1. Introduction

The need for learners to interact cooperatively and work toward group goals undoubtedly increased during the 1990s. Educational researchers and teachers all pressed for a change and accentuated the need for a more student-active, social, as well as cooperative approach to school work. As society changes and information technology becomes more and more important, schools must place an increased emphasis on students’ ability to search for information and knowledge, and to study critically. Students must be given opportunities to solve problems, to be creative, and to take initiative on their own. Yet in Taiwan, education traditionally has emphasized individual competition and achievement, an approach that results in winners and losers and sometimes produces outright hostility among learners. Furthermore, research on the instruction of computers in Taiwan reveals that classroom instruction frequently is dominated the use of lectures. A project to design student-centered, and team-based, learning information technology is an important and worthwhile endeavor.

The theoretical advantages of cooperative instruction have long been acknowledged and have been extensively practiced in the classroom. Cooperative learning is a pedagogical technique that has students work together in small, fixed groups on a structured learning task with the aim of maximizing their own and each other's learning (Johnson & Johnson, 1987). Johnson et al. (1991) emphasizes that five basic elements are necessary for effective use of the method: positive group interdependence, individual accountability, face-to-face interaction, social skills training, and group processing.

In the current study, Johnson and Johnson's Learning Together approach is employed for its emphasis on group learning instead of competition. The Learning Together approach involves a more collaborative model in which students are directed to coordinate their efforts toward task completion with less emphasis on competition. The exploratory study investigates the learners’ perceptions and attitudes toward the cooperative approach.

2. Methodology

Participants

The participants in the study were thirty-two elementary school students in the third grade. Prior to instruction, a survey was administered to students in order to assess their knowledge of computers and interpersonal relationships. The 17 girls and 15 boys were divided into eight heterogeneous groups of three and four on the basis of their prior knowledge, computer experience, and their interpersonal relationships.

Curriculum Design

There were nine units of programs, including understanding Internet terminology, launching search engines, browsing the Web, downloading, and word processing, as well as a final week of group presentations. The program introduced students to the basic functions of the browser, such as the forward and back buttons, the address bar, and bookmarks. Students learned to scroll through a site and use links to other sites. They learned to use search engines and the rudiments of Boolean logic search tools. They also learned how to find computer files and software, download text and graphic material onto computers to save for future use. Theme activities (Internet Secret Garden) and worksheets were provided.

Data collection and analysis

Data collection consisted of a survey and interview. At the end of the course a survey was given to elicit relevant information on the participants’ perception of, and attitudes towards, learning technology via a cooperative approach. The survey included a 5-point Likert-type scale and open-ended questions to encourage student's reflections about the project. It consisted of five dimensions; teaching methods, peer interactions, learning attitudes and motivation, as well as attitudes toward, and perceived learning benefits from, collaborative learning. After the course, interviews with each learner were conducted in order to elicit relevant information on the participants’ perception of, and attitudes toward the cooperative approach to information learning.
Results and Discussion

The results obtained from the first part of the survey indicates that, with respect to learning methods, 84% of subjects thought they increased their knowledge and learned more computer skills via group work. 90% of subjects preferred learning via group work. With respect to peer interaction, nearly 80% of the subjects were aware that cooperative learning allowed more discussion time with teammates. Nearly 71% reported that classmates were more willing to help; 4 learners disagreed. 87% felt the cooperative approach made them get along much better with others, whereas 3 learners disagreed.

On the learning attitude and interests scale, 87% reported that they made more effort to practice their skills and report their progress. 77% were more attentive to the lectures and became more interested in learning about computers. 71% of learners tended to express more of their thoughts. On their view of learning IT via cooperative learning, 77% learners hoped that learning via group work would be continued in future information technology courses, with 3 learners disagreeing. Nearly 87% of the students expressed their wish to continue learning via group work in subjects such as math, science, social studies, etc. Finally, 84% of the learners expressed their satisfaction with learning via group work. Two learners, one who did most of work and one who was slow with computers, would rather learn by themselves.

Further examination of learners who preferred working alone revealed that most of them were slower learners who did not contribute to group discussions. One learner had capable computer skills and did more than his fair share of the work. Also, his group often quarrelled and wasted time, which led to his negativity about peer interaction. With respect to learning gains, more than 90% of learners reported that their computer ability improved significantly along with their motivation to learn technology. Regarding interpersonal communication, cooperative skills, and enhanced classmate relationships, although fairly positive, the learners considered these benefits to be not as high compared to computer skills and interest, with 55% of learners rating them as very beneficial and 45% learners as not very beneficial. This indicates that there is much room for improvement. One explanation for this difference is that this was the first time that the kids where asked to cooperate with others in class, and they need more time to learn how to share and work in a team environment.

The children were interviewed in order to obtain a more comprehensive picture of students’ views on cooperative learning. With the open-ended questions regarding their reflections on cooperative learning, it was found that learners saw both benefits and challenges from learning IT collaboratively. Some benefits the students identified clustered around: learning the importance of teamwork; learning more about computer technology and communications; acquiring cooperative techniques; and learning how to undertake a research project.

Most learners enjoyed working with their teammates and felt that although some of the things they learned were not exactly planned, the spontaneity of picking up tips and ideas from others in the group was both helpful and fascinating. In particular, during group presentation of projects to the class, each group conducted a tour of their projects and explained their rationale for the way they constructed them. The learners all engaged in discussion and negotiation of their shared and disparate electronic Web spaces. This highly social, sharing activity was very positive in that it allowed each subject to perceive the multiple perspectives that different learners can bring to the task, and to reflect on these alternative possibilities.

Some shortcomings or challenges found centered more on peer interaction. 25% of learners felt that getting a group to effectively work together on a project was a main problem. They felt angry and helpless about group members who were not good team players, or not willing to contribute their share, or try harder. They felt frustrated, particularly in the earlier stages, when members fooled around, playing computers gaming or chatting without concentrating on the main task. 20% of learners remarked that quarrelling was also a drawback; learners did not appreciate agreeing to differ, easily losing one’s temper, egoism or self-centeredness. 10% of learners responded that they were upset when assertive members dominated the interaction, were indifferent to others’ thoughts, or occupied the computers most of the time. Furthermore, some children were of the opinion that the division of computer time was unfair since they seldom were given an opportunity to interact directly with the computer.

Summary

Generally speaking, the study showed the positive value of a cooperative approach, when effectively integrated into computer curriculums. Although the positive learning effects on students were quite satisfactory, there are still some issues that need to be further reflected upon. For example, the study showed that not every learner enjoyed teamwork learning. 2-4 learners, it is noted, were not receptive to cooperative learning. Given that students bring different perspectives to the conceptualization of cooperation and have varying personality, those learners with a passive or maladjusted orientation toward cooperative learning need careful guidance. Therefore, providing scaffolding, both in group learning and in orienting the learners to the task, is vital to the successful implementation and integration of cooperative learning into the curriculum.

References Upon Request