Integrating Computers in the English Language Arts Classroom based on Vygotsky's Theory

Abstract: This study is to elaborate the implementation of computer and Vygotskian view of learning in an effort to explore how to properly integrate computers into the curriculum development for English language arts classroom and maximize each child's learning potential. With computers as natural tools for learning in a setting of collaborative learning environment, young children could gain the ability to carry out specific tasks that replicate real-life experiences. Through the use of computer tool and the local environment in which contains dialectical interaction relationship among peers and instructors, children effectively developed their language proficiencies and computer could be particularly useful tools for enhancing social and language skills. Classroom observation, checklist, and questionnaire were conducted to determine the study purpose. Based on the positive findings, the combination of instructional strategies is continued. (Contains 13 references, 2 figures)

1. INTRODUCTION

The curriculum objectives for young children in early childhood centers should normally include experiences that stimulate every aspect of children's development- social, physical, and emotional development. As Twyford (2000) indicated, children need to be educated as much in technology as through it. Computer, indeed, have the ability to offer activities supporting children in every stage of their development (Din & Caleo 2000; Seng, 1998; Fitch & Sims, 1992; Pange, 1997; Storey, 1992). Besides, it is the fact that throughout much of the world computer is now an accepted part of classroom culture, not just for children to learn about, but also for them to

learn with.

The aim of this study is to explore how the Vygotsky's theory (1978, 1981, 1986) can be interpreted and used to construct a model of instruction which can provide a language arts lesson plan framework. Vygotsky (1978, 1981, 1986) emphasized the critical importance of the social contact, communication between children and adult, for cognitive development. Particularly, attentions of this study are paid to how collaborative learning mastering new knowledge and helping children to achieve success when they are working with this kind of teaching instruction and identifying the fields of computer assisted learning. Dillenbourg and Schneider (1995) define collaborative learning as the situations "… in which two or more subjects build synchronously and interactively a join solution to some problem". Clearly, the collaborative learning occurs during a conversation or dialogue paradigm (Verdejo, 1996). It also allows for scaffolding of thinking for student and provides immediacy of feedback. It is to believe that immediate feedback allows students to progress and make adjustments in their learning. The Vygotskian instruction framework, indeed, has been implemented and evaluated as a positive learning environment in a language arts classroom in a previous study (Wang, Lai, & Chang, 2004). After an initial discussion about the ZPD the nature of collaboration assistance is discussed. This continues to expand upon the concept of assistance by implementing other approaches,

and then considers how assistance, in particular technology scaffolding have been applied to instruction.   The learning outcomes and implications of the findings are discussed.

2. METHODS

2.1 Sample and Course Description

The target population of this study consisted of two classes of 4- to 6-year-old pupils at a kindergarten (Royal Kids Kindergarten) in Taiwan over a 5-month period. The course curriculum guide was designed by the researchers in an effort of establishing a broad base of philosophy of education for language learning children with some experiences, materials, and resources for implementation.   The teaching method to be employed also stresses learning through the use of team work in which contains dialectically interaction relationship among peers and instructors.   The curriculum guide applied Vygotsky's Zone of Proximal Development (ZPD) theory along with the usage of computer providing teachers with practical, thematic approach.

Children (n= 22) had the chance to actively participate in the learning process as in this study a Vygotskian approach to learning was followed.   The semester course was designed in five units/topics.   During the whole study instructions, as shown in Figure 1, children were encouraged to work in groups, size from 2 to 3, as this kind of

instruction offered the opportunity to think about and discuss issues and questions

collaboratively (Crook, 1994).   Teachers supported them with encouragement and

advices as they needed as shown in Figure 2.   Having the computer as a focus,

teachers and children worked together and solved the questions through their own

experience or their peer's ideas.   More importantly, the activities in each lesson were

designed with certain challenging situation.   They were just right enough for the

child to be able to achieve without too much difficulty.   Yet, they were not too easy.

Given a little challenge, the child was to believe to achieve more than what he/she is

"ready for" with his/her instructor or person who was more knowledgeable than the

child.   Through the reciprocal communication and guidance with adults and more

competent peers, the child was expected to attain maximum knowledge.

Figure 1: Learning in a group   Figure 2: Assistance from the instructor

A variety of computer software applications the course for classroom interactive activities were used, such as *Let's Go Read*, *Little Red Riding Hood*, *Maisy's Play House*, *Same or Different*, *The Three Grouchketeers*, *Grover's Travels*, and *Happy Birthday, Maisy*.   The content of

> (1) the use of the computer and its applications,
>
> (2) planning effective instructions with the computers as means to kindergarten children, and
>
> (3) foster children's learning process through discussing issues collaboratively.

2.2 Instruments

The uses of checklist and classroom observation were employed to monitor and evaluate children's understanding and learning.   Besides, a questionnaire was also given to children by kindergarten teachers at the end of study to determine the learning outcomes about the use of computers and technology in classroom activities. As children at this stage are not able to effectively read and write, teachers asked children the questions and wrote down their answers.   Through the use of these variety of instruments, the researchers not only determined mastery but gathered information that could be used for curriculum development, then planed appropriate materials and learning experiences to facilitate children's learning in zone and

proximal development of learning concepts and enhance children's knowledge about new technologies.

3. RESULTS

It was observed that children in the study worked together and leaned together. They discussed and shared thoughts on many occasions. Overall, the children enjoyed using the computer and preferred to use it with the teacher or a peer rather than alone. When instructors continually monitored and evaluated children's understanding and learning through the checklists as a performance assessment, they found most of children could be able to carry out specific tasks that replicate real-life experiences. The observations also indicated that preschool children could work effectively and cooperatively at a computer with little teacher's assistance. With the framework of cooperative teaching and learning plan, computer does not displace or isolate the area of social development. These children also displayed a high level of interest. Besides, it is clear from the questionnaire, most the children (95%) felt confident in doing class exercises for making, doing, and creating via software environment and they were not afraid of asking questions. More importantly, children who were more expert were likely to help all the other children who had no previous or less experience.

Having integration of computer and Vygotskian view of learning into curriculum,

the researchers found that the communicative environment including teacher-directed-
and child-directed group activities should be considered in the curriculum. Feedback
from instructors and children indeed were also positive. The instructors indicated
that students learned the spelling and reading from one another while most of young
children (90%) stated that they felt happy (pressure-free, self-confident) working and
leaning together. Interestedly, the researchers also found that children do really
know more knowledge about computers than we expected them to. Based on the
positive findings, the program was continued in the setting of its original
implementation.

4. DISCUSSION

There is no mystery to the effective technology based instruction development.
However, effective technology based instruction does not happen without considering
curriculum design. Curriculum designers should dedicate sophisticated efforts.
That means proper integration of computers into the curriculum is critical regardless
of the creative potential of any software used. How critical the well developed
designed skills and strategies will be presented by the researchers.

REFERNECES

Crook, C. (1994). *Computers and the Collaborative Experience of Learning*.

London: Routledge.

Dillenbourg, P. & Schneider, D. (1995). *Collaborative Learning and the Internet*.

(on-line document) Available:

http://tecfa.unige.ch/tecfa/research/CMC/colla/iccai95_1.html

Din, F. & Caleo, J. (2000). *Playing Computer Games Versus Better Learning*. Paper

presented at the Annual Conference of the Eastern Educational Research

Association. ERIC Document ED 438 905.

Fitch, J. L. & Sims, J. L. (1992). A microcomputer learning center in Head Start: A

pilot study. *Journal of Computing in Childhood Education*, 3, 285-292.

Pange, J. (1997). Should we have computers in kindergarten classroom? *Modern

Education*, 93.

Seng, S. H. (1998). *Enhancing Learning: Computers and Early Childhood

Education*. ERIC document ED 431 524.

Storey, G. (1992). The educational value of computers in nursery schools.

Education, 3(13), 43-47.

Twyford, J. (2000, June 14). Nodding Toy Project. (on-line document) Available:

http://www.ex.ac.uk/telematics/T3/technology/nodding/design.htm

Verdejo, M.F. (1996).   Interaction and collaboration in distance learning through

computer mediated technologies.   In T. T. Liao (Ed.).   *Advanced Educational*

Technology: Research issues and future technologies (pp. 77-78).   Berlin:

Spring-Verlag.

Vygotsky, L.S. (1978).   *Mind in Society: The development of higher psychological*

processes.   Harvard University.

---. (1981).   The instrumental method in psychology.   In J.V. Wertsch, (Ed.).   *The*

Concept of Activity in Soviet Psychology.   Armnock, NY: Shape.

---. (1986).   *Thought and Language*.   Cambridge, MA: MIT.

Wang, S.M., Lai, S.C., & Chang, C.W. (2004).   Preparing Tomorrow's Pedagogy:

Principles and Practices.   *Proceedings of the 21st International Conference on*

English Teaching and Learning in the R.O.C., 575-581.