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School-home partnership to promote literacy

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Abstract

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The purpose of this paper is to explore ways that parents of first graders can be engaged as partners with the school to nurture their children's emerging literacy. First, a review of professional literature concerning what parents need to know about emerging literacy among young primary-age children and how teachers can assist parents in nurturing their children's language abilities will be presented. Then, an implementation of a parent-school partnership will be discussed, and the results of this partnership will be shown.

School-Home Partnership to Promote Literacy

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Submitted to the

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Cheryl L. Adam

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Parents are the primary influence on young children's emergent literacy. They provide the first and most important models of involvement in the language processes for their children. Children who observe their parents reading and writing in the home environment come to believe that these activities are important.

Schools can form partnerships with parents to assist them in providing reading and writing opportunities for their children. When children are introduced to the functions of written language by their parents, they will view print as a natural part of their lives and will expect print in the world around them.

Purpose of the Paper

The purpose of this paper is to explore ways that parents of first graders can be engaged as partners with the school to nurture their children's emerging literacy. First, a review of professional literature concerning what parents need to know about emerging literacy among young primary-age children and how teachers can assist parents in nurturing their children's language abilities will be presented. Then, an implementation of a parent-school partnership will be discussed, and the results of this partnership will be shown.

Review of Professional Literature

Parents can be more effective and secure in encouraging their primary-age children's literacy if they understand the nature of children's language development and ways to assist this growth.

What Parents Need to Know About Emerging Literacy

Children acquire behaviors they see modeled by people who are important to them. From this modeling, children experiment with language to create their own emerging theory of language (Strickland & Morrow, 1988). Children's parents and siblings who respond to their ideas and answer their questions are nurturing their literacy (Rasinski & Fredericks, 1991).

Children that are immersed in a supportive, risk-taking environment will develop language as part of the natural growth process. Therefore, parents' natural interacting with their children becomes an important source for learning reading and writing behaviors. Children whose parents offer encouragement to participate in reading and writing activities are given the basis to become readers and writers (Holdaway, 1979). Rasinski and Fredericks (1991) state that "a literate home environment does not teach children how to read; rather it provides children with opportunities to enjoy reading and discover the many ways it can be used to enrich the experiences in their lives" (p. 439).

Children who grow up in a print-rich environment may read and write before they begin formal school instruction or learn to read easily when formal instruction begins. These children are aware of the many uses of print and how print is used to communicate ideas and feelings to others (Goodman, 1985; Taylor & Strickland, 1986).

Children who are early readers and writers come from homes in which parents or other family members have read to them regularly and were readers themselves. Reading aloud to children fosters children's sense of story which is important to learning to read and write. From these experiences, children learn that stories have a beginning, middle and ending and draw upon these experiences as they begin to write their own stories (Taylor & Strickland, 1986).

Children who have had much experience with literature read aloud to them tend to be more advanced in language development (Teale, 1981; Taylor, 1983). Listening to stories read aloud helps children expand their vocabularies and become familiar with the language of books. Reading to children models good reading and fosters listening comprehension, an essential for learning both in and out of school (Butler & Clay, 1979; Taylor & Strickland, 1986; Cullinan, 1992).

How Teachers Can Assist Parents in Nurturing Children's Literacy

Parents need to make use of everyday opportunities to help their children become readers and writers. When children observe and interact in reading and writing activities, such as making grocery lists, paying bills, and composing letters, they are developing an understanding of the functions of print (Butler & Clay, 1979). Most parents are willing to help their children but may be unaware of how to go about it. Teachers can provide parents with practical suggestions of how to provide informal learning experiences that promote children's interest in reading and writing (Mavrogenes, 1990; Wahl, 1988).

Children learn that reading is an "interactive process" when they relate stories to everyday life and experiences they encounter (Taylor, 1983). Cullinan (1992) suggests that books can be related to family experiences, such as being frightened about going to bed, losing a tooth, or adjusting to a new baby in the family.

The reading and writing processes are closely connected. Children learn about these processes through engaging in the practical functions in their everyday lives. Reading and writing needs to be a purposeful activity for children in their daily routine at home (Taylor, 1983).

Reading and writing at home should be approached naturally and with pleasure (Taylor & Strickland, 1986). Holdaway (1979)

suggests that when parents read to their children, they do not look upon it as teaching something. This experience so important in nurturing literacy should be done in an enjoyable atmosphere that fosters children's positive associations with story language and books and curiosity about reading. Through read-aloud experiences and using reading and writing materials, children can discover that print has meaning.

Strickland and Morrow (1989) relate that parents of early readers should not only read to them but be responsive to their attempts to read and write. They suggest that comments and questions from children about the meanings of words and letters should be acknowledged and encouraged as they attempt to make meaning from print.

Writing down what children say shows them that anything they say can be put into print and connects reading and writing. Markers, pencils, pens, crayons and paper need to be available for children. When they see adults model writing for a purpose, they will want to engage in the same process (Cullinan, 1992).

Parents need to set a routine time and place for reading at home and encourage all family members to participate. An ample supply of books, magazines, and other reading materials should be available for all family members (Rasinski & Fredericks, 1991). Also, parents need to be encouraged to take their children to the

library for story hours and to borrow books from this collection on a regular basis (Wahl, 1988).

<p style="text-align: center;">Implementation of a Parent-School Partnership</p>

Providing parents of primary-aged children with ways to collaborate with the school in nurturing their children's emerging literacy through a print-rich home environment was a goal of this writer's first grade program. The school was in a rural community. The responses of the students in the class indicated a wide range of literacy.

Forming a School-Home Partnership

Throughout the year, the parents of this class of first graders were contacted in many ways to encourage them to take an active role in their children's language learning.

Parent meetings. A parent meeting was held during the third week of school. This meeting was essential in helping to clarify topics related to parents and home literacy activities that would be presented in forthcoming newsletters.

Also, the stages of reading and writing development were explained. Parents were encouraged to be accepting of their children's attempts to read and write. Individual differences among children were explained. Ideas were presented for ways to foster learning at various levels of literacy. Booklists of quality literature for read-aloud experiences with their children were distributed.

Parents were given checklists for observing their children's reading and writing responses at home. Even though parents could respond by "yes" or "no" to the checklist, they were encouraged to make comments or give examples of their child's responses. The checklist is given below:

My child likes to listen to me read to him/her.

My child likes to read to me.

My child tries to read in everyday situations (street signs, cereal boxes, store signs).

It is clear from the way my child talks that a book has been understood.

My child tries to figure out new words for him/herself when reading.

My child sometimes guesses at words but they usually make sense.

My child likes to talk about and share what was written.

My child voluntarily tries out new words or forms of writing.

Parents could being their checklist to parent-teacher conferences for a discussion of their child's emerging literacy.

Newsletters. Week ly newsletters provided an effective way to reach parents about the school program. The newsletters were concise and gave practical ideas for parents to use in presenting

language activities at home. Topics discussed in parent newsletters throughout the school year included:

1. Ways parents could model reading and writing for different functions of language, such as reading recipes and newspapers and reading and writing letters.

2. Suggestions of quality books available from book club orders.

3. Techniques for daily read-aloud sessions and ways to respond to children's questions and comments.

4. Ways children can be involved naturally in the functions of reading and writing in the home environment.

5. Strategies to encourage and to accept children's attempts at reading and writing and make language experiences rewarding.

6. Booklists to guide parents in selecting quality literature to read with children and to purchase.

7. Reading materials promoting children's literacy, for example, Family Storybook Reading (Taylor & Strickland, 1986) and Read-Aloud Handbook (Trelease, 1982) available at the public library.

8. Information about programs for children offered at the public library throughout the year.

9. Booklists related to classroom topics for home reading.

Parent volunteers. Parents were given the opportunity to volunteer in the classroom. Those who volunteered in the classroom became excited about what they saw happening and learned more about how children learned language. Some of the ways that they supported classroom activity were listening to children read aloud, discussing children's reading with them, taking children's dictation, and helping children in writing and in publishing their stories.

Parent Responses to Their Partnership with the School

Parents' responses to their children's emerging literacy that were shared with the teacher were closely related to the amount of language activity encouraged at home. (These responses from parents were gathered primarily during the spring parent-teacher conferences.) From their reactions, parents seemed to find the strategies and activities suggested by the school to be helpful. Many parents commented on the usefulness of the weekly newsletter to keep them informed about their children's school life and to suggest ways of fostering learning at home. Many parents reported that they reread stories and books implemented in the classroom during the week and extended the reading through activities suggested in parent newsletters. They took time to discuss books after reading them. Children who had these experiences at home became eager to share their thoughts and insights during classroom discussions. They became

selective when choosing materials for reading, often asking for books about particular topics or by favorite authors.

Many parents commented that they set aside specific times for daily reading with their children. In many instances, related expressive activities, such as making puppets, flannelboard pieces, and dioramas for retelling the stories, were presented to extend the home reading experience. The children enjoyed sharing these projects in the classroom.

Parents related that they became more accepting and encouraging of their children's attempts at writing after explanations of the stages of writing development. This knowledge helped parents promote their children's writing activity. In some instances, parents took down their children's dictations of stories or assisted them in writing. Some families compiled their children's stories into books. Several students were encouraged at home to write letters or thank you notes to their "adopted grandparents" at school. Others spent time writing letters to pen pals from another school or writing to relatives.

Book orders increased and a majority of the parents selected recommended books rather than stickers or videos. Parents commented that the teacher's recommendations of quality books on the book order forms were helpful. Parents often asked for further suggestions for reading materials or authors.

Parent volunteers increased in number by approximately ten percent. Parents related that after working in the classroom on a regular basis, they developed a better understanding of reading and writing stages. They expressed a desire to help with writing and publishing stories and developed positive ways to respond to children's attempts at reading and writing.

Parent responses to the checklist for observing their children's reading and writing contributed to parent-teacher conferences. During conference times, parents also commented that they noticed the various stages of reading and writing development that had been explained to them at the parent meeting.

Summary

Parents are their child's first teachers of reading and writing. Schools can assist parents in nurturing emergent literacy by providing ideas that will promote development in the home environment.

Children from print-rich homes learn the functions of print in the daily routines of their home environment, for they have many opportunities to explore and interact with the language processes and others concerning the ideas generated through these processes. These experiences are related to children's early successes as they begin formal instruction in the school setting.

From this study the teacher has learned the importance of communicating to parents about their children's reading and writing activities in school and about activities in the home to nurture children's literacy. Many parents were more than willing to foster their children's learning if they were provided with ideas and activities.

Children from homes in which parents implemented many of the teacher's suggestions became avid readers and writers during the school year. They took risks in their reading and writing and explored new materials with a purpose. Many of these children learned to read with relative ease and began to choose reading and writing as a pastime.

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How are Learning Styles of International Students Being
Addressed in Their Introduction to Technology

A Research Paper

Presented to

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Master of Arts in Education

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By

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TABLE OF CONTENTS

CHAPTER I

Introduction

Students have preferred learning styles, and if the
teaching methods match their learning style, students'
achievement will increase (Dunn, 1993). The
identification of students' cognitive style and the
establishment of the learning environment to meet
students' needs has become the focus of many educators.
Young and Householder (1992) claimed that teachers
should make an effort to know all of their students and
to build on their strengths and help them overcome their
weaknesses. Young and Householder also indicated that
the Immigration Reform Act of 1965 resulted in the
cultural diversity in American schools. Ethnic or
racial groups, with widely diversified learning styles
in classrooms, has become a concern for many educators.
They stated that educators are paying more attention to
helping their students in achieving their goals as they
move through the educational system. Dunn (1993) has
ascertained that by knowing students' learning styles,
teachers can organize the classroom to respond to their
individual needs. It is, however, difficult to
establish an optimal learning environment to respond to

each student's learning needs in the current traditional
teacher-oriented classroom.

Purpose

Since technology has infiltrated the field of
education, it not only has the potential to become a new
instructional media, but it also allows a new
environment in teaching and learning. Young and
Householder (1992) indicated that technology provides
meaningful learning experiences to students from
different cultural groups, and technology also offers
the learning opportunities for those who traditionally
have not been served, such as females, gifted,
disadvantaged and handicapped. The focus of this study
is to explore how the learning styles among students of
different cultural backgrounds should be addressed in
their introduction to technology. The review of the
literature presents information about technology and
the differences in learning styles. In addition, the
differences of the learning styles of students from
various cultural backgrounds, as well as how technology
facilitates different learning styles, will be
discussed.

CHAPTER II

Review of literature

Computer technology has rapidly been developed in the late 20th century and has greatly impacted our school system. It has become a new instructional media to facilitate students' learning in multicultural classrooms. The review of literature includes technology, learning styles, diverse learning styles in multicultural classrooms, and how technology facilitates different learning styles.

Technology

"What is technology?" Technology can be defined in a variety of ways. Pierce and Karwatka (1993) stated that technology involves turning mature items into useful products, inventions and discoveries made by people. Saettler (1990) also offered the definition of technology as "any systematized practical knowledge, based on experimentation and/or scientific theory, which enhances the capacity of society to produce goods and services, and which is embodied in productive skills, organization or machinery" (p. 3). Goodman (cited in Postman, 1992) gave a bright insight of technology. He described technology as drawing on new scientific

research, but he also implied that technology was a branch of moral philosophy, not only science. Human beings made efforts to create products to meet their cultural needs. Sander (cited in Oaks and Pedras, 1992) indicated that technology is not only computers, tools or simply ideas. It is a synthesis of knowledge, tools and skills used to solve problem. Oaks and Pedras (1992) mentioned that technology has a tremendous impact on our society. For example, the use of automated bank teller machines to bank after bank hours, the use of computer networks to communicate with each other, and the use of computer-aided drafting to produce better quality drawings. Therefore, the purpose of technology is to pursue the relationship of human beings to inform, to think, to work, to empower and to interact with one another.

With the influence of technology in the field of education, the education system has changed tremendously. The Commission on Instructional Technology (cited in Saettler, 1990) defined the educational technology as follows :

It is a systematic way of designing, carrying out and evaluating the total process of learning and

teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and nonhuman resources to bring about more effective instruction (p. 6).

In fact, when technology has been implemented in education, it is not only with reference to hardware and software, but also to the idea that students will learn more as technology is integrated into the curricula. For example, Computer Assisted Instruction software is an integration of computer technology within a particular curriculum. It is used to promote effective teaching and learning of a particular subject.

From a historical perspective, educational technology has been developed to fit the needs of a specific culture. As Saettler (1990) indicated that when a society advanced, technology became more complex to reflect particular ways of thinking, acting, speaking or feeling. As our society progressed, the significant shift of educational goals has led to diversifying instructional technology. Postman (1992) said that technologies "create the ways in which people perceive

reality, and that such ways are the key to understanding diverse forms of social and mental life" (p. 21).

From the early days of the abacus to the present, technology has played an important role in education. A recent technological development, the computer, became an important focus of teaching and learning in education. The reason is that computers are more universal than other media such as television. Computers have offered various uses in our lives. They are also commonly integrated into other structured machines to accommodate the different uses of learning or to facilitate the different learning styles in multi-cultural classroom (Postman, 1992). For example, when a computer is plugged into a videodisc player, it facilitates students' learning from an audio/visual approach.

Taylor (1980) stated that the various uses of the computer in education can be divided into three roles. They are the tutor (skill builder), tutee (programming language) and tool (word processing, database, spreadsheet). The computer can play the role of a tutor that is like a knowledgeable teacher's aide based on Computer Assisted Instruction software(CAI). CAI

software presents various modes such as drill and practice, tutorial, instructional simulations and problem-solving to meet different needs. Computers as tutors can provide feedback and reinforcement while the learner progresses at his/her own pace.

In the tutee role, however, Taylor (1980) indicated that students must learn how to program, and how to talk to a computer in a language that it can understand to accomplish the desired outcomes. Therefore, students need to develop their own thinking. As Clements (1985) indicated that LOGO programming can facilitate students' development of certain problem solving skills such as decomposition into subprocedures, persistence in debugging solution process, and use of algorithmic process. Obviously, computers can be used to develop and explore individual logical thinking skills. Students learn how to teach computers to work for them. The lists of instructions or commands are controlled by the students and the computer accepts the instruction and executes the task as instructed by and for the student.

The computer as a tool implies that the computer can be a tool to help students perform their tasks. The

word processor can be a communication tool between students and teachers. Oaks and Pedras (1992) indicated that students learn effective and efficient communication skills by composing on the word processors. Teachers prepare curriculum materials and assignments with word processors. The reason is the word processors provide flexible functions such as : insert, delete line, move block, merge different document, erase and correct word or sentences, save document and print document. The word processor provides a professional look to the finished product. Other tools such as spreadsheets can provide flexibility, efficiency and automatic calculation. On the other hand, the database is another tool that provides data storing, organizing, accessing relating, and sorting functions. It is an information processor.

Recently, technology has made another revolution. Fabris (1992) indicated that multimedia "offers a new way to address the problem of diversifying teaching practices by adapting lessons to the needs of multicultural students" (p. 164). Basically, multimedia is the combining of visual, audio, graphic and textual information to facilitate diverse students' learning,

and to help the teacher create situations that stimulate
interest, generate questions, find problems and
motivate. As the role of the computer in education
continues to mature, its capabilities are enhanced by
interfacing it with other types of media such as a
telephone and a modem. As such, the computer can become
a communication tool between classrooms within the
country or from all over the world. When coupled with a
videodisc player, the computer can be used to create
tutorials or simulation programs with video input.
Thus, multimedia creates more opportunities to meet
different learning needs.

Learning Styles

Messick (cited in Frey & Simonson, 1990) said that
cognitive style is the person's characteristic manner of
receiving, processing, storing and retrieving
information. Cross (cited in Chinien & Boutin, 1992)
also explains cognitive style construct as follows :

> People see and make sense of the world in different
> aspects of the environment; they approach problems
> with different methods for solution; they construct
> relationships in distinctive patterns; they process
> information in different but personally consistent

ways . . . Style has a broad influence on many

aspects of personality and behavior:perception,

memory, problem solving, interest, and even social

behaviors and self-concepts (p. 303).

One purpose of this study was to understand the

learning styles of students to help teachers and

students become aware of their weaknesses and strengths

in learning. Keefe (1985) indicated that through

training, or establishing the optimal environment for

students' learning, students' achievement will be

increased. Therefore, understanding the students'

learning styles and then using technology to present

information can help students achieve their individual

goals.

Hunt (cited in Joyce,1987) has developed the

Conceptual System Theory. This theory describes "human

development in terms of increasingly complex systems for

processing information about people, things and events.

Optimal development occurs when the environment

facilitates the conceptual work necessary for the

person's conceptual growth" (p. 420). Therefore, the

closer a learning environment is tailored to the

learner's conceptual level, the higher potential for
achievement.

Dunn and Bruno (1985) examined the learning styles
difference between high achievers and low achievers.
They pointed out that under achieving students have
learning style characteristics that differ from those
high achievers. Their learning styles tend to include
sound such as music, dim lighting, and informal design
seating while learning, and they need a great deal of
mobility. One of the case studies conducted by Dunn and
Bruno described a student named Mario as hyperactive,
inattentive, disinterested, irritating and disruptive.
Mario rarely sits. If he sits, he will shift his
sitting position frequently during class, such as
extending his legs into the aisle, crossing and then
unfolding his legs. If he is not in motion and not
listening to sound, he will be eating. He also has
problems remembering what the teacher talks about in
class. Some teachers might consider him a "problem
student" in the school, and therefore there is no place
for him in the classroom. From this case study, it
seems there is a conflict between learning styles and
the learning environment. However, if students are

taught through resources and strategies that can meet their individual preferred learning styles, their achievement will increase.

Another study by Dunn (1993) about the resources of learning styles illustrated the effects of learning styles originating from biological and developmental characteristics. These resources of learning styles can be regrouped into environmental, emotional, sociological physiological and cognitive preferences. The description of these areas offered by Dunn (1993) is as follows:

> (a) the immediate instructional environment (Sound, Light, Temperature, Seating Design);
> (b) each person's emotionality (Motivation, Persistence, Responsibility, Structure);
> (c) social preferences (Learning Alone, in Pairs, with Peers, in a small Team, with an Adult);
> (d) physiological uniqueness (Perceptual preferences, Intake, Time-of-day energy highs and lows, Mobility versus Passivity needs) (p. 25).

Another dimension of learning styles is that of the field-dependent/field-independent learner. Chinien and Boutin (1992) compared the difference of learning styles

between field-dependent and field-independent students. They found that field dependent students like being with and relating to people and are generally good at interpersonal skills, easily influenced by others, have a global perception and need more time to solve their problems. That is to say they are poor at analytical problem solving. The field independent learners, however, tend to learn more towards social isolation, have a highly developed sense of their own identity, prefer to work out problems for themselves. They are good at abstract analytical tasks and tend to learn abstract content better.

Frank (1984) investigated the differing achievement between field-dependent and field-independent learners. He selected 160 female undergraduates who enrolled in Educational Psychology I and assigned them to different learning groups such as no notes group, students' notes group, outline-frame work group and complete outline group. The findings demonstrated that the Field Independent students answered more test items correctly than Field Dependent students. Another finding was the significant interaction between cognitive style and study techniques. Students in the no-notes condition

performed worse than did those in the other three

conditions. Under the students' notes condition, field-

independent students revealed significantly higher

scores than did field-dependent students. These

findings may support Witkin and Goodenough's

elaborations. Witkin and Goodenough (cited in Frank,

1984) indicated that field-independent learners are more

capable than field-dependent learners in cognitive

restructing skills, such as the ability to break up an

organized field into basic element and the ability to

provide structure for an ambiguous stimulus complex.

These restructured skills should be helpful in academic

setting. Frank (1984) suggested that teachers may

consider providing students with external organizational

aids while lecturing, and students' learning will be

enhanced.

Some educators' argue towards altering the learning

styles of an individual, but this is a highly difficult

task. As Dunn, Beaudry and Klavas (1989) stated,

certain learning style characteristics are biological

such as individual responses to sound, light,

temperature and mobility needs. The problem should be

reviewed through training or establishing the optimal

environment to help the individual overcome learning difficulties.

However, there is no single environment responsive to every student in the teacher-oriented classroom (Dunn, 1993). To establish the environment to facilitate learning, computer technology could be a good addition in the classroom. Today, computer technology has the capability to help students who do not perform well with reference to their preferential learning style such as having to work at the wrong time of day. The schedule of the class may fixed in the traditional teacher-oriented classroom. Some of students who learn better in the afternoon may learn less if the class is scheduled in the morning. However, Computer Assisted Instruction software can benefit students' learning whenever students turn on the computer and run such CAI software. The use of computer technology as an external structural support or a tool for learning should be considered and encouraged.

Young and Householder (1992) indicated that teachers need knowledge, insight, and understanding to work with students from diverse groups. On the other hand, students from diverse backgrounds have an

opportunity to interact with subjects through technology
effectively. Educators must be aware of the importance
of addressing different learning styles when introducing
technology. Davidson (1992) also stressed that teachers
may need to use learning style information to be
flexible with their teaching methods and techniques.
The flexibility of teacher's methods and techniques may
fosters the acceptance of technology among students.
Therefore, students may increase their academic
achievement when the technology is plugged into the
curricula.

Learning Styles in the Multicultural Classroom

Understanding the heterogeneous groups' learning
styles and plugging learning styles into their
introduction to technology become important components
of the successful computerized process in education.
Dunn (1993) indicated that every person has a learning
style, and it is an individual's signature. By knowing
students' learning styles, we can organize classrooms to
respond to their individual needs. Based on this point,
this paper continues to explore the differences of
learning styles in the multicultural classroom in order

to obtain a clear understanding and to plan strategies
to match learning styles.

Dunn's (1993) comparative study about the
significant differences of the learning styles among
Chinese-American, African-American, Mexican-American and
Greek-American students has produced important results.
She found that Chinese-American students were more alert
in the morning, required quiet and formal learning
environment were also able to perform assignments
independently when compared to the African-American.
Chinese-American students also preferred more learning-
by listening than learning-by doing. The Mexican-
American students were more structured and preferred to
learn by themselves and were also alert in the early
morning. On the other hand, this study has shown that
statistically there are more similarities than
differences between African-American and Greek-American
students.

Another comparative study of the learning style
preferences of various cultures has been conducted by
Ewing and Yong (1992). Of the 155 gifted students in
their study, 54 were African-Americans, 61 were Mexican-
Americans and 40 were American-born-Chinese. A learning

style inventory was administered to all students. Learning style differences existing between gifted students of different cultural backgrounds were explored in this study. For example, the gifted African-American students seemed to be more motivated, responsible and had a preference to study in the afternoon. Mexican-American students tended to prefer a visual approach, and had a preference for the kinesthetic modality. The American-born-Chinese were more persistent, responsible and preferred to study in the afternoon with bright light circumstances. Regarding the least preferred characteristics, the gifted African-American students did not like auditory modality, structure and noise. The gifted Mexican-American students, however, did not like environments with a cool temperature which were structured and had an auditory modality. As to the gifted American-born-Chinese students, they least preferred noise, mobility. Differences in learning styles were found in each group. The study suggested that the learning environment should be adapted to accommodate the learning style preferences of students with diverse backgrounds.

More (1990) indicated that culture does affect learning styles. He investigated the relationships between learning and culture. In his study, he found difficulty in studying learning styles of Native American due to their various cultures. However, his study generalized some characteristics of Native American, such as visual spatial strength in information processing, tendency toward global-sequential continuum, and the use of imagery as a tool for understanding highly complex concepts. Another characteristic found in Native Americans is field-independence. This may be related to the hunter-gathering nature of most Native American cultures (More, 1990). These aspects are also examined in the Asian-American culture. In general, Asian students tended to be higher in field-independence and have stronger visual-spatial skills. Suggestions were made by More to first identify learning styles of individuals in a cross-cultural setting, and then to match teaching styles to the stronger learning style. Next, weaker learning styles need to be strengthened. Finally, help should be provided for learning and selecting appropriate learning styles.

Those studies implied that different learning
styles existed among students with different cultural
backgrounds. Educators may examine the differences and
consider effective strategies to implement in their
introduction to technology. A cooperative learning
approach and more focus on visual/spatial learning might
enhance Native American students' learning. Individual
work and a quiet learning environment could match
Chinese students learning needs.

Technology and Learning Styles

Technology can provide more flexible learning
environments to meet the students' learning needs such
as text, graphic, audio and video learning approaches.
Several studies were conducted the effect of technology
meeting students' learning style needs.

Larsen (1992) investigated the effectiveness of
Interactive Video Instruction. He used the Kolb's four
dimensions of learning styles which divided the learning
styles into Accommodator, Diverger, Converger and
Assimilator to examine individual differences. From his
findings, interactive video instruction (IVI) could be
more effective for all learning styles. He stated:

The nature of IVI precludes there being any difference in satisfaction levels. Each student receives the instruction appropriate to his or her learning style and is consequently as satisfied as other students who complete the IVI course in their individual way. Each structures his or her own learning experience in a way that matches individual learning style preference (Larsen, 1992, p. 20).

Billings and Cobb's (1992) experimental research of Computer Assisted Interactive Video Instruction (CAIVI) gave important insight to the relationship between learning styles and attitudes. They used a learning style mode to determine individual learning preferences. The instrument used identified seven learning style subscales which included persistence, mobility, evening-morning, late-morning, afternoon, motivation and responsibility. They concluded that the students' attitudes towards CAIVI had less need for mobility while learning. For example, some students work better when they didn't move from one workstation to another in a classroom. They also suggested that

students who have high mobility needs should be encouraged to take frequent breaks when using CAI.

Another study conducted by Frey and Simonson (1990) examined the relationships among the students' cognitive styles and their use of three information modes during a hypermedia lesson. Seventy-nine undergraduate students were selected in this study, which included 42 students in a textile and clothing class and 37 students in a teacher education class. Interactive videodisc-hypercard was used to provide three modes of receiving information, such as seeing, hearing and reading. The findings concerning the cognitive styles between the two groups showed that the students in the teacher education class had strong sequential processing skills. However, the students in the textile and clothing class revealed strong emotional responses. Another finding was the relationship between cognitive learning styles and the modes of receiving information. Data revealed the teacher education students used significantly more visual images than those in the textile and clothing class. However, there were no significant differences between the two groups of subjects regarding the use of the text and audio in the lesson. As for achievement,

students were encouraged to choose the effective
information modes for their learning style. Students
increased their test scores from 47% to 63%. This study
revealed that students had individual preferences for
cognitive styles for progressing through a lesson.
The Hypermedia technology provided the opportunity for
students to choose different modes of receiving
information, thus meeting the needs of a diverse student
population.

These studies have demonstrated that computer
technology has the potential to establish an optimal
environment to facilitate learning. The uses of
multimedia could facilitate students' learning in a
multi-cultural classroom.

CHAPTER II

Conclusion

Technology in education has become a main trend which educators may eventually have to follow, since much research has indicated that students can enhance their knowledge and reinforce their skills through the appropriate use of technology. However, understanding the diverse learning styles of students from different cultural backgrounds toward the introduction of technology has largely been ignored by educators. In fact, the issue of identifying the students' various learning styles should be addressed in their introduction to technology. For example, educators might have to look into factors such as mobility, time preference, self-pacing toward the introduction of technology. The environment may have a direct effect on the student's learning style (Billings & Cobb, 1992).

Educators should pay more attention to the students' learning styles in their introduction to technology. We also expect technology will challenge teachers towards an ongoing effort of discovering and inventing new ways to adapt and to cater to each learning style of students in a classroom.

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