motivated by corporate America to fund arts programs. Businesses believe the arts prepare students to enter the workforce. They believe the arts (visual and performing arts) foster a team work ethic and increased problem solving skills. A 1992 U.S. Department of Labor report found that more than half of American students leave school without the skills they need to find and hold a good

job. They are not able to work with others, communicate clearly, think creatively, use their imagination, or develop self esteem- all skills that arts education helps nurture (Loyacono, 1993).

Another important point discussed by Loyacono is how helpful art is during reading instruction. Students are able to visualize better when presented with vocabulary in a story. Meaning making is greatly increased with this higher level of thinking given to art students. Teachers who use probing questions when discussing children's art work in an integrated approach to curriculum development give students a positive message (Schirrmacher, 1986). This approach places value on the literacy aspect of art, directly connecting language arts standards to art standards. Students are able to generate a story about their artwork, which in turn places more value on the product they have created in a verbal or written manner.

To continue to have students see the value in their art work and the arts in general, it will be important to continue to infuse the arts within students' daily lives. Gross (1983) discusses the importance of creating the "conditions for real education in art." He stated that a program that focused on the acquisition of competence in primary modes of thought and action such as the multiple intelligences could make possible a fuller employment of human potential than we now achieve. Imagine the

consequences of assuming that only those possessing special talent would learn to speak (Gross, 1983). This is how many in today's society feel about the arts. "The solution to the problem would lie in radical changes in the ways our culture conceives of both art and education"(Gross, 1983, p. 76).

Effects and Achievement

In a review of research completed by Eisner (1998), questions were raised as to the validity of current research on actual achievement in other academic areas because of the arts. Eisner used literature published from 1986 to 1996, but did not include advocacy essays. He found that many studies were unsupported by the research. According to the author, The claims that students of the arts outperform non-art students on SAT scores depends upon the students who made the choice to take art courses, not the art that affected the scores. He claims that the students may already have a higher intellect. The studies do no account for this factor. A compendium of the best evidence collected from over 500 studies indicate that the use of creative drama to enhance the reading scores of a population of remedial or low-ability fifth graders enrolled in a compensatory program proved effective at the .05 level compared to the

performance of two other groups of students using methods that did not include creative drama (Dupont, 1992). The aim of the study was to increase reading performance, not teach creative drama. The author feels that the results are limited only to the special population studied. Another study of narrative writing had similar results in the primary grades (Moore & Caldwell, 1993). No assessment of improving drama or writing performance was taken.

In defense, Eisner states that although it seems that the research is far from conclusive, it is important to find where the arts make contributions. The outcomes of arts education can be listed in a three-tiered system. The first, arts based outcomes are unique to the arts within the specific art form. The second, arts related outcomes pertain to those outcomes that require an understanding of the culture and the personal side of the artist's work. The third, ancillary outcomes, are those outcomes like the effects of arts education on student performance in reading, math, or other academic subjects (Eisner, 1998). These are the ways we are able to justify arts and the impact they have on academic areas. Eisner still believes there is a connection that should not be mis-interpreted.

Erickson (1998) seems to refute the evidence found by Eisner. Ninety-three fourth and eighth-grade students were given art history instruction to be able to interpret unfamiliar artwork in context. Students

were asked to interpret the work from three perspectives both before and after instruction. Eighth-grade student scores significantly increased from pre to posttest on the historical artist, viewer and culture interpretations. Findings supported the fact that eighth graders were significantly better able to interpret artwork than fourth graders, but both grade levels' scores improved. This could be in part due to the more extensive prior knowledge, more developed cognitive abilities, or more mature social development of eighth graders (Erickson, 1998). The implications for further study suggested by the author are the possible transfers from within one visual arts discipline to another, the transfer between two visual arts disciplines and transfer between visual arts and other curriculum areas. Without this evidence, support of these claims is not complete.

A five-year study conducted in Canada also yielded similar results. A community arts and literacy program studies in a five month pilot program could only offer promise as an effective methodology for multicultural classrooms (Wilkinson, 2000). Over 500 students in grades one and six were the test subjects exposed to the Community Arts and Education Partnership model. It was believed that if professional community artists and general classroom teachers presented an integrated curriculum, students would show gains in literacy and would be engaged despite their diverse backgrounds. Teacher observation,

interviews, journal entries and teacher responses were the main forms of assessment (Wilkinson, 2000). An implication for further study called for a more authentic assessment because the findings were not conclusive. Again, teachers and artist alike saw the benefit of integration, but could not put the success into accountable data.

The Multiple Intelligence Theory

According to Howard Gardner,

intelligences are defined by a set criteria. These include representation in specific parts of the brain; susceptibility to encoding in a symbolic system; and the existence of special populations such as prodigies and savants, that often exhibit intelligences in splendid isolation. As a species, humans possess musical..., bodily-kinesthetic..., naturalistic..., intra personal..., interpersonal..., linguistic..., logical-mathematical..., spatial..., and a ninth, existential intelligence. (2000, p. 72)

He believes that all human beings have the potential to exercise these intelligences. It is important or rather a necessity for schools to operate in an individual centered manner. "We should...try to ensure that everyone receive an education that maximizes his or her own intellectual potential" (Gardner, 1993, p. 71). A move away from uniform schooling is necessary for this growth to occur. Children need to be physically active in the classroom. "Knowledge is retained longer if children connect not only aurally but emotionally and physically to the material" (Begley, 1996).

Related by the multiple intelligence theory, two research studies set out to demonstrate that drama and the multiple intelligences are meaningful for students to use various approaches to read, write, listen, and speak. Both studies found a high interest correlation for the students. Although actual test results did not change to any measurable degree, the students reported a heightened awareness of their learning styles and a very high interest in their own learning. The first study was conducted over a six -month period to help students achieve high levels of scientific literacy (Goodnough, 2001). Learning was personalized and students were able to choose the types of activities that matched their personal learning styles. All data were collected simultaneously. Field notes, student journals, peer and self-evaluations, and recorded class discussions were used in the final analysis. Comparison of teacher-made tests given at the end of each unit did not show a substantial increase in achievement levels. However, comparisons made with other assessments showed that the overall class average was 84% and 71% as compared to the averages for teacher made tests at 68%.

The real benefit observed by the teacher was the cognitive and affective outcomes in the metacognitive learning at higher levels than previously noted. Student reflections about their own learning was the greatest benefit. Another benefit was the awareness of the teacher to

devise activities that focus on the multiple intelligences. According to Gardner (2000), intelligence tests typically tap linguistic and logical-mathematical intelligences, and perhaps sample the spatial intelligence, but no other.

In a study conducted by Larkin (2001), drama was used as part of reading instruction in a first grade classroom. Larkin also believes that the theory of multiple intelligences is extremely important and served as a basis for her study of her own first graders. She noted that especially struggling students benefited by a Readers Theatre approach to instruction. Readers Theatre offers many benefits for children's literacy learning as they practice and perform with their peers. Educators noticed that future retellings were much more detailed and their scores on Story Retelling Summary Sheets improved. They accurately remembered story problems and solutions, vividly recalling events. They also gained a heightened sense of the story (Larkin, 2001). The repetitive reading increases comprehension and fluency as it allows children to remember and understand more as they reread a story (Dowhower, 1989).

Another study conducted with second graders compared the use of interpretive drama with the workbook activities used in conjunction with basal readers. Improvement in comprehension resulted from the interpretive drama approach (Henderson & Shanker, 1978). The

increased independence learned by the students was also another benefit. It was evident from this report that the author believes that this use of the multiple intelligence theory is an authentic way of motivating children, developing fluency and building comprehension. Another side benefit is the collaboration of struggling readers with more capable readers. It seemed as if all benefited from this approach to reading instruction.

In Ann Arbor, Michigan, a collaborative program for kindergarten through second grade students deemed at-risk combines literature, drama and music to develop and support literacy learning. These mini-performances

draw upon several related sources of research and practice: story reenactment, Readers Theatre, sociodramatic play, reader-response theory, and multiple intelligences theory. These various theoretical and practical approaches to learning all contribute perspectives on how children explore, experiment, experience, and come to know (Morado, Koenig & Wilson, 1999, p. 116).

Such mini-performances completely immerse the at-risk students in literacy learning through a variety of avenues. The children are expected to listen to, respond to, and read text in many guises in the school curriculum (Morado et al, 1999). Through these mini-performances, these students acquire and utilize knowledge through modalities that are not often emphasized in traditional instruction, “primarily those intelligences

that Gardner has termed spatial, bodily-kinesthetic, and musical” (Gardner, 1999, p. 118).

In Howard Gardner’s book, The Unschooled Mind - How Children Think and How Schools Should Teach (1991), it is noted that in early literacy classes where a whole-language framework is implemented and students are immersed in rich literature, the context for literacy activities should be authentic. The experiences should encompass the multiple intelligences. He believes that in this context, reading and writing become infectious. The appropriate classroom tone, where teacher and students immerse themselves in reading and writing authentically and work within their strengths allow students to acquire the basics and then leads students to eventually read and write on their own.

One other term that has evolved in current educational research, and is closely related to the multiple intelligence theory, is differentiation. Tomlinson (2002) defines differentiation as “a modification of content, process, product, or learning environment in response to the various learner needs” (p. 25). Teachers need to modify these elements for many reasons. “Three key reasons include access to learning, motivation to learn, and efficiency of learning” (Tomlinson, 2002, p. 25). Reasons for differentiation can be tied to student readiness, interest, and learning profile, or the students’ strengths and needs in the multiple intelligences.

Teachers in differentiated classrooms accept, embrace, and plan for the fact that learners bring many commonalities to school, but they also bring primary differences that make them individual. The classroom environment should be a good fit for each learner (Tomlinson, 2002).

It seems as if all of the research to this point has barely scratched the surface of this extremely important educational quandry. Educators understand that students are all unique, however, our teaching may not reflect the research. Hopefully, as more research is completed an effective change will take place. Weinberger states

Single studies may attract our attention because our desire for information has outpaced the ability of the field to provide that information. We still need more related studies to provide multiple, converging findings. Fortunately, such studies are beginning to emerge. (1998, p. 37)

CHAPTER III

Design of the Study

Purpose

The purpose of this study was to investigate the effectiveness of an integrated curriculum on literacy achievement.

Research Questions

What are the ranges of literary achievement among first graders who participate in an integrated curriculum?

Would an integrated curriculum show a statistically significant difference among the achievement levels among first graders with limited literacy success?

Methodology

Subjects

Twenty-four first graders from several urban elementary schools participated in the research. At the beginning of the study, all 24 students were reading at or below a level 1 (Reading Recovery Level) and were

part of regular first grade classrooms. Twelve of the students received an integrated approach to the first grade curriculum within one elementary school (the experimental group), while the other twelve (from a variety of schools) received a standard first grade curriculum without an integrated approach (the control group).

Materials

The materials used in this study included:

- Curricular information provided to researcher by special area and first grade teachers
- Running Reading Records
- Writing Vocabulary Charts

Procedures

This study occurred over a period of twelve weeks. The subjects were assessed before the study using a running reading record to determine independent, instructional and frustrational reading levels. Student's independent writing vocabulary was also documented at that time.

All 24 students participated in Reading Recovery lessons for the duration of the study. Reading Recovery is a program that was developed in New Zealand by Dr. Marie Clay. Reading Recovery is an early

intervention program that enables the lowest 20% of first graders “at risk” of reading failure to develop effective strategies to read at average classroom levels. Children, taught by specially trained teachers, receive intensive one-to-one lessons for thirty minutes each day. This pull-out program lasts approximately 12 to 20 weeks and supplements regular classroom instruction. During the lesson, the child participates in a variety of literary experiences designed to help him or her develop effective strategies for reading and writing. Procedures used throughout the lesson build upon the child’s strengths.

Students in the experimental group also attended daily guided reading lessons. Guided reading is an approach that enables students to read literature at their pre-determined instructional level with a small group of students (6 or less) who are also reading at that level. Students are guided by the teacher to use strategies that enable them to continually improve their reading and writing skills. Students typically attend daily 30-minute lessons, which consist of a warm-up read, introduction of the text, analysis of vocabulary, setting of a purpose for reading, and making predictions. The students at the primary level usually whisper read to themselves, as the teacher circulates throughout the group to monitor progress. The lesson culminates in comprehension checks or group

discussions of completed text. Interactive writing is an integral part of a well-developed lesson.

Within the experimental group, teachers used literature, themes, and lessons that directly correlated to the first grade curriculum, using an integrated approach to instruction. All special area teachers worked in collaboration with the first grade team of teachers to establish a cohesive, smooth transition from regular classroom to the special classes. Communication from all teachers was the key to the success of this type of instruction.

Themes such as the 'study of me and we', families, neighborhood, fire safety, community, and diversity were used as an overarching "umbrella" throughout the 12 week time-span for social studies. Curricular math standards such as patterns, recognition of numerals 1 – 12, concepts of addition, and graphing were a part of the umbrella themes. First graders studied earthworms, their needs and wants, their life cycle, and their living environment as science related curricular subjects. They learned to classify, predict, question and communicate within each classroom. A typical week included activities that matched curricular standards in science, math, social studies, and reading to the music, physical education and art standards.

Experimental group students were also exposed to a variety of children's literature that contained elements of the umbrella themes they were also studying in the various special classrooms. The physical education teacher integrated vocabulary, concepts and extended themes within the physical education setting that correlated with the standards for first grade. Environments were simulated within this setting to closely match those of the various themes studied in the regular classroom. Word walls and directional markers were typical in this setting.

Students in the control group were also exposed to the New York State standards for first grade. They received instruction from certified teachers and were given rich experiences within their respective classrooms. Special area teachers also followed current state standards, but did not intentionally collaborate with classroom teachers to provide an integrated curriculum for these students, as was accomplished in the experimental group. Classroom reading approaches varied among schools within this group.

All students were given daily running records to evaluate progress. The researcher, for the purpose of this study, observed weekly records. Writing vocabulary gain was also monitored on a weekly basis. The two groups' records were compared based on current reading level, self-

correction rate and independent writing vocabulary gain. The final week's data were utilized as a posttest.

Analysis of the Data

The original running reading records and word count analysis served as a baseline of data. The next twelve weeks of running reading records and word count lists served as a gauge of change. An independent *t*-test was used to quantitatively determine the relationship between an integrated curriculum and literacy growth.

CHAPTER IV

Results of the Study

Purpose

The purpose of this study was to investigate the effectiveness of an integrated curriculum on literacy achievement.

Findings

Gains in Reading Recovery Levels

Two measures were used to determine the effectiveness of an integrated curriculum on literacy achievement. The first measure was an analysis of text level reading. Each student in this study began at or below a Reading Recovery level of one for text reading. Texts at this level usually focus on a single idea or simple story line. There is a direct correspondence between text and pictures, and topics are usually related to children's experiences. The language in level one texts follow children's oral language structures, may contain repetitive phrases, have consistent page lay out, one or two lines of print, and have some high frequency words repeated throughout the text. Students in the experimental group made an average gain of .69 reading levels per week, while students in the control group gained an average of .46 reading levels per week.

At the end of the twelve-week span, students in the experimental group were at an average of a text level 8, while the control group was at an average text level of 5. Texts at level 5 are slightly more complex with illustrations still supporting the story. However, more attention to print is required. Two to six lines of print are common per page at this level. The vocabulary contains more inflectional endings so that children have the opportunity to notice variations in word structure. Texts at level eight generally have three to eight lines of text per page, and stories are more complex. The ideas within these stories are more subtle and may require some interpretation, while some concepts may be less familiar to children at this level. The reading vocabulary at this level requires skill in word analysis; words are longer and have inflectional endings.

A *t* test was used to compare the change in reading levels of the two groups. A 95 % confidence level was chosen to report the data. The research hypothesis states that with an integrated curriculum, students' literacy levels would increase. According to the data in Table 1 (Reading Level), there is not enough evidence to support the hypothesis, as the *p* value was 0.054 using the 95% confidence level.

Table 1**t Test of Differences Between the Two Mean Scores - Reading Level**

	Df	Mean	s.d.
Experimental Group	17	8.67	2.56
Control Group	17	5.17	1.43

$p=0.054$

Gains in Written Words

Another measure of literacy achievement that was analyzed was the gains in words used in writing. Students in the experimental group gained an average of 3.17 words per week in their writing journals, while the control group gained an average of 1.78 words per week. The ending average number of words written by the experimental group was 41.33, while the average number gained by the experimental group was 24.75. A second *t* test was calculated to examine the change in word count. This analysis concluded that there was enough evidence ($p = 0.006$) to support the research hypothesis.

Table 2**t Test of Differences Between the Two Mean Scores - Word Count**

	Df	Mean	s.d.
Experimental Group	18	41.33	10.48
Control Group	18	24.75	6.14

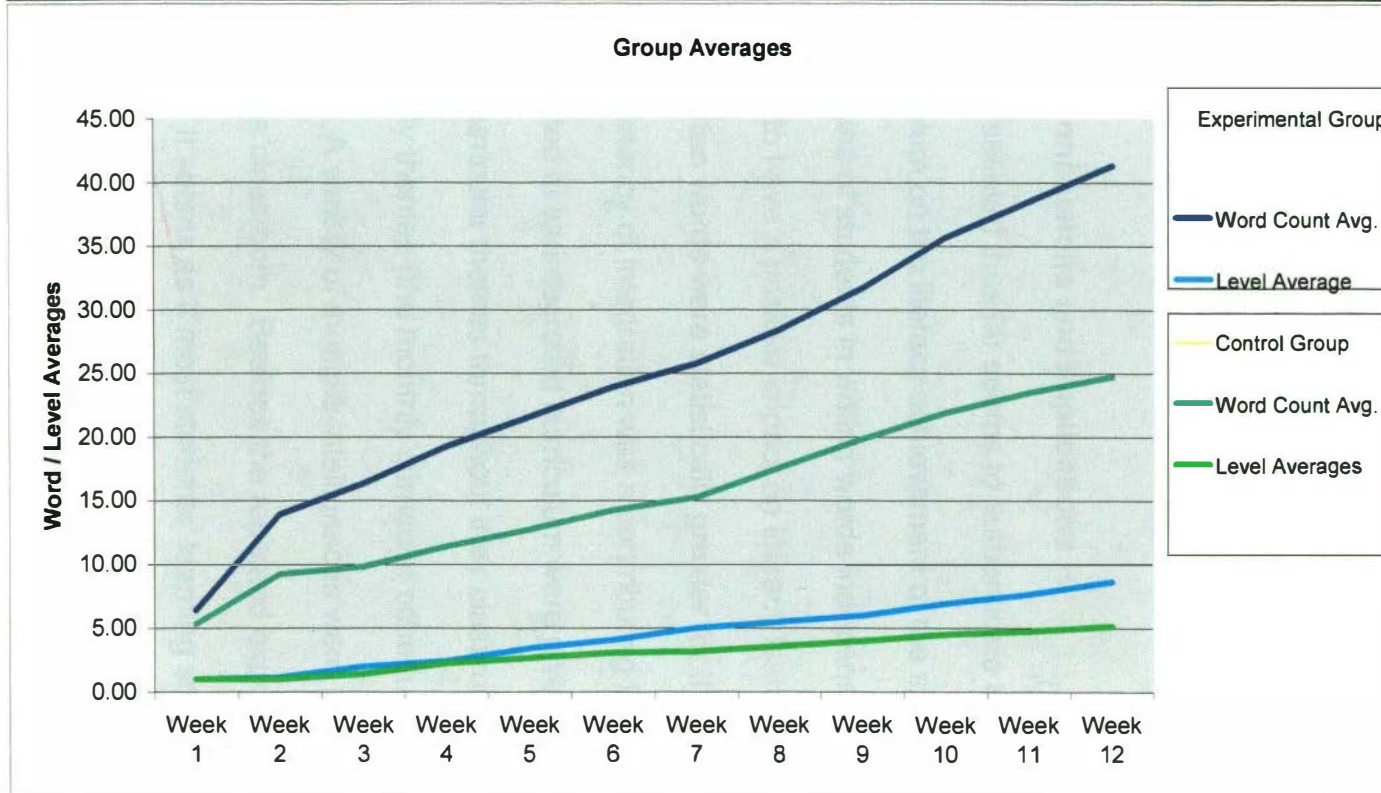
$p = 0.006$

In Table 3, word count averages and reading level averages were compared in a line graph. The average weekly gains appeared to be a steadily increasing slope for both groups, with the experimental group's range of change growing at a steeper slope than the control group's rate for both word count and reading level. These data also reinforce the success of an integrated curriculum upon literacy achievement for the experimental group.

TABLE 3

Group Averages

Experimental Group	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Word Count Avg.	6.42	13.92	16.33	19.25	21.58	23.92	25.75	28.42	31.67	35.67	38.50	41.33
Level Average	1.00	1.17	2.00	2.42	3.42	4.08	5.00	5.50	6.00	6.92	7.67	8.67
Control Group	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Word Count Avg.	5.33	9.25	9.83	11.42	12.75	14.25	15.25	17.58	19.83	21.92	23.50	24.75
Level Averages	1.00	1.00	1.42	2.25	2.67	3.08	3.17	3.58	4.00	4.50	4.75	5.17



CHAPTER V

FINDINGS AND INTERPRETATION OF DATA

Purpose

The purpose of this study was to investigate the effectiveness of an integrated curriculum on literacy achievement.

Conclusions and Implications

The evidence presented thus far seems to authenticate the validity of an integrated curriculum on the literacy achievement of the students in this study. Average gains of students in writing words independently show that integration seems to have a positive impact on literacy learning. Gains in number of written words were statistically greater for this group. It seems as if the consistency of integration was a contributing factor. Students who participated in an integrated curriculum were given multiple exposures to various curricular themes throughout their classroom environments in monthly themes (the monthly curricular schedule can be viewed in Appendix I). A variety of multiple intelligences were tapped within each special area classroom. Besides the repeated exposure, teaching styles varied. It seems as if most students' learning styles were accessed by the teaching professionals within this study. Students who were not exposed to an integrated curriculum made steady gains in written

vocabulary, but not to the extent of the students who were exposed to an integrated curriculum. Perhaps it is the repeated exposure to familiar content and the application of the multiple intelligence theory that enhanced the experimental group's ability to write increased amounts of vocabulary independently.

As all students began at or below a level 1 reading competence, and the experimental group made an average gain of eight levels in twelve weeks, it seems as if integration still played an important part in student achievement in reading. Although the differences in reading level gains were not statistically significant, the average gains were higher for the group that was exposed to an integrated curriculum. Students in the control group only made an average gain of five reading levels in the same twelve-week period. Again, the repeated exposure to familiar content and accessing students' multiple intelligences most likely enhanced their ability to achieve higher reading levels.

Implications for the Classroom

As a result of the research studied in this paper, it is evident that teaching using the multiple intelligence theory in a truly integrated curriculum is important. The evidence presented was fairly clear-cut within this study. Although the evidence from previous research was not as clear cut, it has been established that students' interest is high, and that, in itself, is a step in the right direction. Teachers also run the risk of not fully educating their students and giving them the best possible learning experiences when they do not integrate. When students are presented material using only one teaching or learning style, teachers are short-changing those students whose learning style is different from the way they provide instruction. Students need to see the connections to their world to be well-rounded and productive members of our society. When they are not exposed to these connections, educators do not let them see how the world really is.

Integration is positive as well among teaching professionals. True collaboration is beneficial for all members. Without knowledge of what is expected or what different specialists are teaching, learning is sporadic at best. Integration can be quite difficult, and will take some serious collaboration, but it seems as if the results will be very positive. There are

many factors to consider, however. Planning time for teachers across the curriculum would need to be re-evaluated, as well as the need to have open-minded teachers who develop understanding and skills in each other's disciplines. There would be a need to have ongoing in-service training. A long range plan and change in incremental steps would be essential.

According to the research, many teachers collaborate at the connection or correlation stage at most (Snyder, 2001). Only the most dedicated teachers, or those who are knowledgeable about what it means to integrate currently work at the integration level. Perhaps the research in this area needs to be disseminated more widely. It will also require a larger acceptance and complete curricular change. Without the acceptance from administration and the school board, nothing can really happen that will make a true difference.

Implications for Further Research

It seems as if the research completed up to this point barely scratched the surface of integration. Of all the current articles written about this extremely important issue, approximately eight percent

are research based. There needs to be a change in thought process and testing procedures so that the research can reflect what teachers are seeing. It is one thing to tell administration or school boards how excited our students are in their learning. They will require data and facts to implement change. One of the greatest obstacles noted in the research reported is lack of administrative support. Numbers talk. If we are not able to prove statistically that integration improves district or state test scores, we can go nowhere. Perhaps as more students are exposed to this quality educational theory from the primary grades, scores will reflect their learning.

Another implication of this theory is whether or not the current standardized tests would accurately assess the kind of learning students are doing. This could open a whole new debate about our current testing procedures. It seems as if researchers as well as educators need to develop a better understanding of the short-term and long-term processes that will lead to curricular change. A look at assessment procedures and current student gains due to an integrated curriculum is necessary if global change will be implemented.

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