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ABSTRACT
                A cross-cultural framework was applied to the results
of the Young Scholars Project in Marine Science, a 4-week workshop
for 14 hearing impaired adolescents (aged 13 to 19 years) that was
funded by the National Science Foundation. Eight of the students were
preparing to enter the eighth or ninth grade in high school and the
other six were preparing to enter the 10th or 11th grade. The
workshop was designed to enhance participants' knowledge and exposure
to science as a career in order to encourage a greater number of
disabled individuals to enter science careers. The cross-cultural
framework used was described by C. E. Cortes (1986) in his analysis
of social and cultural factors in minority education. The approach to
data collection combined qualitative and quantitative methods.
Program documents were reviewed and data were collected from the
students and the 11 staff members through interviews, questionnaires,
and observation. Since this was the first year of a 2-year project,
the evaluation focused on formative aspects and was conducted
throughout the planning and implementation phases of the project.
Generally, students' affective responses to the workshop were
positive. The staff felt a high level of frustration and identified
the major problems as resulting from the heterogeneity of the
students, discipline problems, ineffective instructional methods,
disorganization, lack of communication, and staff burnout. Societal,
educational, and instructional elements and student qualities are
discussed as factors affecting program outcome. An outline
associating evaluation questions and the data collection plan is
included. (TJH)

EVALUATING A PROGRAM FOR HEARING IMPAIRED ADOLESCENTS FROM A CROSS-CULTURAL PERSPECTIVE

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Deaf persons constitute a unique cultural minority group with their own language, values, attitudes, beliefs and social organization (Martin, 1986; Meadow, 1975; Padden, 1980; Reagan, 1985). Anthropologists define culture as the complex processes of human social interaction and symbolic communication (Hernandez, 1989). Language plays a key role in the definition of cultural identity and with deaf persons this is especially true. The means of symbolic communication used by deaf people include some combination of speech, lip-reading, use of residual hearing, and a variety of sign languages and manual codes (Kannapell & Adams, 1984). Because of the heterogeneity of communication modes within the deaf community, providing educational experiences for hearing impaired individuals presents a special challenge. Whenever different cultures (e.g., hearing and deaf) are in contact, the potential for conflict arises. The use of a cross-cultural framework can be especially valuable as a basis for interpreting evaluation results of programs for hearing impaired students.

In the present analysis, a cross-cultural framework is applied to the results of the Young Scholars Project in Marine Science as an example of using this technique to organize findings and to tease out results that relate to the unique nature of cross-cultural evaluations. Funded by the National Science Foundation, the Marine Science Project was a four-week workshop for hearing impaired adolescents designed to enhance their knowledge of and exposure to science as a career in order to encourage more disabled individuals to enter careers in science.

The cross-cultural framework which was used to gain insight into the results of the evaluation was described by Cortes (1986) in his analysis of social and cultural factors in minority education. Cortes proposed an interactive model between culture and context to help educators deal with sociocultural diversity. The societal factors include forces outside the school such as language and attitudes. The school factors focus on internal dynamics and include educational factors such as teacher knowledge, skills, and attitudes; instructional elements such as goals and curriculum; and student qualities such as ability and motivation.

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Methodology

Subjects. Fourteen students attended the summer workshop. They were a very heterogeneous group. Twelve of the students were profound to severely hearing impaired; two were hard of hearing. Twelve of the students used manual communication; two used voice and lip reading (they did not know sign language). The students ranged in age from 13 to 19. The majority were between 14 and 16. Eight of the students were preparing to enter the 8th or 9th grades in high school; the other six were preparing to enter the 10th or 11th grades. The students represented ten different states from California to New York, and as far south as Florida. The students' interest and abilities in science were also very wide. One student was unable to complete any but the most elementary written projects. Another had an attention span of under one minute.

The staff consisted of the project director (who also served as an instructor), two instructors, three interpreters (one for four weeks, two for two non-overlapping weeks each), four counselors (three for four weeks; one for the first week and one for the last two weeks), and one student assistant. Additional persons served as guest lecturers on specific topics. All of the staff were hearing, except the student assistant and one counselor who was there for the first week. Only the interpreters and the deaf staff knew sign language or worked with deaf students on a regular basis. Two of the instructors taught college students for their regular jobs, and one taught middle school students. Only the deaf counselor had training or previous experience in counseling.

Data Collection. Specific evaluation questions and sub-questions are displayed in Table 1. The general approach to the data collection combined qualitative and quantitative methods, and included a review of program documents, interviews with students and staff, observations, and questionnaires. The correspondence between the evaluation questions and the data collection procedures can also be seen in Table 1.

The evaluation occurred throughout the planning and implementation phases of the project. The chief evaluator met with the project director several times during the planning phase to discuss the data collection plan and instruments. The chief evaluator was on-site when the staff arrived. She collected background information on the staff, conducted preliminary interviews with the staff, and observed the on-site planning activities until the students arrived two days later. She conducted preliminary interviews with the students and observed the first two days of the implementation. She met with the project director at the end of the second day to provide formative feedback.

The chief evaluator, accompanied by an assistant, returned to the site at the beginning of the second week. The evaluators interviewed all the staff and students, observed the program for two days, and met with the project director to provide feedback.

The assistant evaluator returned to the site in the fourth week. He completed interviews with all the students and staff, collected summative information on questionnaires from students and staff, observed the program, and met with the project director to provide feedback.

Thus, data were collected on-site by the evaluators a total of nine days -- four days at the beginning of the project, two days at the beginning of the second week, and three days at the end of the project.

Results

Because this was the first year of a two-year project, the evaluation focused on formative aspects. Consequently, the results consisted primarily of suggestions for improvement for the next year's program. Generally, the students' affective response to the Marine Science Project was positive. The staff felt a high level of frustration and identified the major problems as emanating from the heterogeneity of the students, discipline problems, ineffective instructional methods, disorganization, lack of communication and staff burn-out.

Societal Factors

Cortes (1986) described societal factors as forces from the world outside of school that affect school priorities, student self-concept, teacher perceptions and educational reform. They include such factors as family, institutions, heritage, language, attitudes, socioeconomic status, community, mass media, culture, ethnicity, educational level and perceptions. The ever-riding societal factors influencing the educational process in the Marine Science Project were the hearing status and language differences between staff and students and among the students. Twelve of the students used some form of manual communication, either American Sign Language (ASL) or Pidgin Signed English (PSE). Two of the students relied on voice and lip reading (they did not know sign language). Other than the interpreters and the two deaf staff members, none of the staff knew sign language.

The interpreters were skilled in sign language and two of them had extensive experience as teachers of the deaf. Three of the counseling staff had never met a deaf person before and did not know sign language. The one deaf counselor worked the first week and then left because of other job responsibilities. The other deaf person was an undergraduate student who was receiving

college credit for working with the program. The instructors had had limited previous experience with deaf students in their regular classrooms or through earlier summer programs. However, none of the instructors knew sign language and none had had formal training in teaching deaf students. The students asked that next year, deaf role models be provided, as well as certified interpreters who know American Sign Language (all signing was done in Pidgin Sign English). The interpreters recommended that all staff attend a workshop prior to the next program to teach the instructors and staff about deaf awareness, techniques for teaching deaf students, and sign language. The staff would benefit by meeting consistently throughout the program to continue discussing these issues and to work on sign skills.

The problems related to lack of sign skills and deaf awareness arose because of late recruitment of staff and an inability to locate skilled signers. Funds were awarded in mid-April, rather than in January as initially planned. More lead time in recruitment of staff should help lessen this problem.

School Factors: Educational Factors

Underlying assumptions. The critical educational factors that impacted on the success of the program included the underlying assumptions, administrative knowledge, and teacher knowledge, skills, attitudes and expectations. The two college teachers relied primarily on lecture to get their points across, assuming that deaf adolescents would learn in the same manner as hearing college students. The middle school teacher commented: "Adolescents are very active and energetic. They won't put up with two or three hours of lecture without climbing the walls. It's trial and error with the instructional activities. At first it will be rough. I am concerned that two of the teachers teach college and am concerned with their presentation. They will need to come down to the level of the students." One of the college instructors did express this concern, "I haven't dealt with this age group. Will I be able to get across to them? Will I be able to get them enthused? Will they walk out knowing this or that?" He recognized the implications of a different age group, but not differences attributable to the hearing status of his students.

Administrative issues. Problems arose in terms of administrative practices, especially in terms of communication and organization. The staff comments related to administrative themes included the need for staff meetings, better role definitions, clear direction as far as time off/on, and the need for more and different staff for the next year. Comments included:

"There is a lack of planning and organization. We need more staff. Things are the same as last time, there is very little

change [from the interview at the beginning of the second week]. We had two or three staff meetings. We need one schedule with time off. Discipline is a problem. Last week we had a meeting to schedule things. There was no meeting concerning recommendations from you (the evaluators)."

"We need a schedule that is relatively fixed instead of constantly changed so the staff can plan their time. We need frequent staff meetings with increased (there is almost none now) input on activities, etc."

"There is a need for staff meetings to set the schedule and who is on and who is off. There needs to be more support and sharing. I would not come back under the same conditions. The problems are structural, not the students."

When educational personnel find themselves in a situation fraught with cross-cultural conflict, administrative measures should be taken to help them deal with the problems they encounter. Frequent staff meetings could be used to let the staff share their frustrations and work on measures for improving the situation.

The staff arrived in a highly motivated state, eager to work with the young deaf students. One staff member commented, "I want to bring about changes in young deaf kids lives. Hearing impaired kids seem to be the most exceptionally deprived." Another said, "I like teaching junior high adolescents to see if you can hook these kids at this age...If they're deaf, it's great. I have a soft spot in my heart for the handicapped."

By the end of the four weeks, the staff could safely be labeled "burned out". The seven staff members who were on-site at the end of the program were asked if they would be willing to return next year. All seven agreed (independently) that they would not be willing to return next year unless some significant changes occurred. The answer to the question, "Were the skills of the staff adequate?", unravels the mystery of this metamorphosis from "highly motivated" to "burned out".

Knowledge of science. The staff had excellent backgrounds in science. The instructors had either Ph.D.'s or master's degrees. The interpreters had B.A.'s or M.S.'s in biology also. Even the counselors had either completed or were in the process of completing an A.A. or B.S. in natural sciences.

Teaching skills. The middle school teacher described several creative ideas that he had for teaching such as using paper air planes to study the scientific method and using M&M's to study random selection. The teachers felt frustrated because they did not feel like they were really "reaching" the students. This feeling could be attributed to a number of factors such as

the heterogeneity of the students, lack of organization, lack of
knowledge of teaching deaf students and problems arising from
working through the interpreter. From the first interview to the
last, the staff commented on the lack of communication amongst
themselves and how that led to being disorganized. Instructors
did not prepare lesson plans. Establishment of a schedule with
frequent staff meetings to discuss same was the most frequently
mentioned condition that needed to be changed for the following
year.

Techniques for teaching deaf students should be a major part
of the pre-program workshop for the staff. Techniques that
maximize active learning and small group interaction should be
emphasized to reduce the amount of lecture time. Physical
arrangement of the room is an important factor in communicating
with a class of deaf students. When the program began, the desks
were arranged in rows in typical "hearing" classroom fashion.
The staff were informed by the evaluator that this would not be
suitable for deaf students. The students also recommended to the
instructors that the desks be changed to a semi-circular
arrangement so that everyone could see everyone else. This
change was made during the first week. Other techniques for
getting deaf students' attention (e.g., flashing lights, tapping
your neighbor) were not used. Interpreters did not sign
students' questions before the instructor answered, so other
students did not know what was asked.

Ability to interact with young people. Discipline tied with
the need for improved staff communication for the most frequently
mentioned problem by the staff. After the initial head counselor
left, none of the remaining staff had any formal training in
behavior management with deaf adolescents. The tendency to be
lenient with deaf students has been noted elsewhere in the
literature (Hemwall, 1984). When teachers are uncomfortable
disciplining deaf students because of the communication barrier,
they let the students "get away with murder".

One staff member commented: "Generally things are very
disorganized. The staff don't know about deafness. The kids get
in trouble because of the lack of supervision. Too many things
are permitted, for example, eating, language, kissing." The next
year's program staff should include individuals with formal
training and experience in behavior management with deaf students
and this should be included as a topic for the pre-program
workshop.

The discipline problems interfered with the staff's ability
to interact with the students. One staff member commented,
"There is not enough opportunity to just interact with the kids.
I'm too busy playing police man." Another said, "Discipline
problems take an inordinate amount of time for punishing and
dealing with... They are not obeying the rules. We need to set

up boundaries." One recommended, "The rules need to be explained. Someone needs to be in charge. No supervised free time is asking for trouble."

One of the goals of the program was to allow the students an opportunity to interact on a one-to-one basis with the staff who could serve as role models for the youngsters. All of the staff felt like they got along alright with the students and they did establish individual responsibilities for supervising the students' research projects. The students were asked which of the staff they felt comfortable with. Nine of the students mentioned either a counselor or an interpreter, and three said that they did not feel comfortable with any of the adults. This is another area that would require attention in the second year.

Instructional Elements

Curriculum design. The instructors used a combination of lectures, lab, and field work. Lectures ranged from about 20 minutes to 45 minutes. Field work made up over half of the program. Two instructors mentioned using the inquiry approach. "I tell them what to look for and the students do the digging. They get the answers." The teachers tried creative, active learning exercises with the students. For example, the concept of statistical averaging was taught by having the students measure each others' height and calculate the mean. The students were then supposed to teach the staff how to do this. The concept of the scientific method and controlling extraneous variables was taught by having the students make and fly paper airplanes and then try to identify and eliminate variables that affected the distance the airplanes could fly. Field trips went to the maritime forest, the marsh, the dunes, and the beach.

Despite these many positive features in the curriculum, the staff still expressed frustration. For example, one staff member commented: "It is frustrating because I don't seem to be able to capture their attention, their imagination. It doesn't seem like we're able to hold them together."

The instructors and interpreters felt that the cause of this frustration arose from the heterogeneity of the group, the structure of the academic activities, and the lack of organization and coordination of academic activities among the staff. Exemplary comments include:

"Generally the experience is positive, although there is some problem with the kids paying attention. With the variety of ability levels, it is hard."

"We are experiencing a few problems that I hadn't anticipated. It is taking a lot longer because of such short attention spans. I thought you could go for 20 minutes. I thought communication

would be our biggest problem. They turn their back on you - they can't see you and can't hear you...The program has an awful lot of potential but I don't know if we'll be able to realize it. I understood this was an academic group but there are major deficiencies like in math. They can't do averages."

"Try giving ten question quiz to start. Use games and teams. There will be a problem with discipline when I leave; staff give control to interpreters. More communication is needed; more meetings may help."

The students were unanimous in that they liked the field trips and disliked the lectures. All of the students described their experience in the program in positive terms, e.g., "It is a lot of fun and I learn a lot. This is a once in a life time experience." "It's like summer school. We have some fun and do a lot of work. We study a lot about animals. The experience here has been positive." "I like learn good sea animals. I like pet hermit crab. I wish take hermit crab home."

The students did have some suggestions for improving the teaching approach. They offered the following suggestions: "Show more enthusiasm. Use more examples. Get to the point." "Show us more than one example of a concept." "Have more guest speakers and have more deaf role models." "Change grouping so more serious people can work together." "Want more deaf teachers."

School Factors: Student Qualities

Cortes (1986) identified a number of student qualities associated with the school context, including academic skills and knowledge, language proficiency and attitudes, prosocial skills, life goals, health/nutrition, motivation, sociocultural attributes, and self-image. The most critical factors in terms of the students in this study seemed to be their motivation and abilities regarding science and their diversity in terms of language and level of hearing impairment.

Motivation and abilities. The students' interests and abilities in science were very wide. One student was unable to complete any but the most elementary written projects. Another had an attention span of under one minute. Initial interviews with the students captured this heterogeneity in their remarks as to why they wanted to come to the camp and what they expected while they were there. The students who were highly motivated to learn about marine science made such comments as:

"I have been interested in marine science since I was in the sixth grade. My father is a scientist and my grandfather is a SCUBA diver. I'll take anything I can get about marine science."

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"I want to become a marine scientist. I like to work with fish. I grew up on the beach. I want to learn botany, plants. Experience this in-depth. Find out what the beach is like."

These comments contrast with those of students who had a different orientation:

"I wanted to come because I like have fun and going fishing. I like camp. I want to make friends."

"I was curious. This is the first time for me to see the ocean in Virginia. I have been to the ocean in New York but not here. [Expectations?] None. Didn't think about it."

Students were also asked about their background and interest in science in terms of the types of science classes they have taken and if they read about science or watch science programs on TV. Again a wide disparity was seen in the answers:

"I've taken every science class I could since I was a little kid. Honors biology and chemistry. I am extremely interested. I read National Geographic and the AAAS Science magazine. Lots of books. I watch National Geographic, NOVA, Mr. Wizard. If it's not captioned, I won't watch."

"I took eighth grade science: biology, animals, flowers. My interest in science is not very strong, in between strong and very little. I don't read science books or magazines. I don't watch science on TV."

Language and sociocultural attributes. As was previously mentioned, the level of hearing impairment ranged from profoundly to severely deaf (12 students) to hard-of-hearing (2 students). Twelve of the students used manual communication; two used voice and lip reading (they did not know sign language). Instructors spent most of their time with students who had good vocalizing and lip reading abilities.

Summary and Conclusions

A cross-cultural framework, developed by Cortes (1986), was used to gain insights into the results of an evaluation that involved the deaf and hearing cultures. In the evaluation of the Young Scholars Program in Marine Science, the main societal factors that were identified included the hearing status and language differences between staff and students and among the students. Educational factors that impacted on the success of the program included the underlying assumptions of the staff, administrative knowledge, and teacher knowledge, skills, attitudes, and expectations. Curriculum design issues dominated the instructional elements and student qualities focused on motivation, abilities, language, and sociocultural attributes.

Many of the identified factors would be equally likely to
surface in the evaluation of most educational programs. However,
the uniqueness of operating in a cross-cultural setting requires
a difference in perspective that the Cortes framework allows.
For example, communication and organization are important
characteristics in all educational programs. However, in a
cross-cultural context, these characteristics take on new meaning
as the staff struggles to adapt to the requirements of the
different culture and with their own feelings of discomfort with
teaching in this setting.

In an educational setting, teachers exhibit varying levels
of cultural awareness. If teachers' (and other staff members')
understanding of other cultural groups is limited, they may
evaluate student behavior only from their own cultural
perspectives (Hanvey, 1979). Conflict cannot be entirely
avoided. Through the use of a cross-cultural framework, teachers
can recognize some of the sources that may give rise to the
conflict and can thus address these potential problems through
the use of appropriate instructional techniques (Hernandez,
1989). Evaluators can use the cross-cultural framework
proactively to alert staff to potential problem areas and to
frame the evaluation. They can use it retrospectively to gain
added insights into the evaluation results.

References

Cortes, C.E. (1986). The education of language minority students: A contextual interaction model. Beyond language: Social and cultural factors in schooling language minority students (pp. 3-33). Los Angeles: Evaluation, Dissemination and Assessment Center, California State University-Los Angeles.

Hanvey, R.G. (1979). Cross-cultural awareness. In E.C. Smith & L.F. Luce (Eds.), Toward internationalism (pp. 46-56). Rowley, MA: Newbury House. (Reprinted from An attainable global perspective, 1976; New York: Center for Global Perspectives).

Hemwall, Martha K. (1984). Ethnography as evaluation: Hearing impaired students in the mainstream. In D.M. Fetterman (Ed.), Ethnography in Educational Evaluation. Beverly Hills, CA: Sage.

Hernandez, Hilda. (1989). Multicultural education. Columbus, OH: Merrill Publishing Company.

Kannapell, B.M. & Adams, P.E. (1984). Orientation to deafness: A handbook and resource guide. Washington, D.C.: Gallaudet University Press, chap. 4, pp. 9-10.

Martin, D. (1986). Reducing ethnocentrism among deaf and hearing students. Unpublished paper. Washington, D.C.: Gallaudet University.

Meadow, K. (1975). The deaf subculture. Hearing and Speech Action, 43, 16-18.

Padden, C. (1980). The deaf community and the culture of deaf people. In C. Baker & R. Battison (Eds.), Sign language and the deaf community. Silver Spring, MD: National Association of the Deaf.

Reagan, T. (1985). The deaf as a linguistic minority: Educational considerations. Harvard Educational Review, 55(2), 265-277.

Table 1

MARINE SCIENCE EVALUATION QUESTIONS AND
DATA COLLECTION PLAN

Evaluation Questions	Data Collection Methods
1. Are recruitment and selection procedures effective?	
-How was the program advertised?	Director's log and
-How did the students hear about the program?	advertising materials Application form
-What are the students' characteristics?	Application form
-How did the selection process work?	Interview with director
2. Were appropriate instructional methods used? Were appropriate topics covered?	Observation, review of materials, questionnaire, and interviews
-What instructional techniques were used?	
-What teaching materials were used?	
-How did the students respond to the techniques and materials?	
-What problems did the staff encounter?	
-What were the strengths and weaknesses?	
-What topics were covered?	
3. Were the cognitive objectives achieved?	Quizzes, homework, special reports, research projects
-Did the students attain a basic understanding of and ability to apply skills related to:	
-the scientific method	
-coastal-terrestrial ecology	
-physical oceanography	
-ethics of science	
-marine biology	
-career awareness?	

4.	Were the affective objectives achieved? -Did the students perceive the experience as worthwhile? -Did they express an interest in science? -Did they increase their awareness of the academic preparation needed for such a career? -Did they increase their confidence in their career selection decision? -Did they feel intellectually challenged?	Questionnaires, interviews, and observations
5.	Did the students' performance in future science programs improve?	Interviews with home school teachers
6.	Were goals regarding communication achieved? -What evidence was there of improved communication skills? -How effective were the students' presentations?	Student research projects and presentations at home school

7.	Were the skills of the staff adequate?
	-What are the characteristics of the staff regarding:
	    -knowledge of science
	    -knowledge of deafness
	    -teaching skills
	    -ability to interact with young people
	    -ability to interact with peers
	    -serve as a role model and mentor?
		Review of documents, interviews, questionnaires, and observation

8.	Were the facilities adequate?	Observation, interviews, and questionnaires