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ABSTRACT

An overview is presented of the procedures, findings, interpretations, and recommendations related to Hawaii's 3 on 2 program. The 3 on 2 program is an organizational concept for the primary grades in which three teachers are involved with two classrooms in a team teaching approach. The four major objectives are: to acquire basic learnings, to develop self direction in learning, to improve self-concepts, and to establish satisfying interpersonal relationships. The summative evaluation is based on an advocate-adversary approach, in which one team focuses on the program's merits and a second team identifies the program's weaknesses. The types of information gathered by the evaluators included achievement gains; attitudes of students towards school, learning, and themselves; opinions of professional personnel and parents; teacher absenteeism; program costs; individualization; and legal and departmental mandates. In comparing the 3 on 2 program to self-contained classes, major findings, based on evaluation reports, included: no significant differences in academic achievement or student attitudes; opinions of teachers and administrators varied; teacher absenteeism showed no differences; costs were higher for 3 on 2; and individualization was not clearly understood. (MH)

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Volume III Executive Summary

Assessment Program



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TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS	iii
ACKNOWLEDGMENTS	v
EXECUTIVE SUMMARY OF TECHNICAL REPORT	1
Description of the 3 on 2 Program	1
Creation of the 3 on 2 Program	1
3 on 2 Program Goal	2
Program Objectives	2
Overview of the Evaluation Study	3
Description of the Evaluation Process	4
Types of Information Collected for the Evaluation	7
Academic Achievement Information	7
Student Attitudes	9
Opinions About 3 on 2	9
Teacher Absenteeism	14
Cost Data	14
Classroom Characteristics	14
Findings	16
Academic Achievement	16
Student Attitudes	17
Opinions About 3 on 2	18
Absenteeism of Teachers	25
Cost Data	25
Classroom Characteristics	25
A SUMMARY OF THE ADVOCATE TEAM'S EVALUATION	27
Preface	28
Self-Contained Classes and the 3 on 2 Program	29
Information and Conclusions	29
The Hawaii 3 on 2 Program is Functioning Effectively	30
Test Results	31
Unique Instructional Advantages	32
Uniformity or Options?	33
An Investment with Dividends	34
A SUMMARY OF THE ADVERSARY TEAM'S EVALUATION	35
Preface	36
Deficiencies of 3 on 2 in Producing Greater Student Achievement Gains--Cognitive and Affective	37
Views of Teachers, Parents and Principals	38
Basic Deficiencies in Design and Operation of 3 on 2	40
Classroom Descriptions	41
Concluding Observations	42
Footnotes	43

ACKNOWLEDGMENTS

This evaluation of the Hawaii 3 on 2 Program has required the time and attention of many people.

Teachers have graciously tolerated the intrusion of evaluators in their classrooms; they have spent considerable time answering questions of interviewers and responding to questionnaires. Students have taken achievement tests and attitude inventories and responded to questions of interviewers. Principals have answered questionnaires, scheduled classroom visitations and interviews with themselves, teachers, pupils and parents, and they have assisted in numerous other ways. District superintendents and supervisory staff members have facilitated the work of the evaluation team in every way which they were asked. Parents of the students, state government officials, and many other citizens of the state have generously taken time to talk with the evaluators.

Superintendent Charles G. Clark and the State Board of Education should be complimented for their insistence on a completely objective external evaluation of the 3 on 2 Program. Department of Education administrators and staff in charge of the program should be applauded for their acceptance and support of the purposes for the evaluation.

Special appreciation should be extended to Ronald L. Johnson and his entire staff in the Evaluation Section for frequently reordering their own professional work to support the work of the evaluation team.

The Northwest Regional Educational Laboratory also would like to acknowledge the invaluable contribution of four external evaluators who served on the evaluation teams. Dr. W. James Popham, Professor of Education at the University of California, Los Angeles; and Dr. Arliss L. Roaden, President of Tennessee Technological University, have directed the

two opposing evaluation teams. Dr. Dale Carlson, Director of Assessment at the California Department of Education; and Dr. W. Todd Rogers, Associate Professor of Educational Psychology at the University of British Columbia, have played key roles on their respective teams. Each of these individuals has made excellent contributions and brought special talents to this evaluation effort. Dr. Michael J. Patton of the University of Minnesota also served as a consultant and provided useful insights in open education and team teaching.

Finally, the openness and candor of the educators and citizens of Hawaii, with whom the evaluators have interacted have been refreshing. It is hoped that this evaluation will serve well Hawaii's continuing efforts to improve educational opportunities to children.

EXECUTIVE SUMMARY OF TECHNICAL REPORT

Evaluation of Hawaii's 3 on 2 Program has produced a great volume of information. Results are presented in three separate volumes.

Volume I, Technical Report details (a) the process used to evaluate the 3 on 2 Program, (b) the data collection methods and analysis procedures used in the evaluation, and (c) results of the data analysis. Volume II,

Team Interpretations and Recommendations presents arguments for and against the 3 on 2 Program, written by two opposing teams. Volume II also includes each team's rebuttal to the opposing team's presentation.

This Executive Summary provides a highly condensed overview of all procedures, findings, interpretations and recommendations presented in Volumes I and II. The volume consists of these sections: Description of the 3 on 2 Program; Overview of the Evaluation Study; Types of Information Gathered for the Evaluation; Summary of Major Findings; Summary of the Advocate Team's Interpretations and Recommendations; Summary of the Adversary Team's Interpretations and Recommendations. In the interest of brevity, no summary of the two teams' rebuttals is presented in this volume.

Description of the 3 on 2 Program

Creation of the 3 on 2 Program

Conference Committee Report No. 3 of the 1968 Hawaii State Legislature encouraged the Department of Education to begin a new program: the "K-3" Program, or, as it is now called, the "3 on 2" Program. An excerpt from the report reads as follows:

The Committee commends attention to a new program which concentrates attention to the early years of schooling. The plan would put three teachers where two are now

assigned, so that three co-equal workers are with two classrooms. Two grade levels must be involved with each team of three, such as K-1, or 2-3. If the arrangement of the three teachers for two classes is afforded, the stage would be set for team-teaching in one dimension and ungraded activities in the other to meet individual experiences

The 3 on 2 Program is an organizational and operational concept rather than an instructional program. According to the report, assigning three teachers to a class of between 53 and 62 students would free teachers to conduct large- or small-group instruction, or to work with pupils individually. Other potential benefits mentioned in the report include opportunity for teacher preparation periods, duty-free lunch periods, counseling time, attention to gifted pupils, and the benefit of the combined special competencies of three teachers.

3 on 2 Program Goal

The goal of the 3 on 2 Program is to maximize the intellectual, social, emotional and physical growth of students by providing for greater individualization through the team approach to teaching.

Program Objectives

The 3 on 2 Program has four major objectives listed in the 3 on 2 Administrative Guide and Implementation Handbook (1968). These appear in Table 1.

In addition to these four major objectives, the "3 on 2 Program [focuses] on improvement of instruction through individualization of instruction and the team approach to teaching" (Administrative Guide and Implementation Handbook, 1968).

TABLE 1

3 on 2 Program Objectives

3 on 2 Program Objective	The objective has been met when the student demonstrates the ability to:
1. To acquire basic learnings	<ul style="list-style-type: none"> ● Apply knowledge and skills acquired in all subject areas to meaningful situations
2. To develop autonomy in learning (self-direction)	<ul style="list-style-type: none"> ● Adhere to classroom management procedures set cooperatively by teachers and students ● Select materials, activities and resources that will help him obtain such objectives ● Attend to task to attain objectives ● Participate in the evaluation of his own program
3. To develop a more realistic and positive self-concept	<ul style="list-style-type: none"> ● Understand his role as an individual in relationship to others ● See himself as a capable reader, writer, speaker, computer, etc. ● Accept himself just as he is ● Experience success in tasks being performed
4. To establish satisfying interpersonal relationships	<ul style="list-style-type: none"> ● Show acceptance or liking of others, older or younger, the same age, and of both sexes ● Cooperate with others ● Help others ● Accept help from others when appropriate ● Communicate his feelings openly

Overview of the Evaluation Study

The evaluation study was initiated at the request of the Hawaii Department of Education. In response to this request, NWREL submitted a workplan which was subsequently approved by the Department and the State Board of Education. The evaluation was to be summative in nature, providing the Department of Education and the Board of Education information about the effectiveness of the 3 on 2 Program. Department officials requested that self-contained classrooms be used as a comparative benchmark against which to contrast attainment of 3 on 2 Program goals. Therefore, comparisons are made between 3 on 2 and self-contained classrooms throughout this evaluation. It should be stressed, however,

that this is not an evaluation of the self-contained classroom structure. The focus of the present evaluation is on 3 on 2 and variables relevant to its evaluation. Different variables would need to be added if a comprehensive evaluation of the self-contained classroom were desired.

Description of the Evaluation Process

Several alternative approaches to conducting the evaluation were considered and discussed with the Department. An advocate-adversary evaluation approach was selected as best suited to provide the range of information needed by the Department.

In this approach to evaluation, two independent teams examine the program. The Advocate Team focuses on the program's merits, and, as its name implies, becomes the advocate of the program. The Adversary Team concentrates on identifying the program's weaknesses and limitations, becoming in effect the program's opponent. The results presented by the two teams, when considered together, should represent all positive and negative characteristics of the program and thus portray the program as accurately and completely as possible. A summary of the results and recommendations of each team is to be presented orally and in written form to Department of Education administrators who make program decisions.

The advantages inherent in the advocate-adversary approach and its particular relevance in the 3 on 2 evaluation were well stated by State Superintendent Charles G. Clark in a recent presentation:

For those individuals who may not be familiar with the advocate-adversary approach, under this approach one team of evaluators will prepare a complete case and present the arguments for continuing the 3 on 2. Another team will prepare a case and offer arguments against the program. My recommendation to the Board of Education on the future of the program follows soon after the presentations.

Two factors led me to select this approach. The first was to obtain the most objective and complete evaluation of the program. The usual approach to program evaluation calls for the same individual or individuals to examine the program in terms of its strengths, weaknesses and limitations. This sometimes results in the personal biases of the evaluators creeping into the evaluation, even though all evaluators scrupulously guard against it. With two teams investigating and then reporting on previously agreed-upon areas--one team arguing for the program and another team arguing against the program with neither team collaborating with the others--I felt that those unintentional biases could be minimized, if not neutralized, by the opposing team.

A second factor for choosing this approach was a personal one. The typical evaluation report contains policy recommendations that are issued by the evaluators. While this arrangement is not all that bad, in the case of 3 on 2 I felt that the evaluators should concentrate all of their resources and attention on an examination of the facts and issues connected with the program. Speculating on key policy decisions connected within the 3 on 2 is a matter which I felt should be left to me and my staff. (Charles G. Clark, "The Major Policy Issues and Program Implications Surrounding the 3 on 2 Evaluation," paper presented to the Executive Committee of the Western Regional Interstate Planning Project, December 15, 1976. Pp. 4-5)

Teams for the advocate-adversary approach. It was felt that all team members should be experienced evaluators, and that teams should be evenly balanced in terms of measurement skills, data analysis and interviewing skills, and knowledge of Hawaii's educational system. It was also decided that teams of four members each would be appropriate, given the workload and available budget. Team efforts were to be coordinated by two codirectors, neither of whom was a team member. Once team members were selected and assigned to teams to achieve the desired balance, teams were randomly assigned to the advocate and adversary positions by the toss of a coin at a joint meeting. Team members were assigned as follows:

Advocate Team

W. James Popham, University of California (Los Angeles)
Dale Carlson, California Department of Education
Thomas R. Owens, NWREL
Michael D. Hiscox, NWREL

Adversary Team

Arliss L. Roaden, Tennessee Technological University
W. Todd Rogers, University of British Columbia
William J. Wright, NWREL¹
Thomas Sachse, NWREL²

The project codirectors were Dean H. Nafziger and Blaine R. Worthen of NWREL; as neutral arbitrators, they were responsible for overall leadership and administration of the study. Selection of all team members, including NWREL staff, was contingent on Department of Education approval.

In order to stay within the budget, it was decided at the outset that the two teams would not be able to develop evaluation designs and undertake data collection activities independently. Therefore, the evaluation design and instruments to collect desired data were jointly agreed upon by both teams in advance. Data were collected through cooperative efforts of both teams, working under the direction of the project codirectors, and all data were made available to both teams.

¹Dr. Wright resigned in September 1976 to assume a new administrative position within NWREL and was replaced by Dr. Kim Yap.

²Mr. Sachse resigned in September 1976 to pursue doctoral studies at Stanford University and was replaced by Ms. Jeri Benson.

Types of Information Collected for the Evaluation

Many kinds of information were needed to gain a complete, accurate picture of the 3 on 2 Program and its effects on students. In many cases information about self-contained classrooms was gathered for purposes of comparison. The types of data gathered related to (a) academic achievement of 3 on 2 classroom students as compared to self-contained classroom students; (b) attitudes of 3 on 2 students regarding school, learning, and themselves as compared to the attitudes of self-contained classroom students; (c) opinions of state executives, Department of Education officials, principals, teachers, parents, and other interested citizens about the 3 on 2 Program; (d) absentee rate of 3 on 2 teachers as compared to self-contained classroom teachers; (e) costs associated with 3 on 2 classrooms as compared to self-contained classrooms; (f) individualization and teaming characteristics of 3 on 2 classrooms; and (g) legal and departmental mandates that have guided the development of the 3 on 2 Program.

The specific types of data collected in each of these categories are summarized below; more details are available in Volume I, Technical Report.

Academic Achievement Information

- The academic achievement of a sample of 869 third grade 3 on 2 students (50 classrooms) and 534 third grade self-contained students (35 classrooms) was measured in spring 1976 and compared. Each student in the sample had been in one kind of classroom (3 on 2 or self-contained) for at least three years since kindergarten.

All students were given four parts of the Comprehensive Tests of Basic Skills--Reading Vocabulary, Reading Comprehension, Mathematics Computation, and Mathematics Concepts and Applications.

The sample was scientifically drawn so that an accurate estimate of academic achievement could be obtained for students in each type of classroom, and so that the students' socioeconomic status, enrollment in the Hawaii English Program, and type of school would not affect the results. Also, the test scores were analyzed in such a way that students' general academic ability (as opposed to achievement) would not inappropriately influence the results.

- In Fall 1976 evaluators measured and compared the academic achievement of a sample comprising 456 fourth graders who, during K through 3, had been in 3 on 2 classes for at least three years, and 349 fourth graders who, during K through 3, had been in self-contained classes for at least three years.

All students were given one of two forms of a criterion referenced test developed for the evaluation. Together these two forms measured performance on six mathematics objectives and six reading objectives selected by Department curriculum specialists as important for Hawaii children.

These students were scientifically sampled from the students who had been tested the previous spring when they were third graders. Therefore, the potential effects of students' socioeconomic status, enrollment in Hawaii English Program, and school type on the results were avoided through the sampling techniques, and the potential effect of students' academic ability was avoided through the method of analysis.

- The academic performance of a sample of 657 sixth grade students (257 had been in 3 on 2 for three years and 400 had been in self-contained classes for three years) was measured in Fall 1976 in order to determine if the 3 on 2 Program had any measurable long-term effects. All students were given five parts of the Stanford Achievement Test, Intermediate Level II, Form A: Vocabulary, Reading Comprehension, Mathematics Computation, Mathematics Concepts, and Mathematics Applications.

Student Attitudes

- Attitudes of the same students who were in the third grade academic achievement test sample were measured in Spring 1976 and compared. Students were given three scales of the School Sentiment Index--General, Social Structure and Climate, Authority and Control; three scales of the Self Appraisal Inventory--General, Peer, and School; and the Me and School Inventory.
- In Fall 1976 evaluators measured and compared the attitudes of a sample comprising 257 sixth graders who, during K through 3, had spent three or more years in 3 on 2 classes, and 400 sixth grade students who, during K through 3, had spent three or more years in self-contained classes.

The same students who were in the sixth grade fall academic achievement test sample received the attitude inventories.

Opinions About 3 on 2

- Nearly 300 personal interviews were conducted by evaluation team members. Detailed notes from the interviews were made available to all evaluators to familiarize them with the history of 3 on 2,

and the range of current perceptions regarding the program. To ensure interviewees' anonymity, interview data are not reported in this evaluation. However, those data have been extremely useful in identifying issues and variables for further investigation. For example, a majority of the questionnaire items described in this report were posed to investigate variables and assertions suggested during interviews. In addition, some interviewees provided leads to other sources of information or helped to verify the accuracy of data collected through other means.

The number and types of persons interviewed are shown in Tables 2 and 3.

TABLE 2

Number of Interviews with School Administrators,
Staff and Parents: By District

District	District Supt. or Deputy	Principals	Curriculum Specialists	Teachers	Parents
Honolulu	1	14	1	21	7
Leeward	1	2	1	18	6
Windward	1	6	1	39	14
Central	1	3	1	24	10
Mauí	1	2	1	17	6
Kauai	2	2	1	12	6
Hawaii	1	6	1	15	3
TOTAL	8	35	7	146	52

TABLE 3
Number of Interviews with State Officials and Others

Category	Number of Interviews
State Government Officials (Executive or Legislative)	3
Board of Education Members	7
Department of Education Administrators and Staff	23
Former Department of Education Officials	4
Union Representatives	4
Press Representatives	3
Higher Education Representatives	4
TOTAL	48

Six public meetings were held in Spring 1976 to allow interested persons throughout the state to offer opinions about the 3 on 2 Program to members of the evaluation team. The location of meetings was planned to enable persons from all islands and districts to offer testimony. Table 4 summarizes the location and attendance for each meeting.

TABLE 4
Public Meetings Held in May 1976

District	Date	Approximate Number Attending	Evaluation Member(s) Attending	Location
Honolulu	May 12	52	Popham Roaden	McKinley High School (Honolulu)
Leeward and Central (combined)	May 12	80	Nafziger	Pearl City Elementary (Pearl City)
Windward	May 12	100	Hiscox Wright	Benjamin Parker School (Kaneohe)
Mauai	May 12	40	Owens Sachse	Wailuku Elementary (Wailuku)
Hawaii	May 12	14	Carlson Rogers	Waiakea Elementary (Hilo)
Kauai	May 13	15	Popham Roaden Worthen	Wilcox Elementary (Lihue)

- In Spring 1976, teachers, principals, and parents were asked their opinions of 3 on 2; a separate survey questionnaire was given to each of the three groups. Questionnaires were designed to cover all major aspects of the 3 on 2 Program, and, despite differences among the three questionnaires, there was also considerable commonality of information obtained across the three groups.

Questionnaires called for information on the following topics:

1. Goals of 3 on 2 and self-contained classrooms
2. Unique instructional opportunities within 3 on 2 and self-contained classrooms
3. Perceived academic progress by students in 3 on 2 and self-contained classrooms
4. Perceived affective and psychomotor progress by students in 3 on 2 and self-contained classrooms
5. Perceived progress in other areas affected by schooling by students in 3 on 2 and self-contained classrooms
6. Types of students for which the 3 on 2 or self-contained classroom organization is preferable
7. Parent involvement in the assignment of students to classrooms
8. Implementation of 3 on 2
9. Parent involvement in classrooms
10. In-service training for teachers and principals
11. Teachers' preferences regarding classroom organization
12. Strengths and weaknesses of the 3 on 2 Program
13. Suggestions for improving the 3 on 2 Program if it were continued

Questionnaires were sent to all K through 3 teachers in the state (2,379) and 76.5 percent returned them. All elementary principals (175) in the state received the questionnaires, and 82.3 percent returned them. And, a sample of 1,897 parents selected to represent every classroom in the state were sent the parent questionnaires; 50.8 percent returned them.

- In Fall 1976 a sample of second and third grade 3 on 2 teachers and third grade self-contained classroom teachers were given questionnaires soliciting their views about the following:

1. Amount of teaching time spent in various activities
2. Range of options available for various teaching tasks
3. Confidence in carrying out teacher tasks
4. Individualization and student self-direction
5. Their own classrooms
6. Their own students

These questionnaires were sent to all teachers whose classrooms were included in the spring academic achievement testing. In all, 222 questionnaires were mailed; the response rate was 65.3 percent.

- In Fall 1976 a questionnaire was sent to a sample of fourth grade teachers who each year teach students coming out of both types of classrooms. They were questioned on--

1. Their recommendations for 3 on 2 in the future, and
2. The relative performance of 3 on 2 and self-contained classroom students.

In all, a total of 148 questionnaires were mailed; the response rate was 81 percent.

Teacher Absenteeism

- Information comparing the absenteeism rates of a sample of 3 on 2 and self-contained classroom teachers was obtained from Department files. The sample consisted of teachers whose classrooms were included in the spring academic achievement testing.

Cost Data

- Information on costs of the 3 on 2 Program were obtained from Department records and through interviews with Department officials. These data included operational costs for 1975-1976 and projected costs for 1976-1977.
- Costs for converting 3 on 2 classrooms into self-contained classrooms were determined.
- Costs comparing special Hawaii English Program costs for 3 on 2 and self-contained classrooms were also obtained.
- All cost figures and the means by which they were derived were officially verified by the Department of Education.

Classroom Characteristics

- Detailed observations of classrooms were made separately by the Advocacy team, Adversary team, and a specialist in open education and team teaching. Table 5 summarizes the number and type of classrooms observed by each team and by the specialist. Classrooms were randomly selected from throughout the state for observation by the Adversary Team and the specialist. The Advocate Team observed exemplary classrooms which were recommended by District curriculum specialists and which had high achievement test scores.

TABLE 5

Classrooms Visited Within Each District
By Both Teams and Dr. Patton

District	No. Observed by Adversary Team	No. Observed by Advocacy Team	No. Observed by Dr. Patton
Honolulu	7	1	4
Leeward	4	2	-
Windward	7	6	5
Central	4	3	-
MauI	5	-	-
Kauai	2	3	-
Hawaii	-	-	5
TOTAL	29	15	14

Findings

The major findings of the evaluation are summarized briefly in this section. Only those results that bear directly on the 3 on 2 Program are reported here. Other findings, such as differences that might occur among socioeconomic groups or between classrooms which do and do not employ the Hawaii English Program, are purposely omitted. It is important to emphasize that variables such as socioeconomic status and participation in the Hawaii English Program were retained in the analysis only for a statistical purpose: to eradicate any influence they might have on the results of the 3 on 2 Program.

Further details regarding these findings are available in Volume I, Technical Report.

Academic Achievement

- On the Comprehensive Tests of Basic Skills, academic achievement for third graders in self-contained classrooms was greater than for students in 3 on 2 classrooms in Reading Vocabulary and Reading Comprehension. No differences were found in Mathematics Computation and Mathematics Concepts and Applications.
- For fourth grade students, the criterion-referenced test revealed no overall differences between students who had been in 3 on 2 classrooms and those who had been in self-contained classrooms. However, within socioeconomic groups there were contradictory results. Of the low socioeconomic students, those in self-contained classrooms performed better on two subtests (Selecting Examples and Synonyms to Match Contextual Definitions and Fractional Numerals and Number Words), and of the high socioeconomic students, those

in 3 on 2 classes performed better. However, on each of two subtests testing other objectives (Ordering Cardinal Numbers and Addition with Two Digit Numerals), this pattern was exactly reversed.

- Academic achievement of sixth grade students on the Stanford Achievement Test revealed no difference between 3 on 2 students and self-contained classroom students.
- In summary, because of the very few differences found among the many comparisons made, it was concluded that no meaningful differences exist in academic achievement between 3 on 2 and self-contained classroom students.

Student Attitudes

- At the third grade level, students in 3 on 2 classrooms had a more positive "general school sentiment" than students in self-contained classrooms. No overall differences were found between the two groups on the other six student attitude scales. However, among all students of middle socioeconomic status, 3 on 2 students had a more positive general self-appraisal than their counterparts in self-contained classes. And for high socioeconomic students, students in self-contained classrooms exhibited a more positive self-appraisal.
- At the sixth grade level, no overall differences in student attitudes were found on the seven subscales between 3 on 2 students and those who had been in self-contained classrooms in earlier years. Among students of low socioeconomic status, those who had been in 3 on 2 classrooms showed higher scores than self-contained classroom students on the Peer Self Appraisal Scale and the Authority

and Control School Sentiment Index. Within middle and high socioeconomic groups, students from 3 on 2 and self-contained classes had similar scores.

- In summary, because of the very few differences found among the comparisons, it was concluded that no meaningful differences exist in student attitudes between 3 on 2 and self-contained classroom students.

Opinions About 3 on 2

- Teachers and principals generally agreed on classroom goals regardless of the type of classroom. However, 3 on 2 teachers more frequently cited the following goals:

- Peer tutoring
- Individualized learning
- One-to-one teacher to pupil instruction
- Small group instruction
- Instruction in the physical sciences
- Flexibility in using classroom space
- Parent conferences

- Principals indicated there were no differences between 3 on 2 and self-contained classes regarding parent complaints, interfaculty cooperation, or discipline problems.
- 3 on 2 teachers more than self-contained classroom teachers believed that teachers with whom they worked closely were effective in cooperative planning, team teaching, sharing teaching techniques, using one another's strengths, and sharing learning materials. Also, 3 on 2 teachers more than self-contained classroom teachers believed that the 3 on 2 Program helped teachers work together as a team, promoted chances for professional growth, and allowed teachers to share ideas on the most effective way to teach a child.

Principals also believed that the 3 on 2 Program helped teachers work together as a team, promoted chances for professional growth and allowed teachers to share ideas on effective teaching.

- In most areas, principals perceived no particular difference between the academic progress of students in 3 on 2 classrooms and those in self-contained classrooms. In the areas of arithmetic, science, music, and social studies, 3 on 2 teachers rated their students higher than self-contained classroom teachers rated their students.
- Teachers rated the progress of students in 3 on 2 and self-contained classrooms equally in exercising self-control, taking an interest in school, getting along with others, and developing a more positive self-concept. Principals indicated no difference in taking an interest in school. However, principals were divided between favoring 3 on 2 and indicating no difference regarding developing self-control, developing a more positive self-concept, and getting along with others.
- Also, 3 on 2 teachers rated their students' progress in physical education higher than did self-contained classroom teachers, but principals believed that all students progressed equally in physical education.
- Teachers rated 3 on 2 and self-contained classroom children about equally on progress in becoming an independent learner, but the majority of principals believed that 3 on 2 students progressed more in becoming an independent learner. More than 3 on 2 classroom teachers, self-contained classroom teachers indicated that their students used time wisely. All parents, regardless of tr

type of classroom in which their children were enrolled, rated their children moderate to high in self-control, ability to communicate, ability to express feelings openly and honestly, ability to relate to their brothers and sisters, and ability to use time wisely.

- Teachers, principals, and parents did not agree about the types of students for whom 3 on 2 was appropriate. Principals indicated that 3 on 2 and self-contained classrooms were appropriate for all students. Many parents indicated that 3 on 2 may be inappropriate for students who lack self-direction, but rated both types of classrooms as appropriate for other students. Teachers of both 3 on 2 and self-contained classrooms were divided between saying 3 on 2 was not appropriate and that both types of classrooms were appropriate for children with learning disabilities, children with short attentions, and children who lack self-direction. Self-contained classroom teachers were divided about the appropriateness of 3 on 2 for shy children and kindergarten children. Otherwise, teachers rated children as appropriate for both types of classrooms.
- The majority of teachers of self-contained classrooms indicated that students with learning problems were most often assigned to self-contained classrooms, although most principals and 3 on 2 teachers said that these students were equally divided among types of classrooms.
- Parents' preferences for the type of classroom they wanted for their children were dependent on the type of classroom in which their children were already enrolled. Parents of 3 on 2 students preferred

to have their children remain in 3 on 2; parents of self-contained classroom students preferred to have their children remain in self-contained classrooms; and parents with children in both types of classrooms were divided in their preferences. A majority of parents and about half of the teachers indicated that parents were not given a choice of whether their children would be in a 3 on 2 or self-contained classroom. However, a slight majority of principals said that parents were given a choice, although principals said that parent involvement in making assignments to classrooms was not adequate.

- Most teachers and principals felt that leadership from the state and districts for the implementation of 3 on 2 was inadequate. There was confusion about responsibility for adopting 3 on 2 in individual schools; teachers believed their principals were responsible, but principals indicated they did not know who was responsible. Also, principals and 3 on 2 teachers did not believe that they had been adequately involved in developing guidelines for 3 on 2. At the same time, principals and 3 on 2 teachers overwhelmingly agreed that principals had supported 3 on 2 teams.
- Most 3 on 2 teachers felt the program was not too expensive; about half of the self-contained classroom teachers said it was; and principals were divided in their responses.
- The type of class in which their children were enrolled did not affect the frequency with which parents said they attended PTA, parent-teacher conferences, or other school activities, or helped their children with homework.

- Principals and teachers of 3 on 2 classrooms most often attended in-service workshops. Principals and 3 on 2 teachers were generally divided about whether in-service training was adequate or inadequate. Self-contained classroom teachers were least likely to rate it adequate. Those workshops rated highest were on interpersonal relationships, improving self-direction, Hawaii English Program training, and improving children's self-concept. In-service workshops least often rated as effective were Department of Education sponsored 3 on 2 orientation workshops.
- Most 3 on 2 teachers indicated that they would prefer to teach in a 3 on 2 classroom; most self-contained classroom teachers indicated that they would prefer to teach in a self-contained classroom, but with a full- or part-time aide. Both groups would feel some disappointment if forced to teach in the opposite type of classroom from their present one.
- Principals, 3 on 2 teachers, and parents generally did not agree with self-contained classroom teachers about the strengths and weaknesses of 3 on 2. However, the majority of all teachers and principals believed that 3 on 2 students could find at least one adult with whom to get along, that 3 on 2 children had opportunity to learn from each other, that there was a greater variety of learning materials in 3 on 2 classes, that teacher absences did not interfere with instruction, and that teachers could get other ideas before taking action. Parents believed that shy children and those with learning problems got lost in 3 on 2 classes.

- If they were able to choose how to use money presently designated for 3 on 2, principals and 3 on 2 teachers would most often choose to maintain 3 on 2, although some would choose to revise the program. Self-contained classroom teachers would choose to reduce class size in self-contained classes or provide for specialists. The majority of people in each group felt that it was at least somewhat important to maintain 3 on 2 and self-contained classrooms as options.
- A common theme from interviews with principals and teachers, testimonies at public meetings, and written comments by teachers is that compatibility of personalities and philosophies among members of a 3 on 2 teaching team is crucial to the success of that team.
- Teachers of 3 on 2 spent less time instructing the total class than did self-contained classroom teachers, but there was no substantial difference in the time allotted to small group instruction, individual instruction, individual counseling, supervising seat work, counseling with parents, preparing lesson plans, record keeping, and assessment of pupils.
- Most self-contained classroom and 3 on 2 teachers felt they had a large range of instructional techniques available to them. Self-contained classroom teachers more frequently indicated a great range of available disciplinary procedures and 3 on 2 teachers more frequently noted a wide range of options for evaluating students.
- Most teachers, regardless of classroom type, felt confident about their teaching ability. And almost all were willing to ask other teachers for ideas or assistance.

- When asked to describe their classrooms, 3 on 2 and self-contained classroom teachers responded similarly. When each group chose a list of descriptive adjectives, 3 on 2 teachers described their students as active, friendly, interested, and outgoing; self-contained classroom teachers described their students as active, curious and friendly.
- Most teachers, regardless of classroom type, agreed that it was possible and important to individualize instruction in the primary grades. However, more 3 on 2 teachers than self-contained classroom teachers supported these ideas. Further, most felt that schools should promote self-directed learning, and that not all students should receive the same instruction.
- Of the fourth grade teachers surveyed, slightly fewer than half believed that 3 on 2 should be maintained at its present level or expanded, or that it was important to retain 3 on 2 as an option for all students. At the same time, a large majority of the fourth grade teachers believed that it was very important to have self-contained classrooms as an available option for all students. If given a choice in how to use the money allocated to 3 on 2, fourth grade teachers most frequently said they would reduce class size or provide teaching specialists.
- In comparing former 3 on 2 and self-contained classroom students, the majority of fourth grade teachers cited no major differences. However, a large minority believed that former self-contained classroom students were better prepared in reading and mathematics, used their time better, and that former 3 on 2 students misbehaved more frequently.

Absenteeism of Teachers

- No differences in absenteeism were found between 3 on 2 and self-contained classroom teachers.

Cost Data

- The estimated operational cost for the 3 on 2 Program above the cost of educating the same students in self-contained classrooms was \$8,877,549 for the 1975-76 school year and \$10,221,468 for the 1976-77 school year. Some savings in materials costs, especially when Hawaii English Program materials were not needed, was realized in 3 on 2 classrooms.

The current cost of converting two self-contained classrooms into one 3 on 2 classroom is approximately \$6,000. The cost of converting a 3 on 2 classroom into two self-contained classrooms is about \$5,000. Presently there are a number of empty classrooms in elementary schools throughout the state, and about 25 percent of the 3 on 2 students could be moved into self-contained classes with no conversion costs.

Classroom Characteristics

- Information from classroom observations and interviews with teachers suggested that 3 on 2 teachers exhibited a higher than usual degree of teaming. At the same time, in some cases self-contained classroom teachers joined with other self-contained teachers in order to effect team teaching. Regarding individualization of instruction, there seems to be confusion about the way individualization should be done. The Hawaii English Program seems to contribute more to individualization of instruction than do guidelines for 3 on 2.

The recommendations and conclusion based upon these findings are given in the remainder of this volume.

THE HAWAII 3 ON 2 PROGRAM
A SUMMARY OF
THE ADVOCATE TEAM'S EVALUATION

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PREFACE

The authors of this report were assigned the task of serving as advocates of the instructional program being evaluated. They perceived their assignment, consistent with the adversarial evaluation model being employed, to defend the merits of that program as vigorously as possible on the basis of available evidence, logic, etc. It should be recognized, therefore, that the positions expressed in the following pages may not represent the individual or collective views of the writers.

Hawaii's 3 on 2 Program represents the most ambitious attempt ever seen in American educational history to create a team-taught, flexible, and individualized instructional program for primary grade children. Never before has an entire state attempted to instill a comparable instructional scheme designed to upgrade the quality of its instructional program for primary grade children.

Self-Contained Classes and the 3 on 2 Program

The inherent limitations of the self-contained classroom are well known: the unlikelihood of all children relating well to the same adult; the difficulty of the teacher's giving adequate attention to children who need special help; the need for the teacher to be an "expert" in all subject matter fields; and the lack of flexibility in organizing the children into various groups for different types of learning.

It was because of these built-in liabilities that Hawaii's educational architects initiated a major instructional reform in 1968 to improve the quality of education in the primary grades. In brief, the Hawaii 3 on 2 Program created a large number of team teaching situations in which three teachers were assigned to two classes of primary children. This report constitutes one segment of a systematic attempt to evaluate the merits of that program. It was prepared by an adversarial team whose responsibility was to defend the merits of the Hawaii 3 on 2 Program.

Information and Conclusions

A wide variety of techniques and sources were used to determine the value of the Hawaii 3 on 2 Program. Our team spent hours talking to people in Hawaii who were close to the program. We interviewed teachers, parents, administrators, children, legislators, interested citizens, Department of Education officials, and a host of other assorted folks who

had views on the program. We observed classes, both 3 on 2 and self-contained. We gathered questionnaire data from teachers, parents, and administrators. We gave achievement tests of many kinds to children in 3 on 2 and self-contained classes. We administered attitude inventories to those youngsters to find out how they felt about self-contained and 3 on 2 classes.

As all of this information began to accumulate, the data led us inescapably to the following conclusions:

1. *The Hawaii 3 on 2 Program, while capable of being improved, is currently functioning effectively to the educational benefit of most youngsters it now serves.*
2. *The Hawaii 3 on 2 Program is functioning effectively because of its unique instructional features.*
3. *Citizens of Hawaii should be singularly proud of the Hawaii 3 on 2 Program and strive to strengthen the excellence of this high visibility educational reform as an option for the children and teachers of Hawaii.*

The Hawaii 3 on 2 Program is Functioning Effectively

The opinions of 130 principals, 1,749 teachers, and 905 parents regarding the effectiveness of the Hawaii 3 on 2 Program, as collected via questionnaires, offer considerable support for the contention that the program is functioning effectively. All three groups were asked to respond to a key question, namely, "Should the 3 on 2 program be (1) expanded, (2) maintained at its present level, (3) reduced, or (4) eliminated?" Whether or not the group has any special involvement or personal stake in the 3 on 2 program, at least 50 percent of each group want either to expand 3 on 2 or maintain it at its present level. For some subgroups

the proportions are considerably higher; principals range from 70 to 90 percent. Indeed, over 50 percent of the teachers of self-contained classes want to expand or maintain the program. A solid 86 percent of the teachers of 3 on 2 classes also wish to maintain or expand the program. In view of this resounding support from the professionals who know it best, the inference must be drawn that they believe the 3 on 2 Program is working.

Other items on the questionnaire asked respondents to compare the progress of children in self-contained and 3 on 2 classes. The reactions provided by 111 elementary school principals, knowledgeable regarding both 3 on 2 and self-contained classes because of their day-to-day contacts with both kinds of classes, yields a startling vote of approval for the Hawaii 3 on 2 Program. These Hawaii elementary school principals think that 3 on 2 classes are decisively more effective, on all counts, than self-contained classes. Principals think the children in 3 on 2 classes are making greater progress than children in self-contained classes in basic skill areas such as reading and math and in areas consistent with the announced purposes of the Hawaii 3 on 2 Program, for example, encouraging children to become more independent learners.

Test Results

In this evaluation, as in many of the previous evaluations of the Hawaii 3 on 2 Program, standardized achievement tests have been used as an index of the program's effectiveness. This time, as in the past, there seems to be little evidence favoring 3 on 2 youngsters. As is almost always the case, results on standardized achievement tests turn out to reveal "no statistically significant differences" between an innovative program (in this case, 3 on 2) and the more traditional instructional

program. But do these results reflect shortcomings in the new programs, or do they reflect shortcomings in the kinds of testing devices used? In the opinion of the Advocate Team, and a growing number of educational measurement specialists, standardized achievement tests such as those used in the current evaluation are inappropriate for assessing the effects of instructional interventions such as the Hawaii 3 on 2 Program. Such tests were devised for purposes other than evaluating educational programs and should not be considered indicators of a program's success. The complete report of the Advocate Team describes their deficiencies in greater detail. Problems with other assessment devices used in the examination are also discussed in that report.

Members of the Advocate Team believe, however, that with the use of more appropriate assessment devices and a results-oriented monitoring system, the Hawaii 3 on 2 Program can be substantially improved. Specifics of such an improvement scheme are provided in the complete report.

Unique Instructional Advantages

What is it that leads so many people to assert that this program is worth maintaining or even expanding? In the view of the Advocate Team, that's a fairly simple question to answer. The fact is that the Hawaii 3 on 2 Program incorporates some instructional advantages that clearly cannot exist in a conventional self-contained class. A number of these have been alluded to earlier. Let's spell them out more formally, so they don't go unnoticed.

1. *Teachers can more flexibly organize students so that they can be taught, as individuals and as groups, according to the children's needs.*

2. *The team can capitalise on its members' particular instructional skills, so that teachers can instruct in their areas of strength; for example, music, science, or art.*
3. *The collegial interaction among 3 on 2 teachers elevates their professional standards and strengthens their instructional skills.*
4. *Children have a better chance of finding an adult to whom they can relate, both personally and instructionally.*
5. *If a teacher is absent, the team's instructional program can go on largely undisturbed because two team members are present.*
6. *Younger children can learn from the older children in their two-grade classes.*

While there are other advantages associated with the team-teaching organizational structure of the Hawaii 3 on 2 Program, these six instructional dividends are peculiar to a 3 on 2 setup. They cannot be present in a single-grade self-contained classroom. Three teachers and 60 or so children simply have it better than one teacher and 25 children. The flexibility potentials of a 3 on 2 class dramatically outdistance those available to even the most energetic and devoted teacher in a self-contained class.

Uniformity or Options?

There are differences among children. There are differences among teachers. The numerous parents, teachers, and principals who supplied questionnaire data recognized both of these points when they offered solid support for the contention that the Hawaii 3 on 2 Program should be preserved as a choice for those who want it. When responses are presented to the question "How important do you feel it is to keep 3 on 2 as an

option for those schools, students, and teachers who want it?", no matter what group responded, substantial numbers of the respondents indicated that they wanted to retain 3 on 2 as an option for those who wished it. Similarly, self-contained classes should be maintained as an option for Hawaii's teachers and pupils.

An Investment with Dividends

The Hawaii 3 on 2 Program has been in existence for a number of years now. It has attracted widespread attention, not only because of its substantial magnitude but also because of the forward-looking instructional features it incorporates. Whether the people of Hawaii capitalize on this situation to strengthen an already effective instructional scheme or waste their eight-year, multi-million dollar investment in educational reform remains to be seen.

We recommend, therefore, that the Hawaii 3 on 2 Program be maintained at its present level as an instructional option for Hawaii primary education. We recommend, further, that creative efforts to improve the quality of the Hawaii 3 on 2 Program be instantly initiated. To eliminate or seriously reduce the magnitude of the Hawaii 3 on 2 Program would create serious negative consequences--negative consequences that would be experienced by the children of Hawaii during their crucial, formative years. While the resources devoted to the Hawaii 3 on 2 Program are substantial, the adverse effects of abandoning this effective instructional program are too severe. The Hawaii 3 on 2 Program must be maintained.

THE HAWAII 3 ON 2 PROGRAM

A SUMMARY OF

THE ADVERSARY TEAM'S EVALUATION

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PREFACE

The design of this evaluation study required that one team of evaluators identify strengths and another team identify deficiencies of the program. Thus, this Summary of The Report of The Adversary Team is only one part of the full evaluation report. Taken by itself, this Summary does not represent an overall perspective of strengths and weaknesses. The points advanced by the Adversary Team, however, are supported by data and by logic.

This is a summary of the Report of the Adversary Team,¹ a report of deficiencies in the Hawaii 3 on 2 Classroom Organization Program.

The full Report summarized here includes documentation in support of the program's deficiencies which were identified; further details of the study design, data analyses, and the evaluation findings are contained in the Technical Report² of the evaluation team.³

Deficiencies of 3 on 2 in Producing Greater Student Achievement Gains--Cognitive and Affective

One part of this evaluation compared a random sample of 3 on 2 classrooms with a random sample of self-contained classrooms at the third grade level on measures of student achievement--cognitive and affective. Further comparisons were made of students who had advanced to the fourth grade, and to the sixth grade.⁴ Tests of achievement included two norm referenced tests (with two subscales each on reading and mathematics achievement), two forms of criterion referenced tests (with six subscales each on reading and mathematics achievement), and a student attitude inventory (with seven subscales on student affective achievement).⁵

It has been the assumption that students in 3 on 2 would exhibit greater gain on learning outcomes, stipulated by DOE as important for all children, than students in self-contained classrooms.⁶ Thus, this evaluation of 3 on 2 was a search for evidence of greater gains on the following goals: (1) to acquire basic academic learnings, (2) to develop autonomy in learning (self-direction), (3) to develop a more realistic and positive self-concept, and (4) to establish satisfying interpersonal relationships.

Overall, the 3 on 2 Program has failed to produce any greater gains on the cognitive and affective program objectives than outcomes produced in self-contained classrooms. Student achievement in the basic skills of reading and mathematics was no greater for students who had spent at least three of their school years kindergarten through grade three in 3 on 2 classrooms than for

students who had spent at least three of those years in self-contained classrooms: The results were the same regardless of the test form. Moreover, the results were the same, regardless of the point in time when the students were tested--third grade, fourth grade, or sixth grade.

The seven affective subscales in the Student Attitude Inventory were: (1) general self-appraisal, (2) self-appraisal in relations with peers, (3) self-appraisal in school situations, (4) general attitudes about school, (5) attitudes in relation to school social structure and climate, (6) attitudes in relation to school authority and control, and (7) instructional self-directedness of students. The Inventory was administered to the two groups of students in the third grade described above who took the cognitive tests and to two groups of sixth graders, one group of whom had studied at least three years in 3 on 2 classrooms and the other in self-contained classrooms during the primary grades.

The results for the affective areas were consistently the same--no significant differences. (There was a contradictory result in the third grade testing on only one subscale, "attitudes about school in general," which favored 3 on 2 students. This finding did not hold, however, in the sixth grade testing where there were no significant differences.)

Views of Teachers, Parents and Principals

Questions were asked of teachers regarding their views of student performance on the following objectives: (1) reading and mathematics, (2) becoming independent learners, (3) exercising self-control, (4) wise use of time, (5) developing a positive self-concept, and (6) getting along with other children.

Although these objectives have been described as important ones for 3 on 2 classrooms, there were no differences reported by teachers in progress which favored the 3 on 2 classrooms. Most of the fourth grade teachers who could identify which of their students had been in 3 on 2 and which had been in self-contained classrooms reported that the statements "are well prepared in reading" and "are well prepared in arithmetic" were more true for self-contained than for

3 on 2 students. These data reinforce the student test data reported earlier which failed, emphatically, to make a case for 3 on 2.

At given points in time since the inception of 3 on 2, particular objectives have been enunciated which are not related directly to student educational outcomes. However, some of the objectives, if achieved, would be supportive of cognitive and affective outcomes. Where data are available, the views of teachers, parents and principals on the relative importance of the following objectives for 3 on 2 and self-contained classes are reported: (1) to increase counseling services for pupils and parents, (2) to assess each pupil's educational progress, (3) to accommodate students with special needs, (4) to provide for variable grouping, (5) to provide for flexible scheduling, and (6) to provide for flexible use of classroom space.

Teachers and parents who expressed an opinion on the relative importance of these objectives for 3 on 2 and self-contained classrooms saw no discernible differences in the importance to either form of classroom organization for achieving objective numbers 1, 2 and 5. In the opinion of teachers and parents, 3 on 2 classrooms have limitations in accommodating "students with special needs" (objective number 3). Self-contained classrooms were viewed by teachers as more appropriate for children who lack self-direction. Most parents believe that children with the following characteristics should not be placed in 3 on 2 classes: "children with learning problems," and "children who lack self-direction;" and a third or more questioned the advisability of 3 on 2 for "children with short attention spans," "children who learn slowly," and "children who don't behave well in school." On objective number 4, there was no discernible difference between the way in which teachers of 3 on 2 and teachers of self-contained classes viewed the importance of individual diagnosis of student learning. There was, however, a small difference favoring 3 on 2 in the importance of the goals related to the formation of groups: flexibility in grouping students, use of small group instruction, and one-to-one pupil-teacher interactions. As expected,

3 on 2 teachers, in comparison to self-contained teachers, rated objective number 6, "flexible use of classroom space," slightly more positively. Principals, who expressed support for one classroom organization over the other, tended to favor 3 on 2.

Basic Deficiencies in Design and Operation of 3 on 2

Listed below are some problems associated with 3 on 2 which date back to the conceptualization and design of the organizational mode; and others that have plagued its operations over the years:

1. The 3 on 2 program was not inaugurated as an experimental program; rather, it began with the expressed objective "to eliminate the self-contained classroom in kindergarten through grade three and eventually grades four through six."⁷

2. Objectives of 3 on 2 have been ambiguous since its inception in 1968. Overall, the objectives which have been enumerated for 3 on 2 are not different from objectives of all primary education in Hawaii, except for expected level of student performance.

3. Contrary to the well-established principle of program planning and development that "form follows function," 3 on 2 was designed as an organizational form without a clear understanding of educational outcomes or functions which were to be served by the new classroom organization.

4. Contrary to another well-established principle of program planning and development that "those who are expected to implement a program are involved in its design," 3 on 2 was conceptualized and designed with no appreciable participation or input from teachers and principals.

5. By definition and in practice, the 3 on 2 teams are without effective leadership for planning. Team members are defined as "coequals" without a designated team leader.

6. The composition of 3 on 2 teams is without a discernible rationale which is applied uniformly. Possibly, the most pervasive complaint of teachers and principals about 3 on 2 was "incompatibility of team members."

7. The substantial costs of 3 on 2 education beyond the costs of self-contained classroom education cannot be justified to Hawaii taxpayers on the basis of educational merits of the program. It is worth pointing out that close to \$9 million in additional personnel cost was expended on the 3 on 2 program for the past school year (1975-76), and over \$10 million is projected for the coming school year (1976-77). Since the extra costs are not accompanied by increases in student educational outcomes or other evidences of educational merit, the inescapable conclusion is that the 3 on 2 Program represents a long-term investment of fiscal and human resources without visible promise of payoff.

Classroom Descriptions

During the Spring data gathering site visit, members of both teams visited schools in all of the state's school districts. Observations were carried out in 25 classrooms, both 3 on 2 and self-contained; and principals, teachers, parents, and students were interviewed. As a consequence of this experience, the Adversary Team carried out more controlled observations in the Fall. The team drew a random sample of schools, and randomly selected 3 on 2 classrooms (grades two and three) and self-contained third grade classrooms to observe. Dr. Michael Patton, a consultant on Open Education who was secured to assist in this aspect of the evaluation, visited 14 classrooms; and members of the team collectively visited 29 additional classrooms--21 3 on 2 and eight self-contained. A wide range of individualized teaching was observed in both forms of classroom organization. In one school, for example, three self-contained third grade teachers were teaming to teach specialized subjects in keeping with the special expertise of each teacher. In two other self-contained classrooms, individualization exceeded that of any of the 3 on 2 classrooms observed.

Concluding Observations

The evaluation teams were charged to evaluate the effectiveness of 3 on 2. As the evaluation was being carried out, many questions were raised about the political and economic considerations of expanding, retaining at the current level, reducing the scope, or terminating the program. These questions are interesting to the teams and are of enormous importance to the educational policy and decision-makers in the state. However, these matters go beyond the charge of the evaluation team, which was obligated to study the program thoroughly and carefully, and to "tell it like it is." The Adversary Team has carried out its charge faithfully. The weaknesses have been identified and reported; and all are supported by the data.

The team concludes that the 3 on 2 classroom organizational structure has failed to provide educational outcomes beyond those of self-contained classrooms, that there are serious imperfections in its conceptualization, design and operations, and that, indeed, it is not a program but a structure, a classroom configuration. The team has found little to recommend it for the future.

FOOTNOTES

1. 3 on 2 Evaluation Report 1976-77, Vol. II, Team Interpretations and Recommendations. Portland, OR: Northwest Regional Educational Laboratory, January 1977.
2. 3 on 2 Evaluation Report 1976-77, Vol. I, Technical Report. Portland, OR: Northwest Regional Educational Laboratory, January 1977.
3. Data which were gathered included test information (cognitive and affective) from students; data from classroom observations; information gathered by interviews with officials of the executive and legislative branches of State government, Board of Education members, Department of Education (DOE) leaders, teachers, parents, principals, district school leaders, students and other interested citizens; and questionnaire data collected from elementary teachers, principals, and a random sample of parents. In addition, numerous documents descriptive of 3 on 2 objectives were reviewed; a cost study and teacher-absentee studies were done; and six open hearings were held to which all interested citizens were invited.
4. Socio-economic status of the students, measures of their ability, and enrollment in classrooms using Hawaii-English Program (HEP) materials, are independent variables in this evaluation study. Other controls were exercised through randomization. HEP was not an independent variable for sixth grade testing, but was controlled through randomization.
5. Norm referenced test used in third grade sample was the Comprehensive Tests of Basic Skills (CTBS), Level 1, Form S. The Stanford Achievement Test (SAT), Intermediate Level II, Form A, was used for sixth grade testing (as part of the statewide testing program). The criterion referenced tests were two forms of the Instructional Objectives Exchange (IOX) tests which included objectives in Reading Vocabulary, Reading Comprehension, Sets and Numbers, and Mathematical Operations and Properties. The affective test administered at the third grade and sixth grade levels was the Student Attitude Inventory, a compilation of several attitude scales published by IOX. As a covariate, aptitude scores from the Coloured Progressive Matrices developed by J. C. Raven were used.
6. 3 on 2 Long-Range Program Improvement Plans, 1974-1977. Hawaii Department of Education, July 1974.
7. The 3 on 2 Program. Hawaii Department of Education, July 25, 1968.