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ABSTRACT

The third annual external evaluation of the Choctaw Special Alternative Instruction program is reported. The program has its roots in two efforts by the Mississippi Band of Choctaw Indians to improve their schools, an English-as-a-Second-Language education effort, and a curriculum implementation program. The Mississippi Band preserves many traditional customs and is aware of the need to retain their own heritage while preparing children for the demands of the future. The Special Alternative Instruction Program continued the prior curriculum reform efforts and promoted cultural awareness among teachers. The evaluation of this program was conducted in six elementary and one middle and secondary school in the reservation area. Program curriculum specialists in the schools stressed the whole language approach, promoted bilingual education, and implemented the new curriculum. Interviews with at least four teachers and three Choctaw aides from five schools indicate the effectiveness of the program specialists and program management. Achievement gains in language arts demonstrate program effectiveness. Recommendations for program continuation include a renewed emphasis on curriculum implementation and additional help for teachers bridging language and cultural differences. Seven tables present findings about student achievement. A list of recommendations includes continuing curriculum development, developing curriculum training for teachers and aides, and providing Choctaw language instruction for teachers. (Contains 4 references.) (SLD)

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THE EVALUATION OF THE SPECIAL ALTERNATIVE INSTRUCTION PROGRAM

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Introduction

This is the third annual external evaluation for the Choctaw Special Alternative Instruction Program. This program has its roots in two tribal efforts to improve their schools. The first effort was a English as a Second Language education effort which focused on improved English in the early elementary grades. The second effort was a curriculum implementation effort designed to put into use a curriculum designed specifically for this setting.

Both of these efforts were approaching peaks of effectiveness, when the tribe elected to contract for school operation from the Bureau of Indian Affairs and when the tribe elected to go for accreditation by the State of Mississippi. It is hard to say whether these decisions stunted these projects making the Special Alternative Instruction Program necessary for the survival of the two efforts or whether the two projects were combined to provide strong support for the schools during a period of transition.

The Mississippi Band of Choctaw Indians is made up of nearly 5,000 members residing in eight separate communities scattered across a seven county area in south-central Mississippi. More than eighty percent of tribe are full-blood and eighty-four percent of the tribe speak the Choctaw language. (Fortune, Jim C., Demographic Survey, 1990, Philadelphia, MS.). The Choctaws are aware of the relationship between language and culture and currently, they feel the need to preserve their culture. Their work in the past to keep their culture has been successful for the most part. Yet, new economic independence, marriage with non-Indians and greater contact off the reservation have increased the threats to cultural preservation. Variations by community have become a part of their language and the tribe has almost lost the ability to read and write the language. Work is currently under way to restore this language to a written status.

The Choctaw still preserve many tribal customs such as chanting, traditional dances, stickball, traditional dress, and beadwork. The dedication to their culture, the meaning of tribe and astute leadership have helped them to forge an economic base from their isolated, barren, non-agricultural and undeveloped reservation. The future holds more threats to the culture as new development addresses economic problems and makes isolation on the reservation less of a reality.

The reservation setting is served by elementary schools located in six of the eight communities and a middle and secondary school located in the Pearl River community. Choctaw in Crystal Ridge and Bogue Homa attend public school. Elementary

pupils in Conehatta, Bogue Chitto, Red Water, Standing Pine, Pearl River, and Tucker attend reservation schools in their home communities. All reservation schools are under a tribal contract with the Bureau of Indian Affairs (BIA). These reservation schools are in their fourth year of operation by the tribe and are in the process of growing in effectiveness and in developing a personality as Indian schools. More than half of the employees of the Choctaw schools are not Indian and consequently do not share the culture or language of the children taught. The non-Indian employees fall primarily in the administrative and instructional staff.

English as Second Language Roots. Emphasis on the children speaking English has served to improve communication in school, but with a price. The pressures of making the new tribal schools work, the pressures of implementing a new curriculum, and staff turnover have left major needs in the instructional program. The efforts to gain improvement in achievement tests have resulted in a decreased emphasis on the culture of the tribe. Already in one community, Bogue Homa, the use of the Choctaw language is eroding. Signs of language erosion in other communities have begin to appear. In the some of the communities many tribal games, crafts and folklore are dying with the elders. The non-Indian teachers continue to seek assistance in the transmission of the Choctaw culture and in their efforts to teach self preservation to the Choctaw children.

Curriculum Implementation Roots. The Choctaw, acclaimed for their educational system and literacy prior to government annexation of their lands (Reeves and Brescia, 1982) aspire to an educational program which will prepare their youth for today's society. These educational aspirations, along with needs brought about by economic progress recently achieved in the reservation setting, prompted inquiry concerning the effectiveness and appropriateness of the reservation school system under BIA operation.

In 1983 the tribal leaders commissioned an in-depth study of the educational system to try to learn why the students were not performing. A systematic analysis of the concerns expressed by tribal leaders, based on a comprehensive evaluative paradigm, was conducted and published in 1985 as the 1985 Choctaw Comprehensive School Study (Fortune, 1985). The study consisted of a three part investigation of home, school and student. In the home analysis, student work habits and parental support of education were major study foci. In the school analysis, organization, classroom activities, and curriculum were major foci. Student ability to be educated and achievement were the foci of the student analysis. The study included analyses of intelligence test data; achievement data; parent, teacher, administrator and student interviews; over 70 hours of classroom observation; and site visits and reviews by a panel of school experts (Fortune, 1985).

This inquiry produced overwhelming evidence to support

tribal leaders' concern with the effectiveness of the educational program. The inquiry found low achievement scores; a high dropout rate; persistent low educational attainment; lack of success in higher education by the few students who attempted to go beyond secondary school; parental reports of lack of school cooperation; and a limited curriculum. Most of the teachers in the schools were not Choctaw and admitted to knowing little, if any, of the language. Many, in fact, boasted of having little cultural interaction with the Choctaw.

The curriculum was not uniform, systematic, comprehensive, articulated nor appropriate. Often, the teachers used idioms that were incomprehensible to native Choctaw speakers; cultural dispositions interfered with open communication; teachers appeared textbook bound; different textbooks were used for the same grades across schools; the same objectives were taught at different grades across schools; only a few students had experiences which were assumed in textbook explanations (second story buildings, airports, docks, elevators, barges, etc.) and students could not get help at home with homework, primarily because their parents did not speak English (Fortune, 1985; Franks, 1988).

Two years after the school study, a curriculum reform effort was launched. The effort included establishment of scope and sequence for mathematics, language arts, and reading. Teacher workshops were initiated to develop curriculum units for science, health, and history. This reform effort was to result in a curriculum for kindergarten through eighth grade. The curriculum was unique in that it was tailored for the reservation setting; built on the experience and culture of the tribe; structured in multi-disciplinary units; designed to cover a systematic scope and sequence of objectives; and based on previously unpublished instructional materials.

The lack of published materials for instructional support, the extra effort that is to be expected on the part of teachers, and the inexperience in cross-cultural settings of the teaching faculty provided the rationale for the development of a curriculum implementation project. These limitations were compounded by an isolated reservation setting; a changing economy characterized by a twenty percent drop in unemployment over the past fifteen years; an active adult education program; and large changes in housing, facilities, social services, household amenities, and parental interest in education (Fortune, 1990).

When the curriculum implementation project was funded, the teachers serving the Choctaw children were BIA teachers, many of whom had been working in the reservation schools for more than a decade. To them, rationalizations explain their lack of success: "the children cannot learn; there are second language problems; the Choctaw language is unwritten so the students get behind too fast; parents do not value education; the students do not read the textbook; the students do not try; etc." Few teachers continue to deny that failures to reach Indian children may be

due to either teacher inadequacies or to curriculum inadequacies. An Update on Evaluation Results. The curriculum implementation project included objectives focused on getting teachers to try out, refine, and adopt the curriculum units. Other objectives included enabling principals to serve as support personnel and instructional leaders so the new curriculum would be internalized into the school program.

Early efforts with regard to curriculum implementation installed the new curriculum into the schools, yet the teachers continued to need support. Curriculum specialists place new emphasis on whole language teaching methods which added new pressures to some teaching staff. A new director of schools (superintendent, elsewhere) raised new doubt in the need to address culture in schools. Shortage in funding and the philosophy of school leadership resulted in the combining of the bilingual efforts and the curriculum implementation efforts in the academic year, 1990-1991. Staff were taken from both programs and the curriculum implementation staff had to learn-on-the-job to teach bilingual education and the bilingual education staff had to learn curriculum implementation techniques.

First year evaluation. The 1990-1991 project showed the effects of these changes. There was a regression in English language use as shown by the LAS, but a mild improvement in achievement as shown by the Stanford Achievement Test. No one outside the central office was pleased with the changes.

Second year evaluation. Year two of the project produced results very similar to year one. In year two the acting director of the project, Ms. Mandy Walters, served both as a specialist and as a director. She is to be commended for the excellent job that she has done in bringing about a recovery from 1990-1991 project and in record keeping. She has kept clear and comprehensive records. Lesson plans are on file at each school and those reviewed by the evaluator were comprehensive. Objectives taught and mastered are on record at each school. The planned program was generally carried out in five of the six schools and partially carried out in those other schools. In the school where there was some slippage radical personnel changes including the demotion of the principal were made mid-year.

The five remaining principals reported that they found the curriculum project extremely useful and effective. One principal pointed out that the project served as a bridge between the culture and the school. Teachers report a range from 60% to 75% teacher coverage of the Choctaw curriculum units. These ranges are verified through interviews with the curriculum specialists. Teachers report that the curriculum (alternative instructional) specialists invaluable for their support, their suggestions with curriculum and their provision of bilingual language experience. A couple specialists reported their use of the Addison-Wesley bilingual materials, oral language activities, and novel studies. Specialists report that they have greater intentions to spend time on curriculum, but their bilingual duties take up about 60%

of their time. Achievement appears to remain static.
Evaluation Design

The accountability component of the evaluation included: project documentation and lead-teacher reactions to the project. Parts of the summer school were run without the principals. The documentation included personnel and financial records, teacher and curriculum specialist records of objectives taught, lesson plans, problems encountered and support services rendered.

The effectiveness component included: records of unit revisions and review of lesson plans concerning the units. Evidence of units being taught and of efforts of the curriculum specialists was gained through teacher interviews. To minimize obtrusiveness, teacher interviews were conducted at three separate times. Some teachers were interviewed during site visits by the evaluator while completing the external evaluation of an OSAP after-school program. Other teachers were interviewed during a site visit for the evaluation of the cultural arts program. Finally, teachers were interviewed through a site-visit to summer school.

The curriculum specialists were interviewed as to how they tried to maximize the ability to teach of the units and on what bilingual education activities did they perform. Interviews with the curriculum specialists were conducted at the close of the academic year by telephone or at their classroom assignments during summer school. Stanford achievement test data were supplied by the Choctaw School System and Language Achievement Scales were administered by project management.

The impact component included analyses of achievement data and language fluency data. Comparisons of achievement test data were to be made using independent t-tests on Normal curve equivalent scores (NCEs). A chi square was used to compare LAS levels.

Results

Accountability. Each curriculum (alternative instruction) specialist was to provide assistance in bilingual education as well as support in curriculum. In four schools this dual role appeared to be accomplished. In two schools, Bogue Chitto and Pearl River, joint project collaboration between this project and a cultural arts project succeeded in having the Choctaw school aides begin weekly instruction in Choctaw history and language. This success represents a major break through in blending culture and the school. In Red Water and Tucker the goals of the program are being met and the specialists appear to be doing at least one of their dual roles in an exemplary fashion. Personnel changes hampered the progress of this project at Standing Pine, but replacement of the specialist has taken care of this problem. At Conehatta, teachers report that the specialist has been of little or no help. Six of the teachers report that the specialist is available for consultation, but that this

specialist has never visited their classroom. The specialist reports the availability of materials to help the teachers, but that staff bickering has prevented adequate use of them. In my opinion the project is not working at Conehatta.

Last year it was reported that the administration purchased the TABS, a computerized set of objectives for instructional management. This program permits teachers to add a large set of school based objectives, an option counter to the thrust of the curriculum implementation goals of the project. The TABS system sets up another set of objectives for the teacher to address in addition to the Choctaw objectives, the State of Mississippi objectives and the special program objectives. Very little progress has been accomplished in the implementation of TABS. Instruction is needed to bring computer expertise to the teachers and to add a day to each week during the school year for teachers to have time to get the system up and running. Teachers continue to be faced with new objectives, new sets of expectations and new administrative dictates. Without some support, morale would be an active cause of teacher flight. The project helps immensely, but the dual role spreads the staff too thin to meet the transition burden.

Effectiveness. Five of the curriculum (alternative instruction) specialists were interviewed. One was not available for interview, but was called on the telephone. The teachers as a group reported that in four schools the curriculum specialists did demonstration teaching, worked with the teachers and students in language development (ESL), helped the teachers to get materials, occasionally substituted in the multi-grade classrooms, reviewed lesson plans and helped with the students on field trips and special events. All curriculum (alternative instruction) specialists participated in field trips, the number of which was dependent on the strength of their school lead-teachers. In five schools the work of the curriculum (alternative instruction) specialist was child-centered. The assignment of dual duties appears to be working out now and the project title, the Special Alternative Instruction Program, appears very apt. With the exception of the two schools (one now remedied) the project is working and has gained the new role of being a necessity.

At least four teachers from every school and three Choctaw aides from each school were interviewed. The teacher comments mostly concur with those made by the curriculum specialists. The curriculum/bilingual (alternative instruction) specialist is a collage of jobs that are invaluable to teachers with multi-grade classrooms, first or second year teachers, teachers without much curriculum experience and teachers with big classrooms. Now teachers are given the opportunity to learn the language in two schools. If continued funding can be gained, this opportunity should spread to the other schools.

Almost lost in the work of the alternative instruction specialists is the task of curriculum development and to some

extent curriculum implementation. Helping teachers may have utility and validity, but it provides no compensation for the lack of appropriateness of published materials for the reservation setting. In two schools revision of current units are being made and at least two new units are being written. Evaluation of current units are being through selection, poor units are not used. New commercial materials are being used to supplement the Choctaw units through the efforts of the project director whose work on the textbook selection committee has been influential and exemplary.

Several teachers report that they believe that all of the units need more color and artwork. Efforts are under way to select the most relevant cultural and Choctaw materials; illustrate them with color and photographs; and publish them in hard-cover binding. This effort should result in supplementing each schools' library copies of the Choctaw dictionary and Bible with culturally related curriculum materials.

Impact. Impact involved the analysis of gain in achievement shown by changes in student performance on the Spring-1992 to Spring-1993 administrations of the Stanford achievement test and a comparison of 1992 LAS administration with the 1993 LAS administration.

In Table 1 are shown the comparisons of the Stanford achievement test scores in reading across the two years for the fourth and sixth grades. No differences were noted for either grade. Average scores increased slightly, but not statistically significant ($p < 0.05$) for grades four and six. For grade four a difference of 1.59 was found between the means and for grade six a difference of 2.82 was found between the means.

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Table 1: Comparison Stanford Reading Achievement, 1992-1993

Grade	Spring-1992		Spring-1993		t	df	sign.
	mean	stan dev	mean	stan dev			
fourth	28.01	15.38	29.60	15.03	0.67	156	ns
sixth	27.21	14.98	30.03	15.21	1.21	149	ns

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In Table 2 are shown the comparisons of the Stanford achievement test scores in mathematics across the two years for the fourth and sixth grades. A difference of 2.15 was observed for grade four, but this difference was not significant ($p < 0.05$). A difference of 4.39 was found for sixth grade mathematics across the two years. This difference was statistically significant ($p < 0.05$). The achievement in mathematics for sixth graders continues to improve, annually. Perhaps, this improvement can be attributed to the work of the alternative instruction specialists. However, one would not expect their efforts to show

up in mathematics. Perhaps, the improvement here may be due to the special Japanese mathematics program that was implemented in the reservation setting.

Table 2: Comparison Stanford Mathematics Achievement, 1992-1993

Grade	Spring-1992		Spring-1993		t	df	sign.
	mean	stan dev	mean	stan dev			
fourth	36.02	17.35	38.17	16.02	0.84	156	ns
sixth	36.29	14.52	40.68	15.11	1.79	149	0.05

In Table 3 are shown the comparisons of the Stanford achievement test scores in language arts across the two years for the fourth and sixth grades. Differences were noted for both grades, but only the difference for the sixth grade was found significant ($p < 0.01$). The difference or gain for the fourth grade between the two years is 2.79 in the direction of being an improvement. The difference for the sixth grade is a gain of 6.64 NCEs, which is in part attributable to the work of the alternative instruction specialists. Gains in language arts can be expected from the ESL component of the program.

Table 3: Comparison Stanford Language Arts Achievement, 1992-1993

Grade	Spring-1992		Spring-1993		t	df	sign.
	mean	stan dev	mean	stan dev			
fourth	36.66	16.21	39.45	15.72	1.12	156	ns
sixth	35.77	13.56	42.41	14.11	2.88	149	0.01

In Table 4 are shown the comparisons of the Stanford achievement test scores in science across the two years for the fourth and sixth grades. No significant differences ($p < 0.05$)

Table 4: Comparison Stanford Science Achievement, 1992-1993

Grade	Spring-1992		Spring-1993		t	df	sign.
	mean	stan dev	mean	stan dev			
fourth	31.09	16.57	30.30	15.45	-0.30	156	ns
sixth	32.41	24.25	32.39	12.63	-0.01	149	ns

were noted for grades four and six. Small regressions which can not be considered different from zero were noted.

In Table 5 are shown the comparisons of the Stanford achievement test scores in social science across the two years for the fourth and sixth grades. Differences of inverse signs were noted for the two grades. For the fourth grade a regression of 1.75 NCEs is found, but fails to be statistically significant ($p < 0.05$). For the sixth grade a difference or a gain in social science achievement of 1.76 is noted, but fails to be statistically significant ($p < 0.05$).

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Table 5: Comparison Stanford Social Science Achievement, 1992-1993

Grade	Spring-1992		Spring-1993		t	df	sign.
	mean	stan dev	mean	stan dev			
fourth	31.02	14.98	29.27	13.96	-0.80	156	ns
sixth	30.52	12.47	32.24	13.50	0.83	149	ns

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In Table 6 are shown the results of the crosstabulation of proficiency levels across assessment years. This analysis of 1992 to 1993 scores produced a chi square statistic of 27.48 with 8 degrees of freedom. The chi square is statistically significant ($p < 0.05$). Language proficiency as measured by the LAS has decreased from 1992 to 1993. Perhaps, this decrease is a product of the absence of ESL instruction in the two schools previously described.

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Table 6: LAS Levels of Proficiency Across Years: 1990 to 1993

Year	LAS Levels									
	1 not prof		2 not prof		3 limited		4 prof		5 prof	
	num	per	num	per	num	per	num	per	num	per
1990	96	26.3	62	17.0	99	27.1	69	28.9	39	10.7
1991	129	57.3	59	19.2	58	18.9	44	14.3	17	5.5
1992	70	19.8	69	19.5	92	26.1	68	19.3	54	15.3
1993	125	37.3	59	17.6	57	17.0	50	14.9	44	13.1

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In Table 7 are shown the proficiency levels for 1993 by school. From Table 7 it is quite evident that the regression is

due to low las levels in three schools: Conehatta, where the alternative instruction specialist does not appear to be carrying out the intent of the program; Standing Pine, where illness and personnel turnover resulted in the interruption of the program; and Red Water, where turnover has occurred with regard to the principal.

Table 7: LAS Levels of Proficiency Across Communities: 1993

Schools	LAS Levels									
	1 not prof		2 not prof		3 limited		4 prof		5 prof	
	num	per	num	per	num	per	num	per	num	per
B.Chitto	12	26.7	12	26.7	11	24.4	6	13.3	4	8.9
Conehatt	37	68.5	9	16.7	2	3.7	5	9.3	1	1.9
P.River	30	21.0	19	13.3	33	23.1	32	22.4	29	20.3
R.Water	17	63.0	7	25.9	3	11.1	0	0.0	0	0.0
Stg.Pine	15	60.0	8	32.0	1	4.0	1	4.0	0	0.0
Tucker	14	34.1	4	9.8	7	17.1	6	14.6	10	24.4

In Summary

Management of the project has certainly shown adequate accountability. The alternative instruction specialists have been effective in the schools in assisting teachers, doing demonstration teaching, helping out on field trips and in multi-grade classrooms, recommending curriculum and ESL materials and providing ESL instruction. This past year has shown an interest in the development of new curriculum and the revision of the existing units.

Interviews with teachers in five schools indicate that the objectives of the project are being accomplished. In two of these schools personnel turnover may have hampered the effectiveness of these efforts, but it appears that at least one of these schools has an effective program now. In one of the schools it is clear that no program exists, regardless of whose fault it is.

The achievement data in language arts show impact of the program by showing gains for the 1993 year. The LAS levels of proficiency show an impact in three schools, but a compensating regression in the other three schools. The three schools for which LAS regression occurs are the three schools which have been noted with regard to lack of effectiveness.

Recommendations

1. Curriculum implementation appears to have lost emphasis to teacher help. Perhaps, this has occurred because of the need to provide more ESL instruction. Or the fading of emphasis maybe occurring due to the fact that no one has assumed ownership of the curriculum. A new look at the curriculum is needed.
2. The combining of ESL and curriculum assistance without ESL or curriculum training could not have been an educator's decision. It appears that the staff are now adapting after three years. Yet, a staff development and training program may still be needed to assist this adaptation. It is my opinion that two people are needed to carry out these tasks.
3. The address of needed curriculum revisions and the making of these revisions would get this project back into being a curriculum project. But, equally needed is the ESL instruction. The start of teaching Choctaw to both students and teachers appears to be wonderful progress.
4. I would hope to see this project funded again and Mandy Walters continue as director of the project. But the director needs administrative assistance in the curriculum aspects of the project. Conehatta needs address by the school system.
5. Better on-going data be gathered on project activities so that better attribution of project effects can be made. Both impact measures are confounded by everything else that is happening in the schools.
6. The schools are now accredited, but teachers need help in bridging language and cultural differences. After eight years, finally someone in authority (the new director of schools) is looking at the project in a serious manner. This look needs to show that there are some curriculum issues that need to be addressed. And it is time that ESL efforts be increased.

References

1. Fortune, Jim C., 1985 Choctaw Comprehensive School Study (Philadelphia,MS: Heritage Press, 1985).
2. Fortune, Jim C., 1990 Mississippi Band of Choctaw Indians Demographic Census (Philadelphia, MS: Mississippi Band of Choctaw Indians, 1990), 34-65.
3. Franks, Melvin E., "Using the Gap Reduction Model to Evaluate a Successful Bilingual/ESL Program" (paper presented to Mid-South Educational Research Association, 17th at Louisville, KY, 1988).
4. Reeves, Carolyn, and Bill Brescia, By the Work of Our Hands: Choctaw Material Culture, Teacher's Guide (ERIC ED226920, 1982),

appendix.