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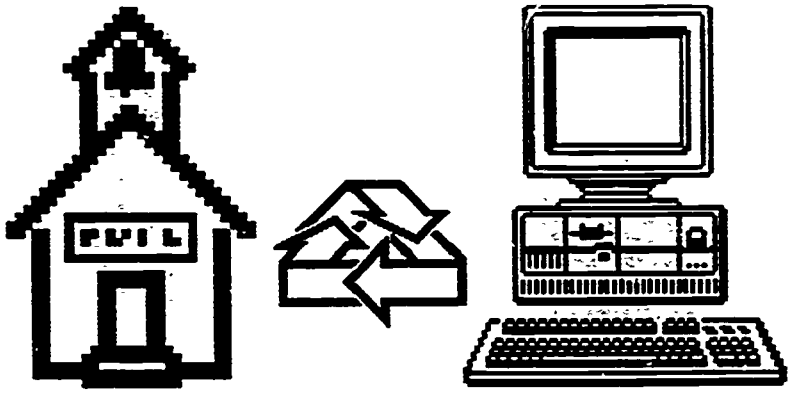
ABSTRACT

This report describes the formative evaluation of Project CHILD (Computers Helping Instruction and Learning Development), a project that: (1) integrates computer technology into the curriculum areas of reading, language arts, and mathematics, and (2) includes primary (K-2) and intermediate grade (3-5) learning-center clusters taught by collaborative teams of three teachers specializing in different subject areas. A description of the two program sites--Volusia County and Okaloosa County school districts in Florida--is followed by an outline of the essential components of the project, its goals and objectives, and its philosophical and theoretical foundations, highlighting the project's focus on opportunities for active learning, shared responsibility and learner control, cooperation, and fair competition. The four phases of the comprehensive evaluation plan--development, initial implementation or formative evaluation, continued implementation and summative evaluation, and dissemination--are described. The results presented are based on: (1) classroom observations and teacher meetings; (2) interviews involving administrators and teachers; (3) teachers' journals; (4) the nominal group technique (conducted during teacher retreats); (5) surveys of teachers, principals, and parents; (6) parent feedback (collected during meetings with parents); and (7) student performance analysis. Findings are summarized and 11 issues concerning components of the project are addressed. The report concludes with recommendations concerning teacher journals, the use of teacher aides and other volunteers, planning time and time management, availability of materials and supplies, student work station utilization, reporting to parents, and program continuation. (18 references) (GL)

Integrating Computers into the Curriculum:

A Formative Evaluation



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A Formative Evaluation

The purpose of this paper is to report on a project which is successfully integrating daily use of the computer with typical elementary (K-5) curriculum materials. Project CHILD (Computers Helping Instruction and Learning Development) has been fully implemented and the formative evaluation of the project completed. This paper describes the formative evaluation of the Project CHILD system.

Introduction

Project CHILD is a research and development project designed to create a model educational program to move Florida's elementary schools into the 21st century. It is based upon an interactive approach to learning that integrates computer technology into the curriculum areas of reading, language arts, and mathematics.

Program Sites

Project CHILD is implemented in two school districts in Florida. One school in Volusia County (Northeast Florida) is implementing the project with IBM hardware and software. Apple hardware and software is being used at the other site in Okaloosa County (Northwest Florida).

The two project schools which are included are very different in composition and therefore provide a good contrast for the implementation of the project with different populations. The Volusia County school has a larger proportion of black students (55%) than the Okaloosa County school (5%). In terms of student achievement, the Volusia County school attains scores on national achievement tests in the average range, however, the Okaloosa County school attains high achievement test scores (above the 80th percentile). These two sites are representative of a good number of Florida schools and provide a good inferential base for the evaluation of the project. Both schools have highly mobile student populations in over

populated schools; some classrooms at both schools are housed in portables. Both schools also have ESE students and one school has an entire wing of ESE classes.

Project Child Description

Project CHILD is based upon a restructured elementary school environment which includes primary and intermediate grade learning-center clusters. Teachers in each cluster specialize in a subject area and work as part of a collaborative team of three teachers. They teach the same students (K-2 or 3-5) in their developmental cluster for three years. Learning stations within the classroom provide a variety of learning activities. The computer station is where three to six computers are used in each subject on a daily basis. Teachers are trained to use computer software as an integrated learning tool rather than a supplement. Twenty essential components make Project Child a unique and innovative computer-integrated learning system for the elementary school.

Essential Components

1. **Primary and intermediate grades form classroom clusters.** The primary cluster includes kindergarten, first and second grades, and grades three, four and five form the intermediate cluster.

2. **Teachers are trained as content specialists.** Teachers receive special training in three content specialties: reading, language arts, or mathematics.

3. **Teachers work in cooperative teams.** Teachers within each cluster work cooperatively via weekly team meetings, structured observations of each other, joint planning and unit culminating activities.

4. **Teachers observe students in other classrooms.** Once during each six-week unit, teachers spend thirty minutes observing students in the two other classrooms in their cluster.

5. **Students work with the same teacher team for three years.** Students work with the same subject area teacher for three years but switch home base teacher for each grade level change. Teachers get to know the students and their individual learning styles which provides the students more continuity in their learning activities from year-to-year.

6. **Teachers use Learning Activities Guides (LAGS) to plan lessons.** The LAGS are teacher planning tools for each content specialty. The LAGS are organized into six six-week units with language arts and reading organized around the same themes. The mathematics LAGS are organized into topical chapters for greater flexibility in sequencing. Teachers may choose to follow the suggested Project CHILD unit sequence or adapt the activities to their text book sequence.

7. **Station activities are clearly defined and appropriate to students' abilities and needs.** The classroom is set up to accommodate the learning stations described in the LAGS. Teachers place Task Cards at the stations to define student learning activities. A station can be a designated area with extra tables and chairs reserved for station use only, a space on the floor defined by rugs or masking tape, or simply a storage shelf from which students retrieve materials to take to their desks.

8. **Teachers use a Daily Station Assignment Sheet (DSAS).** The DSAS lets students know at which station to begin working each day.

9. **The classroom ambience is supportive, equitable, and risk free.** Teachers create a learning climate which sets high expectations, supports experimentation, is equitable for all students and incorporates frequent praise and encouragement.

10. **Students are trained in management techniques.** Students receive a ten-day orientation, during which they learn how to use and care for materials and equipment responsibly, how to stay on-task while working independently, how to move efficiently to various learning stations, and how to use the Passport.

11. **Students set and assess unit goals.** Students are guided by their teachers to set reasonable goals at the beginning of each six-week unit and assess their achievement at the end of each unit. This information is recorded in their Passports.

12. **Students use Passports each day.** Passports are used to record information about student goals, opinions, and accomplishments, and to guide their movement among the various learning stations each week.

13. **Students work at a variety of learning stations.** The learning stations provide a variety of activities designed to accommodate all learning modalities. Students work independently at learning stations when they are not working with the teacher.

14. **Students have frequent and equitable access to computers.** Each classroom is equipped with a minimum of three computers. Students work at the Computer Station at least three times per week in each subject area.

15. **Students exercise control over materials and equipment.** Students have access to and control over all materials and equipment at designated learning stations. They are trained to use equipment carefully and store materials properly.

16. **Students work with partners in cooperative teams.** At the Computer Station, student pairs follow specific strategies to work as cooperative teams (except when word processing). They receive recognition and rewards to foster cooperation.

17. **Students know where to get help.** The strategies for getting help when the teacher is unavailable are clearly communicated to students and are also identified on the Task Cards found at each of the learning stations.

18. **Parents provide input on a regular basis.** At the end of each unit, parents review their child's Passport and write in their own comments. In addition to a parent orientation meeting at the beginning of the school year, there is frequent communication and parents are encouraged to participate as co-learners with their child and as volunteers in the classroom.

19. **The principal provides leadership and support.** The principal leads a Project CHILD staff meeting once during each six-week unit, visits the classrooms frequently and is well-versed in the Project CHILD methods, goals and objectives.

20. **An aide assists primary-grade students at the Computer Station.** An aide (paraprofessional or volunteer) is available to assist primary-grade students each day at the Computer Station in the kindergarten, first and second grade classrooms.

Goals and Objectives

The ultimate goal for Project CHILD is quite ambitious: to enable more students to become successful learners. Through Project CHILD, more students who complete elementary school can become competent in the foundation skills of reading, language arts, and mathematics, and in critical-thinking and problem-solving skills. Project CHILD seeks to help children develop a successful foundation for learning through a variety of strategies. Each of these strategies constitutes an objective area of Project CHILD and is described below.

Restructuring the School. Grades K-5 are clustered as primary teams (K-2) and intermediate teams (3-5). Classrooms serve as subject-area learning centers for part of each day. The classroom learning centers each contain activity stations for hands-on, paper-pencil, textbook, and computer activities. Resources (software, textbooks, manipulatives, etc.) are consolidated into the reading, mathematics, or language arts classrooms.

Restructuring the Curriculum. The standard curriculum has been adapted to accommodate a developmental approach to learning. Learning activities guides have been developed which define six units of work. The units have included enhanced skills such as critical thinking, problem solving, keyboarding, and computer literacy. Specific skills are integrated into the units and aligned with skills covered in Florida's performance standards. Specific computer software lessons have been integrated into the units. For three-year spans, students are guided through the units by a team of three teachers. Thus students will have curriculum specialists who understand their needs and their long-term developmental progress in the primary grades (K-2) and then in the intermediate grades (3-5).

Empowering Teachers. A teacher's manual and inservice training program have been developed to assist teachers in learning new roles and responsibilities. In Project CHILD, the teacher becomes a modern executive, working as part of a collaborative team. The teacher becomes a subject specialist, adopting new roles as guide and facilitator. By specializing, the teacher can be trained to use the computer as an effective learning tool in each discipline. At the same time, by working with each child over three years within a developmental setting, the teacher retains an important role as nurturer, continuing to meet the critical emotional needs of the young child.

Empowering Students. Student guides, call Passports, have been developed which lead students to set goals, develop responsible work habits, and make intelligent choices. Project CHILD students work in cooperative teams and learn strategies for helping each other.

Establishing Healthy Working Environments. A Project CHILD classroom is success oriented and fosters a risk-free climate in which students are positively recognized for effort as well as for accomplishment. Classroom management materials (daily station assignment sheets, task cards, award certificates) have been developed to establish an orderly and organized working environment.

Increasing Motivation and Time-on-Task. Project CHILD students have daily access to a variety of learning activities to meet their diverse learning styles and attention spans. Access to computers provides the flexibility of guided discovery and guided practice, freeing the teacher to have more time to meet individual needs. Children can also move about and work cooperatively in a calm atmosphere that promotes the feeling that learning and school are fun.

Building Bridges Beyond the Classroom. Parents are important partners in the learning process. A parent orientation has been developed to inform parents about the different yet enhanced learning opportunities in Project CHILD. At the end of each unit, children take home their Passports to review with their parents the documentation of their effort. The principal serves as liaison between the school and the community as well as instructional leader for the CHILD teachers. Volunteers from the community are encouraged to assist teachers whenever possible.

Meeting the Future Needs of Florida's Schools. Project CHILD is designed as a cost-effective method of delivering instruction. It has been designed to consolidate and effectively utilize existing resources such as textbooks, manipulatives, computers, and software. It accommodates a phased-in strategy for the purchase of new equipment and software. And the CHILD model has potential for accommodating larger class sizes through effective use of technology and paraprofessional support.

Foundations of Project CHILD

The Project CHILD model is based on sound philosophical and theoretical foundations, combining well established approaches to human learning theory, motivational theory, behavior modification theory, learning modality theory, and developmental theory into a working model. The project was developed based on operating conditions which exemplify active learning, shared responsibility, cooperation, high expectations, and balanced curriculum, activities and materials.

Philosophical Foundations

Several philosophical beliefs about education provide the basis for Project CHILD. A good education is one where there is involvement, relevance, and thinking (Glasser, 1975). Students must experience repeated success. The following conditions must be present for this to happen:

Active Learning. Students must be actively involved in the learning process. "Frontal teaching" (the teacher imparting knowledge from the front of the room) must be balanced with participation of the students in individual learning tasks and in small learning teams. Instruction should draw on the experiences of the students.

Shared Responsibility. Teachers must share responsibility with the students by giving them opportunities to make choices and decisions affecting their learning. Teachers must share control of classroom management by involving students in cooperative team meetings that will guide the students toward self-discipline.

Cooperation and High Expectations. The classroom environment must reflect a spirit of cooperation and high expectations. Competition must be fair, giving everyone an equal opportunity to succeed. Process becomes as important as product; the process of learning and improving must be valued as much as an excellent product.

Balanced Curriculum, Activities, and Materials. The curriculum must be balanced with a diversity of subjects, such as reading and language arts, mathematics, science, social studies, art, music, foreign language, and physical education. Subjects should be integrated around holistic themes as much as possible. A variety of learning activities and materials must also reflect a diversity of learning styles and interests.

Theoretical Foundations

The structure and content of the Project CHILD model and materials incorporate the theoretical principles listed below.

Human Dynamics Theory. Students will make an effort to work harder in a classroom where their basic needs are being met (Glasser, 1986). These basic human needs include belonging, freedom, fun, and power. Students need to feel secure in each of these areas in order to maximize their learning.

Motivation Theory. The effort students will expend on a task is determined by the degree to which they expect to be successful and expect the task to meet their needs. Both factors must be present. Students will invest no effort on a task they perceive either as having no value to them or as being so difficult that they have no expectation of success (Feather, 1982).

Behavior Modification Theory. Positive reinforcement (rewards can shape students' behavior. To be effective, rewards should be immediate and frequent. "Catching students being good" will help them internalize desired behavior and

lead to a decreasing need for external rewards, such as stickers or candy. Negative reinforcement (punishments) should reflect logical consequences for the bad behavior (Skinner, 1969).

Learning Modality Theory. Students learn in different ways and exhibit different talents. Classroom materials and learning activities need to accommodate these differences so that all students can experience success.

There are at least four basic learning styles: concrete experience (touching), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing). Some students may rely on one style, while other students may employ several or all (Kolb, 1983).

Hemispheric dominance in the brain may determine whether a student learns better through sequential patterns using auditory and visual stimuli (left brain) or through global and intuitive patterns using tactile stimuli (right brain). Many students may use both spheres effectively, while others show dominance in one sphere or the other (Bogen, 1969).

Students' talents are reflected by at least seven forms of intelligence: linguistic (writing), musical, logical (mathematics), spatial (art), bodily kinesthetic (athletics), interpersonal (sensitivity to others), and intrapersonal (sensitivity to one's own feelings). Students may show strength in several of these areas (Gardner, 1983).

Developmental Theory. As they grow, children pass through stages of development, both intellectually and socially. Effective instruction must match the child's level of cognitive development, moving from concrete operations to abstract concepts (Piaget, 1950).

A child's emotional development moves from dependence toward independence. The learning environment and materials must be structured to match the child's social development (Erikson, 1963).

Children seek order and control. The classroom and its materials must be clearly structured and organized to meet this need (Montessori, 1964).

Project CHILD's goal is to make more students successful learners. The Project CHILD model is based upon the assumption that today's schools must be restructured to meet the educational and technological needs of the future. This restructuring must include opportunities for active learning, shared responsibility and learner control, cooperation, and fair competition.

The philosophy of Project CHILD calls for variety and balance in the curriculum and in learning activities, with emphasis on both process and product. Students need ample opportunities to experience success regardless of their learning style and aptitudes. Project

CHILD is further grounded in theories that seek to explain motivation, behavior, learning, and child development. (Butzin, 1989)

Comprehensive Evaluation Plan

Project CHILD has been designed and is being implemented in four phases. Phase I is the development phase and was completed in June, 1988. Phase II, the initial implementation or formative evaluation phase, was completed at the end of school in June, 1989. Phase III is the continued implementation and summative evaluation phase of the project scheduled for the school year 1989-90. The final phase, Phase IV, will be the dissemination of Project CHILD materials.

The focus of the evaluation for Project CHILD parallels the developmental phases of the project. During the first phase, evaluation activities were formative, based on a content review of project materials. In house reviews consisted of ongoing critiques of all project components. Project developers, content experts and staff worked together to review and revise the project materials.

The evaluation focus was on the success of project implementation and on the need for revisions to the project materials. Revisions, were based on both the review of content materials, and the implementation data from the use of the materials in schools. This report presents the evaluation results for the implementation of Phase II of Project Child. This formative evaluation or implementation phase was completed with the completion of the school year 1988-89.

Phase III will be implemented in 1989-90 when the effectiveness of the project will be evaluated using summative evaluation methodology. Activities which are planned include analyses of criterion-referenced and norm-referenced test data, analyses of writing samples, interviews with students and parents, analyses of attendance and discipline data, structured classroom observations by principals and evaluators, analyses of time-on-task data collected via observations, analyses of the School Attitude Measure, analyses of teacher surveys, summaries of Teachers' Journals, analyses of two sets of student passports, and cost

effectiveness and policy analyses. A detailed description of the evaluation design is provided in the August 1989 proposal for Summative Evaluation (Bergquist and Orr, 1989).

Formative Evaluation Components

Formative evaluation activities for Phase II were designed to collect information related to four major parts of Project CHILD: LAGs (Learning Activities Guides), Teacher Manuals, Student Passports, and inservice training. These essential materials and activities were evaluated via the systematic collection of information about them. The evaluation activities which were conducted included the following: observations, interviews, review of Teachers' Journals, two status surveys, two problem surveys, and a survey of parents. Although each activity is different from the others, the significant assets or problems of Project CHILD consistently emerged with this multi-strategy approach.

Evaluation Reports

Reports on the formative evaluation activities for Phase II were made throughout the year. The Summer Inservice was evaluated and a report on the theory and methods of the inservice was produced in October 1988 (Jones, 1988). Monthly status reports for November 1988, and December 1988 (Jones, 1988). In February 1989, a status report on evaluation was prepared which included the results of the first status and problem survey (Bergquist and Orr, 1989). An additional status report on evaluation was prepared and presented in May 1989 (Bergquist and Orr, 1989). The May 1989 status report included the results of the final status and problem survey, summaries of the obs vations, and Teacher's Journals, and some preliminary conclusions and recommendations. The final report on the Formative Evaluation of Phase II of Project CHILD (Bergquist and Orr, 1989) was available in July 1989 and briefly summarized each of the results presented in earlier reports. The Final Report also included summaries of the survey of parents and the student performance data which had not been reported in earlier reports.

Classroom Observations and Teacher Meetings

Bi-weekly observations by project staff were conducted throughout the year. Systematic observations were made and discussed by all project staff, developers and evaluators, as a team. Meetings with teachers were held during each visit for further clarification and discussion of issues.

Observations were completed at both pilot school sites. Project staff alternated sites and combinations of staff in order to avoid specific observer/site biases. Observations indicated that most of the project objectives have been implemented.

Interviews

Informal interviews were conducted by project developmental staff and evaluators during or after the site observations. These discussions involved school administrators and district level staff, as well as teachers. Additionally, follow-up interviews were sometimes conducted to clarify field notes or comments made during the observations. Telephone interviews were also used to supplement the observations of project staff or to clarify a specific concern related by the teachers.

Teachers' Journals

Participating teachers documented their daily observations in individual project journals. Teachers recorded their observations and impressions regarding the LAGs and Passports, the Teacher Manual, time management requirements, and the management of student progress. Journals were submitted to the evaluators at the end of each unit. Teachers were encouraged to provide candid comments on the project materials, and only the evaluator for the project reviewed the individual comments as submitted. These comments were typed and organized into another form before they were reviewed by the project development staff.

Teacher Retreats

Approximately six weeks after implementation began, all teachers involved in Project CHILD spent one day in Tallahassee with Project Staff. Using the nominal group technique this time was spent identifying strengths and weaknesses of the components. This valuable approach of providing feedback and evaluating project materials was repeated in May.

Surveys

Surveys of teachers, principals and parents were conducted during Phase II. Teachers were surveyed twice using the same two instruments each time. The status survey was used to address the degree of implementation of project components and the satisfaction teachers have with each component. The problem survey asked the teachers to respond to the components of the project regarding the degree to which each has presented a problem during the implementation.

The first survey of teachers was completed at the end of unit two in November 1988. A second teacher survey was completed in April 1989 so that additional evaluative information would be available prior to the completion of Phase II.

In addition to the surveys of teachers, the principals of the pilot schools were also asked to respond to several open-ended questions regarding the implementation of Project CHILD.

Parents were also surveyed by telephone in May 1989. Parents were asked to describe the attitudes and reactions of their students to Project CHILD. Parents were also asked to respond to questions to provide more information about the students. The ability of parents to adjust to a new method of instruction for their children is an important aspect of the future implementation of Project CHILD.

Parent Feedback

Parent meetings with Project staff have been held throughout the implementation of Project CHILD as the need has been indicated. This has proved to be an important aspect of the successful implementation at each school site. Parents are informed about the components of the project and provided an opportunity to ask questions of and provide feedback to project staff.

Student Performance Analysis

As a preliminary indicator of how students in Project CHILD classes perform on standardized achievement tests, results for both project schools were collected for 1987-88 and for 1988-89. The Project CHILD classroom scores were compared to grade level averages in both years. These data are only an early benchmark to determine if student performance appears to be equivalent to that of other students in the same grade and school. This is important to examine during the early implementation of the project but cannot be judged to be a true indication of the effectiveness of Project CHILD.

Formative Evaluation Results

The results and recommendations presented in this report are based on the implementation of Project CHILD during 1988-89. Five evaluation methods were used to collect the data for this report: surveys of teachers, surveys of parents, student performance data, observations in classrooms and analyses of Teacher Journals. Findings are presented in this report for the purpose of revising and improving the project.

Observations

Observations have indicated that most of the project components have been implemented. Very positive interactions were noted between teachers and students. Considerable cooperation and "joint learning" were noted as students worked together at the computer stations. The noise level was comparatively low and, for the most part, the noise that was identified stemmed from cooperative learning, not off-task or disruptive behaviors. Learning activities at stations all appeared to be relevant to the instructional objectives for the day and engaged the students in productive learning activities.

Several program concerns were identified during the observations by evaluators and staff. Passports appeared to be used in a variable manner by students. In many cases they were only "clutched", not referred to, as students moved from station to station. Although some students marked in the Passports when at the stations, most of the marking appeared to be at the prompting of the aide or the teacher at the end of the class period.

The amount of teacher time needed to plan for station activities and create the supporting materials for them was questioned as a logistical factor associated with the program.

Some teachers were observed conducting extensive whole group activities. This raises some questions concerning the degree of use for stations. There were instances noted, as well, where use of stations was made a contingency for some other desired classroom behavior instead of treating stations as an integral component of the classroom. Some instances were noted as well of station activities that had no feedback mechanism to let students know if the answers were right or wrong.

There appeared to be some problems with the instructional purpose and quality of some of the software in use when students were observed working on the computers. The degree of on-task behavior of a few students at the computers and at other stations was also identified as an area of concern. Although this was not a general classroom problem, certain children were observed repeatedly off-task.

Teachers' Journals

All teachers participating in the project were asked to document observations in individual project journals. Teacher's recorded their observations and impressions daily (by grade level) regarding the LAGs and Passports, the Teacher Manual, time management requirements, and the class management of student progress. Journals were submitted to project evaluators at the end of each unit. To encourage candid comments by the teachers, only the evaluators for the project have reviewed the individual teacher comments as submitted. The comments from all teachers were typed and organized into another form before they were reviewed by the project development staff.

Comments related to all aspects of Project CHILD have been found in the notes made in the Teachers' Journals. A comprehensive content analysis of these comments has been completed and is found in other more detailed reports. Overall, most of the teachers rated their classroom experiences on a daily basis with Project Child as excellent or good. There

were some ratings that were less positive but did not reflect a consistent trend across teachers and schools.

Parent Survey

Interviews with parents were conducted during Phase II to obtain their reaction to the involvement of their children in Project CHILD. The interviews with parents were conducted in the first week in May. A randomly selected group of parents from each grade level and school were asked to respond to a series of 6 to 8 questions regarding Project CHILD (6 for kindergarten and 8 for all others).

Samples were selected from alphabetized lists of students with a total of 28 selected from Westside, and 23 selected from Valpariso. Home and work telephone numbers were obtained from the school when these were available and three attempts were made to contact the parents, each at different times of day. The interviewer was able to contact and obtain responses from 15 of the 28 Westside parents and 13 of the 23 Valpariso parents, representing more than 10% of the Project CHILD students.

The results and conclusions regarding the parent responses are summarized below.

1. Parents seemed to know quite a lot about Project CHILD. Only 3 of 24 parents indicated that they did not know anything about Project CHILD. As expected, the most frequently named difference was the use of computers, but also significant, as perceived by parents, was the use of three teachers and switching classes.

2. Parents overwhelmingly indicate that their children have a positive attitude toward school. Although no comparisons with other students were made this year, this by itself seems significant in terms of how students have responded to the project. The number of parents who indicated that they were satisfied with the program was equal to the number of students who like school a lot. The students have been indicating their enjoyment of Project CHILD to project staff and the evaluators during their on-site visits and in their comments recorded in Passports.

3. Six parents who responded to the survey questions indicated that their child's attitude toward school was worse this year but 18 indicated no change or a better attitude. This is not a negative statement about children's attitudes because in question 2 parents have indicated that only 3 children do not like it, and 3 think it is just o.k. We conclude that although some parents have indicated that their children's attitude toward school is worse, it is still somewhat positive.

4. Overall, parents were satisfied with the program (19 of 28 responded yes). The responses of parents have pointed out what they do and do not like about the program. Although parents are generally satisfied with the program, it is

important to review the comments of the parents who were not satisfied for herein are the areas which should be targeted for improvement. It seems that while a few parents were concerned about content matters, most of the comments are related to the individual attention that was received by their children. While this may be an issue with which schools in general are dealing, it is an important one for a new program to address. Project staff should work with teachers on how to communicate to parents that the needs of all individuals are being addressed. Clearly, some of the parents felt that this was accomplished effectively.

The schools involved in the 1988-89, were very different in terms of the assistance of an aide with the computer in the classroom. One school, Westside, had aides to assist with the computers on an ongoing basis, but the other school had to rely on parent volunteers. This factor may have contributed to the fact that parents felt teachers need to spend more individual time with their child and were unable to do so.

5. The responses of the parents about what the children liked best are no real surprise. Observations and informal talks with students had already identified that the students and parents both were excited about the addition of computers to the classroom. The variety of other aspects that were mentioned was encouraging and indicates that Project CHILD has met a variety of interests.

6. Although most parents are satisfied with Project CHILD, several suggestions for improvements have been made by parents. The comments of parents can be grouped around two issues: content emphasis and organizational strategies. Clearly the parents who have responded to either of these issues feel that the attention their child was receiving was not sufficient. Again we recommend that project staff work with teachers on how to communicate to parents that the needs of all individuals are being addressed.

7. Most parents were satisfied with the program; 23 of 28, with only 3 parents indicating that they were not satisfied. While this does not seem like many parents, if these results were generalized to the total population of parents, this would indicated that approximately 10% of the parents involved would not be satisfied with Project CHILD. From other questions we have learned that an area of dissatisfaction is that parents do not feel their children are receiving the individual attention they need. This may be an ongoing problem for any classroom with 28 students and 1 teacher, however, further research would be needed to determine this. This area should be improved, if possible. The parents' attitude may change as they receive more feedback on the performance of their students on tests as compared to past years and compared to other students in the school.

8. Responses to recommending the program to others are very positive. It is interesting to note that some parents have expressed the belief that this program is not good for slow learners or low ability students. There is presently no evidence that this is true or not true but it is something the project staff and evaluation team should be investigating during Phase III.

Teacher Surveys

On two different occasions surveys were administered to all of the teachers (12) participating in the project. Each teacher answered questions regarding the status of the implementation of Project CHILD and problems which may have occurred during the implementation. The results are only briefly summarized below because they have been reported in more detail in earlier reports. The detailed results of Survey #1 are reported in the February 1989 Status Report on Evaluation and the detailed results of Survey #2 are appended to the Status Report on Evaluation dated May 15, 1989.

Teachers were asked first to rate each status survey item in terms of the degree to which the item as been implemented to date. A 6-point scale was used for degree of implementation and ranged from a low anchor point of "1 = No implementation planned" to a high point of "6 = Complete implementation." Another scale indicated their present degree of satisfaction, and ratings ranged from a low of "1 = Extremely unsatisfactory - delete" to a high of "4 = Highly satisfactory."

The problem survey was designed to assess the level at which various problems exist in relation to the components of the CHILD model. Teachers were asked to rate each survey item in terms of the severity of the problem. A 4-point scale was used and ranged from a low anchor point of "1 = Not a problem" to a high rating point of "4 = A very serious problem." At the conclusion of the survey, teachers were asked to go back and circle the ten areas of problems which most seriously inhibited the success of the project.

Status Survey #1 Results. The results of the status survey indicated very high levels of implementation for most of the project components. At least two of the project components were never fully implemented: classroom aides at Valpariso and the use of award certificates at both schools. Additionally, most of the project components were given high satisfaction ratings. The most favorable rating combination for the project is a high level of implementation and a high level of satisfaction. The following areas were given this rating.

* Use of the goals page.
* Use of the station visitation chart.

* The computers.
* The computer software recommended in the LAG.
* Partners as cooperative learning teams at the computer.
* Strategies for students getting help other than from the teacher.
* Supportive risk free environment.

One area which was rated with a low level of implementation but with a high level of satisfaction was the use of the award certificates. Based on these results, more utilization of this component was encouraged.

Problem Survey #1 Results. When the teachers were asked to identify the 10 most serious problems for implementation of Project CHILD components only 3 were identified by 6 (half) or more of the 12 teachers. These problems are listed below with the numbers in parentheses indicating the number of teachers who identified this as a problem. These three problems can be placed into two categories: materials/activities availability and time required to implement a new program. Both of these issues are not unusual during the first year of implementing any new program. These issues will be monitored closely in Phase III.

* Finding sufficient materials to make stations activities. (7)
* The amount of time required to make activities. (7)
* The amount of time required for lesson planning. (6)

When problem areas are rated and reported, there is a tendency to overlook the positive aspects of a program. Much of the feedback received to date indicate that there are many positive aspects of Project CHILD, including the excitement of the students about learning, their ability to assist each other and be self paced, the successes of children previously having difficulties and many more. In fact, survey results indicate that for the majority of the components there are not problems. At least half of the teachers have indicated that 17 of the 59 items listed on the problem survey are "not a problem" and on another 26 of the 59 items that there is "not a serious problem".

Status Survey #2 Results. The results of the status survey indicated high levels of implementation for almost all of the project components and levels that were even higher than reported in November, indicating almost full implementation of the program. Of the 27 items, only one item was not rated by a majority of the teachers as implemented. This item related to award certificates.

In addition, most of the project components were given high satisfaction ratings by the majority of project teachers. The most favorable rating combination for the project is a high level of implementation and a high level of satisfaction. More than 70% of the items (19 of 27) were rated by a majority of the teachers as highly implemented with a high degree of satisfaction. The areas of high implementation and high satisfaction are as follows:

* Teacher's Manual as a reference for classroom management
* Two-week Student Orientation as a daily guide for training students
* Station Task Cards.
* Unit overview
* Unit planning guides
* Teaching tips
* Recommended stations
* Suggested station activities
* Materials and resource list
* Station pages
* Evaluation pages
* Station visitation charts.
* Hands on materials
* Use of computers
* Recommended computer software
* Partners as cooperative learning teams at the computer
* Strategies for students getting help other than from the teacher
* Weekly cluster team meetings
* Supportive risk-free environment

This list includes twice as many areas as were identified in the first Status Survey. No areas were rated with a low level of implementation but with a high level of satisfaction. The low implementation and low satisfaction results have been integrated into the discussion of issues in a later section of this report.

Problem Survey #2 Results. Of the 58 total items on the survey, 35 items (60%) were rated as "not a serious problem" by a majority of the teachers. Nine of the 58 items (16%) were rated by a majority of the teachers as "a serious problem". These are listed below.

* Accurate recording of students practice activities in the Passport
* Students using Passports to make appropriate station selections
* Tracking student progress at the computers
* Finding sufficient materials to make station activities
* Time required to make activities
* Preparing activities to meet the needs of varied student abilities
* Tracking student progress at the stations
* Time to work/plan with other Cluster Team members
* Providing sufficient help for lower ability students

A total of 25 of the 58 items (43%) were rated by two or more teachers as a very serious problem. It should be noted that, although an item may be rated by a majority of teachers as a non-problem area in general, some teachers may still perceive the area to be a severe problem. The items identified as "a very serious problem" by some but not a majority of the teachers are listed below.

* Keeping students on task without opening all stations (4)
* Time required for lesson planning (5)

Teachers reported that more time is being spent in station activities and less time is spent this year in whole group activities. Teachers also reported referring to the Teacher's Manual often or somewhat, although three teachers indicated that they seldom or never refer to the Teacher's Manual. Likewise, most teachers indicated that they refer often or somewhat to the LAGs, although there was a distinct difference in the responses by school. Most of the teachers review the students Passports somewhat or often. Compared to a more traditional classroom, most of the teachers perceive their students to be learning more (7/12), on task more often (8/12), working more independently (10/12), and reading better (10/12). Six of the teachers indicated that the number of computers in the classroom is not enough. The number of stations was rated as just right by 10 of the 12 teachers. Most of the teachers (8/12) indicated that they are enjoying their jobs more this year.

Student Performance

As a preliminary indicator of how students in Project CHILD classes perform on standardized achievement tests, results for both project schools were collected for 1987-88 and for 1988-89. The Project CHILD classroom scores were compared to grade level averages in both years. These data are only an early benchmark to determine if student performance appears to be equivalent to that of other students in the same grade and school. This is important to examine during the early implementation of the project although it cannot be judged to be a true indication of the effectiveness of Project CHILD. Test scores for both schools, grades 2-5, are presented in Table 1 for Valparise Elementary School and Table 2 for Westside Elementary School.

An examination of these data reveal several important differences but also some common elements in terms of how the student populations look from year to year and also in terms of how Project CHILD classes compare to the present and past year school performances.

1. The schools differ significantly in terms of their level of performances. Valpariso students score very high on standardized tests with the National Percentiles of the school averages ranging from 72 to 87 for the year presented. Very few schools nationwide score this high. With scores as high as this, a ceiling effect may occur and improved performances will be difficult to detect on a standardized achievement test. Westside on the other hand is a school with solidly average student performances. Their National Percentiles of the school averages range from 42 to 68 for the two years presented. There is a greater possibility in these score ranges for increased performances to be detected on a standardized achievement test.

Table 1
Valpariso Elementary School
Comprehensive Tests of Basic Skills

Test Results in Scale Scores*

Grade	N	Year	Reading	Language	Mathematics	Total
2		87-88	Results are missing from the school.			
	91	88-89*	634	632	648	638
	24	CHILD	640	640	663	648
3	129	87-88	659	669	671	667
	93	88-89*	659	667	669	665
	22	CHILD	654	661	652	656
4	121	87-88	713	701	693	702
	113	88-89*	707	685	691	698
	28	CHILD	712	706	707	710
5	112	87-88	731	720	711	720
	99	88-89*	735	718	712	722
	24	CHILD	691	723	710	724

* Results for 1988-89 do not include the Project Child classes which are reported separately.

2. Both schools have performances on the 1988-89 standardized achievement tests which are essentially the same as those for the school in 1987-88. There is one exception: 88-89 students in grade four at Westside appear to have performed better than Westside fourth graders did in 87-88.

Table 2
Westside Elementary School
Comprehensive Assessment Program - Achievement Series

Test Results in Scale Scores*

Grade	N	Year	Reading	Language	Mathematics	Total
2	79	87-88	411	414	443	434
	68	88-89	408	409	425	424
	22	CHILD	421	420	433	435
3	97	87-88	471	446	512	491
	58	88-89	462	447	496	485
	21	CHILD	503	541	546	550
4	102	87-88	509	469	537	513
	50	87-89	529	498	553	536
	25	CHILD	545	504	554	543
5	80	87-88	538	506	596	552
	62	88-89	537	495	575	541
	26	CHILD	530	502	581	541

* Results for 1988-89 do not include the Project Child classes which are reported separately.

3. The schools are somewhat different in the achievement of Project CHILD students as compared to the performance of all other students in the school. The evidence of higher performances by Project CHILD classes at Westside which is not observed at Valpariso is most likely due to the ceiling effects of the tests used at Valpariso. Caution should be used in interpreting these results as preliminary indicators only. The Phase III evaluation design will address program effectiveness both by design and by collecting data which is more directly related to Project goals.

   At Valpariso, as expected, most of the Project CHILD classes perform approximately the same as their grade level counterparts in 88-89 and in 87-88. There are only five cases where performances are different by 10 or more scale score points. Project CHILD classes scored a little better in second grade mathematics and in fourth grade language and mathematics. Project CHILD classes also scored slightly lower in third grade math and fifth grade reading. These fluctuations should be considered normal, and the overall performance should be considered to be approximately the same.

   At Westside, the Project CHILD Classes have performances which are mostly higher (by more than 10 or more scale score points) than the other students in the school, especially at second and third grades. At these grades reading, language and mathematics scores are higher for Project CHILD classes than for the other students at these grades. Fourth graders in Project CHILD classes also perform higher than other students in reading, but essentially the same in other subjects. There are no real differences in performances in fifth grade Project CHILD classes and all other students in any subject area. Overall, these results indicate that Project CHILD classes are performing about the same as students in other classes.

In summary, preliminary data indicate that students in Project CHILD classes can perform as well as students in a traditional classroom environment on standardized achievement tests. There is also some indication that they may be able to score slightly higher than students in other classroom situations, at least at some grade levels. There is no indication that the results reported herein are spuriously high, in fact, they may be conservative estimates of performances given the already high performances of Valpariso Elementary School students.

Findings and Issue Summary

The primary focus of formative evaluation is to improve the program by identifying areas in need of revision. This section summarizes the results from on-site observations, Teachers' Journals, and survey results. Issues concerning 11 components of Project CHILD are addressed. In general, the issues are related to specific components of Project CHILD. While the specific issues raised in a formative evaluation may be different for a different project, it is typical and desirable to identify areas where improvements in the program can be made. The 11 issues addressed in this section are not unusual for a formative evaluation to uncover. Collectively, all of the data indicate that Phase III of Project CHILD should proceed and recommendations for this Phase are made in the Conclusions and Recommendations Section.

Issue 1: Passports

Problems have been expressed concerning the difficulty of getting students to mark in their passports. Overall, however, survey results and Teacher Journals indicate that most students are using passports and are recording in them. Observations noted considerable prompting by the teacher to ensure that students recorded at least by the end of the period. Accuracy of the recording was one of the most negatively marked items on the survey (8 of 12 indicating a serious problem).

- Revisions for 1989-90: Passports and Task Cards have been redesigned, student orientation and training procedures enhanced.

Issue 2: Orientation

Most teachers indicated that the orientation sections are being implemented and that they are satisfied with them. The revisions in the units appear to have satisfied the problems previously expressed in this area. The survey to parents has pointed out that an improvement could be made in the orientation which is provided to parents. More information provided to the parents throughout the year would be helpful as well, especially as individual student needs and provisions for these needs can be addressed.

- Revisions for 1989-90: The Teacher's Manual has been revised. Letters to parents are now provided in T.M., LAGs, and Passports.

Issue 3: Planning Time

Planning time was mentioned repeatedly in the Teacher Journals (although not at all in the Unit 6 journals) as a problem area and was rated as a very serious problem by 5 of the 12 teachers. Teachers documented in their Journals staying until 6 and 7 p.m. and working weekends to complete the clean-up from one day and preparation for the next day's activities. Time required to make activities was identified as a very serious problem by 6 of the 12 teachers. The issue planning time as it relates to developing station activities is being addressed during the summer.

- Revisions for 1989-90: LAGs have been consolidated. Daily plans are provided for all stations for Unit One. Teachers will compile Station Activities Resource Books for use in Phase III. Planning Time will continue to be a concern to the evaluators in Phase III and will be monitored closely.

Issue 4: Daily Station Assignment Sheet (DSAS)

Although preparation of the DSAS was a problem identified in an earlier report, the second survey documented that most teachers (8 of 12) do not perceive this area to be a problem. Some of the teachers are moving students in groups which reduces the amount of

preparation time. In unit six some teachers reported letting students choose computer partners within their own group. The students responded well to this.

* Revisions for 1989-90: The number of stations and names have been changed.

Issue 5: Time Management

Journals for units 1-5 indicated that teachers believe the program does not allow sufficient time to complete the tasks that are part of Project CHILD. This issue wasn't even mentioned in unit six. Teachers noted that they couldn't cover everything in the time span allowed and also stated that there was a lack of time to work and plan with other Cluster Team members (7 of 12 indicated this was a serious problem). It was unclear whether it disappeared as an issue in unit six or if it was just not noted.

* Revisions for 1989-90: Principals have adjusted schedules.

Issue 6: Aides or Volunteers

Problems with both aides and with the volunteers who help with the computers were noted. On the survey, many teachers marked Not Applicable because they are not using aides or volunteers, making the majority criterion inappropriate for these items. Journals documented repeated instances of the volunteers not coming, new aides not understanding about computers, and either an unwillingness or fear of learning (observations noted this as well). At least one teacher cited that this problem still existed during the last six-weeks of school.

* Revisions for 1989-90: Turnover problem is unresolved.

Issue 7: Utilization of Computers

Observations by the evaluators and project staff have documented good time utilization of the computers in the second semester of the program. Likewise, use of the computers was identified as one component in which teachers were satisfied with the implementation. This problem appears to have been solved.

* Revisions for 1989-90: Additional software acquired to fill curriculum gaps.

Issue 8: Task Timing

The issue of the fixed timing of the computer lessons, reducing the adaptability to meet the needs of the students has appeared to be solved and was not mentioned as a problem for the later time periods. Teachers were told to adjust the time of the lesson where needed to accommodate this concern, and this direction appears to have solved the problem.

* Revisions for 1989-90: Flexible scheduling encouraged.

Issue 9: LAGs

After unit three, teachers begin implementing revised LAGs which the project staff continued to update. Most teachers are satisfied with this implementation. Some comments in the Teacher's Journals were made concerning the quality of the materials. Survey results, however, documented 10 of 12 teachers did not consider using the LAGs to be a serious problem.

* Revisions for 1989-90: Final revision and consolidation of units is ongoing. Enhanced elements include sections on setting goals, evaluation strategies, providing for diverse needs, skills checklists, daily lesson plans for unit one (weekly plans thereafter), correlation of station activities with the Station Activities Resource Books, and appendix materials for content background information.

Issue 10: Instructional Time and Mode

Observations and Teacher Journals again documented that some teachers have continued to rely on whole group instruction, rather than moving their students toward independence. Responses from teachers, however, document that most teachers spend 50% of the time in small group instruction and less than 25% in whole group instruction. Although the problem was reduced as the year progressed, some classes still continue to receive considerable instruction through whole group instruction.

During unit 5, one week was taken up with Spring Break and at least two more weeks were devoted primarily to preparing for and taking the achievement tests administered to the whole school in each district. During unit 6, some Teacher Journals documented

considerable amounts of time away from Project CHILD implementation during this period due to testing and end of the year activities.

* Revisions for 1989-90: Time away from instruction due to outside pressures is unresolved.

Issue 11: Materials and Supplies

A new issue which surfaced in the unit 5 Journals was the concern about running out of supplies and materials for the program. It could not be determined whether this is a school-wide problem or specific to Project CHILD. Staff should observe what happens in Phase III before concluding that this is a problem created by Project CHILD.

* Revisions for 1989-90: Being monitored.

Recommendations

The recommendations presented in this section are based on all of the findings of the Formative Evaluation of Project CHILD.

1. **Teacher Journals:** The format for the Teacher Journals should be revised for next year's evaluation using one page per week format with a check-list included.
2. **Use of Teacher Aides/Volunteers:** At the present time, it appears that the use of aides/volunteers in grades K-2 is a critical component for the implementation of Project Child. If aides/volunteers cannot be provided in the primary classroom, teachers need more training in the management of the computer station without the use of aides or volunteers. This factor should be examined carefully through next year's evaluation.
3. **Planning Time and Time Management:** The extensive time needed to plan and implement the program continues to be a concern. Although some of the time will be reduced following revisions to the program this year, this area should be reviewed carefully by the Project Staff in Phase III. Systematic methods should be identified for reducing planning time and increasing the teacher's facility in the logistics of implementing Project CHILD.

4. **Materials and Supplies:** Several teachers noted in their Teacher Journals that materials and supplies were very low. The prevalence and severity of this problem should be addressed immediately by Project Staff through interviews with teachers and principals. Project Staff should seek to determine if this is a school wide problem typical of the time of year or if it is related to the implementation of Project CHILD.

5. **Station Utilization:** There has been some question about the amount the stations are utilized and the stations which are utilized the most. This should be monitored in Phase III by observers, the teacher journal reports, and by an analysis of student passport information.

6. **Parent Information:** As a help to teachers and parents, project staff should work on a form for reporting to parents. If possible it should be revised to be more personal. Parents could be asked at the beginning of the year what their children's areas of need are and the teachers could respond with a year long strategy for meeting their needs.

7. **Program Continuation:** Preliminary evidence gathered to date indicates that this program can be implemented in typical elementary schools. The program should be implemented in 1989-90 with a systematic summative evaluation to determine the impact on students.

The results and recommendations presented in this report are based on the formative evaluation of the implementation year of Project CHILD. Five data collection methods were used to compile this report: surveys of teachers, surveys of parents, student performance data, observations in classrooms and analyses of Teacher Journals. Findings are presented in this report for the purpose of revising and improving project materials. Additional evaluation information will continue to be collected during Phase III of Project CHILD during 1989-90 in order to address project effectiveness.

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