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PROGRAMS FOR SPECIAL POPULATIONS: A COST ANALYSIS FOR THE HEARING IMPAIRED

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The goal of integrating special populations into occupational/vocational programs is one which postsecondary institutions are encouraged to support. However, one of the first lessons that administrators learn is that more is required than simple removal of physical and/or bureaucratic barriers to special populations. By the very fact of their historical exclusion from the educational mainstream, uniquely designed programs are often needed in order for those populations to experience success. Thus an early consideration for administrators should be a realistic assessment of what specific programs might need to be added. Ideally, this should take place before an institution decides to assume responsibility for including a special population in its community. In reality, awareness of further needs frequently does not emerge until students are already attending classes. Community colleges have been particularly alert to their responsibility to serve all members of their communities in recent years and as a result have had to learn some challenging lessons in regard to services for special groups.

The hearing impaired population is one special group for which ample (though perhaps not well-publicized) information exists on program needs at the postsecondary level. Materials distributed by Gallaudet College's Division of Public Services outline services which should be provided if the needs of hearing impaired people are to be met in postsecondary vocational, technical, and liberal arts programs (*The Deaf Student*, 1979). Frequently, however, even with available information, the realities of providing those services can turn out to be more than was expected.

The purpose of this paper is to present the experiences of a single institution in implementing programs for the hearing impaired students in such a way as to minimize unexpected costs and to maximize fit with student needs. A brief

sketch of the setting is followed by a detailed description of programs for regular, developmental, and continuing education students who are hearing impaired. Then, an analysis and comparison of the leading cost of each program is carried out. This is followed by a discussion of implications for institutions wishing to provide similar programs in occupational/vocational education for special populations.

THE SETTING

Catonsville Community College (CCC), situated in a suburb of Baltimore, Maryland, has accepted the challenge of service to special populations. In 1978, the college received a grant to begin implementing programs for the hearing impaired community. They launched an ambitious schedule of continuing education courses designed specifically for the adult deaf population and made it widely known that interpreters would be provided for deaf students wishing to enroll in regular course offerings. Almost immediately, program planning stumbled upon the two problems which continue to plague this and other programs for hearing impaired populations.

First, the magnitude of the communication problem was realized. How does a college communicate its willingness to serve the deaf community in a way that the information will be noticed and accepted. An urban deaf community is often a small, tightly-knit social group almost sufficient unto itself. The dissemination of information into that community has to be very focused and personal – not widespread and impersonal as with the typical publicity effort.

In order to convince members of the hearing impaired community that the college was interested in them, personal contacts were cultivated and maintained so that program offerings could be announced at meetings, posted on bulletin boards, and printed in publications by and for the deaf community. CCC also used the

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expertise of hearing impaired persons in the planning and execution of the curriculum through the services of an advisory board.

A second problem, one unique to serving the hearing impaired community, was availability of qualified interpreters. Even if a college is serving only a few deaf students, their interests tend to vary almost as much as those of hearing students. As a result, since the college's schedule was not designed around the enrollment patterns of hearing impaired students, more than one or two interpreters are necessary to cover classes in various subjects which are scheduled at the same time. This creates intense demands at some times and a dearth of need at others. Qualified interpreters, however, need steady work and cannot rely on such sparse schedules. Furthermore, interpreters who are competent in basic interpreting skills are in short supply. When a knowledge of the technical language of many community college courses and the ability to handle the give and take of a classroom situation is added to the basic competencies required of interpreters, the pool of qualified persons becomes still smaller.

CCC attempted to handle the lack-of-interpreters problem (and socialization problems of deaf students) by offering courses to hearing students on the simultaneous method of communication (a communication method which mixes certain elements of American Sign Language with the exact signing of standard English). The college also moved toward the development of a registered interpreter-training program. These steps caused the campus as a whole to become more sensitized to deaf students and some students went on to become professional interpreters. However, the college's services to the deaf population were diluted by the peripheral task of training the hearing community and the well-trained and highly skilled interpreters could often find more lucrative positions outside of the community college.

While the problems of communication and interpreters persist at CCC, they are being mitigated as program directors continue to address these issues. Personal contacts in the deaf community have grown with the age of the program and interpreters have realized that the program is permanent and that it can become a reliable source of assignments. Ultimately, perhaps, a few full-time interpreters can be hired as scheduling adapts to the need for con-

sistent interpreter requirements.

THE PROGRAMS

As programs for hearing impaired populations at community and junior colleges mature, some distinctions in the needs of the population begin to emerge. At CCC, services have evolved to serve three fairly distinct groups of hearing impaired individuals. The three groups include developmental students, regular students, and continuing education students. (See Table 1.) While it is probably true that all students at community colleges fall into these categories, it is helpful to examine the services provided to deaf students in this framework since those services can vary greatly from group to group.

Developmental students are those who need improvement in their verbal or quantitative skills before proceeding into a regular program. Like non-handicapped students who fall into this category, hearing impaired students also tend to be undecided as to what course of study to pursue. Hearing impaired students may also be in need of certain social skills such as independent living or the ability to relate freely with others. This group of deaf students currently receives the greatest amount of institutional support at CCC.

TABLE 1
Hearing-Impaired Students At
Catonsville Community College
(Adademic Year 1980-1981)

Group	Frequency	Percent
ACADEMIC PROGRAM		
Developmental	11	45.8
Regular	4	16.7
Developmental and regular	4	16.7
Dropped out	5	20.8
CONTINUING EDUCATION		
Language enrichment (Summer 1980)	12	
For Hearing Impaired Women (Spring 1981)	Insufficient	
Language enrichment (Summer 1981)	Insufficient	
Math enrichment (Summer 1981)	Insufficient	

Regular students are the certificate- or degree-seeking students who are in vocational or liberal arts programs and are proceeding through a

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given curriculum more or less independently. They tend to be older, self-directed, and appear to receive less services. They are in the minority among the hearing-impaired students, although they are probably the students (together with continuing education students) whom the college originally intended to serve.

Continuing education students are attracted to the college by non-credit courses which meet their interests or needs. At CCC this group was a major target of early efforts to serve the hearing impaired. While CCC has continued to provide services which will meet the needs of this group, these efforts have not resulted in a consistent or heavily patronized program.

While the three divisions may seem to be convenient labels for describing existing services and accomplishments, it is important to note that they are not exclusive groups. Some students enrolled in developmental courses are also pursuing regular programs and, as a result, can be identified with both the developmental and the regular groups. Also, while the developmental and continuing education groups are served for their own unique purposes, they may in turn be potential applicants for the regular program, i.e., it is hoped that at least some students from each of these groups will move into the regular program. Services which are currently being provided to each group are outlined in Table 2 and are discussed below.

DEVELOPMENTAL STUDENTS

Developmental students clearly receive the widest range of services. They are enrolled in

sections of not-for-credit reading, English, and mathematics classes which are provided primarily for their remedial needs, although a few hearing students who have similar skill levels also attend. Deaf students tend to enroll in these classes three or four times before passing, whereas hearing students at this skill level tend to complete the courses on their second try.

In addition to classroom experiences, tutors are provided in the learning laboratory to work one-on-one with hearing impaired students. Three tutors are available an average of forty hours a week, including two evenings. The English instructor also spends about four hours a week in the lab. Interpreters are provided in all developmental classes except English, as CCC is fortunate to have an English instructor fluent in sign communication.

In addition to these academic services, counseling and administrative support are provided. These latter services are shared with the hearing-impaired students enrolled in regular community college classes.

REGULAR STUDENTS

While special services provided by instructors to hearing-impaired regular students in the classroom may vary from none at all to considerable adaptation of curriculum materials, no additional aid is provided by the college for these tasks. Workshops on deafness and sign language are occasionally provided for the CCC faculty, but the day-to-day adaptations necessary for teaching hearing impaired students in regular classrooms are left to instructors.

TABLE 2

Special Services to Hearing Impaired Students

Service	Developmental (Billable hours per semester = 133 ^a)	Regular (Billable hours per semester = 42 ^a)	Continuing Education (N varies)
Instruction	Reading (3 hours) English (3 hours + lab) Math (3 hours)	None	Varies
Tutoring	40 hours/week	None	None
Interpreting	6 hours/week (all classes except English) plus needs outside of classes	Hours/week = Billable hours plus needs outside of classes	Varies with Demand
Counseling & Administration		35 hours/week	Shared with service to other Handicapped Populations

^aIncludes hours charged to students taking advantage of both programs simultaneously.

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Services, therefore, for regular hearing impaired students are limited to interpreters. As all of these students are enrolled in different classes, one hour of interpreting per week is required for each hour for which a student is registered (billable hour). While counseling and administrative support (including interpreter scheduling) are services available to regular as well as developmental students, since some regular students attend classes only in the evening, their use of counseling may be less than that of developmental students.

CONTINUING EDUCATION STUDENTS

While the services listed under Continuing Education Students in Table 1 are *available* to the deaf community, it is not clear how often they have actually *been provided*. For example, interpreters are available for any continuing education class with at least three (in vocational classes) to five (in non-vocational classes) deaf individuals. In reality, however, even though the minimum requirements are said to be more flexible than they appear, interpreters have seldom been provided for regular continuing education courses.

Similarly, there were several courses designed specifically for hearing impaired students in 1978; information is not available on the success of those courses. Of more recent courses offered specifically to the deaf community, one (in language enrichment) was allowed to run with twelve enrollees in the Summer of 1980 although the minimum for continuing education courses is usually 15. This course was offered again in 1981 along with a math enrichment course specifically for deaf adults, but the small number of registrants precluded actually holding the class. A course for hearing impaired women offered in the Spring of 1981, which was limited to 12, did not enroll enough students to run.

Communication and transportation problems are cited as limitations to participation of hearing impaired learners in community education programs at CCC. A network which is still very dependent on a few dedicated individuals has gradually been built up which insures that announcements will be made available to two publications in the deaf community and to Catholic Charities. A telecommunication device for the deaf is now located in the community service office and it is well-used by individuals seeking

information about CCC.

However, the complexity of public transportation serving the campus seems to be a problem which may be beyond the control of the CCC. It is not known how severely this has impeded the participation of deaf individuals in community services programs and it is not clear how seriously the college would consider offering courses off-campus in locations more convenient for the deaf community.

The actual development of programs for the deaf community has been highly dependent on the interest of a few specific staff members. A coordinator of continuing education services for special populations may be a solution to the fluctuating institutional commitment resulting from the idiosyncrasies of staff interests. Someone who is serving all special populations does not always have the needs of individual populations in mind.

ASSIGNING COSTS

For the community or junior college contemplating an increase in services to the deaf community, more information than services provided is needed. Some estimate of local and unit cost should be provided so that administrators may judge the feasibility of implementing such a program whether it be through local funds or grant monies. The earlier discussion of the programs and Table 2 show that personnel constitute the leading costs in a program of this type. Table 3 itemizes the costs of personnel components of regular and developmental programs for hearing impaired populations. These cost estimates are based on the level of services and the amount of participation at CCC although the costs assigned are calculated from standard costs for these services nationwide ("Faculty Salaries," 1981; U.S. Department of Labor, 1980).

The costs reflect those expenses which are above and beyond those accrued for the education of regular, non-handicapped students. For example, for regular hearing-impaired students there are no instructional costs above those of non-handicapped enrollees. However, developmental students are in courses designed specifically for them. One or two hearing students who need instruction in the skill might also enroll, but the courses would not be available in the current form except for the needs of the hearing impaired students. Thus, instructional

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TABLE 2
Annual Cost Estimates of Programs for Developmental and Regular Hearing Impaired Students^a

Service	Developmental (133 billable hours/semester)	Regular (42 billable hours/semester)	Both
Instruction	\$15,473 ^b (3 instructors @ ½ time)		\$15,473
Tutoring	\$ 9,178 (1 instructor @ ½ time + 40 hours @ \$3.35 minimum wage)		\$ 9,178
Interpreting	\$ 1,620 @/hour	\$11,340 @/hour	\$12,960
Counseling & Administration	\$14,302 ^c	\$ 6,603 ^c	\$20,634
TOTAL COST	\$40,302	\$17,943	\$58,245
UNIT COST (per billable hour)	\$ 152	\$ 214	\$ 166

^aAssuming two fifteen-week semesters.

^bBased on the median annual salary for all ranks of faculty at 2-year public post-secondary institutions (\$21,490) plus 20% fringe benefits. From "Faculty salaries for 1981-82," *The Chronicle of Higher Education*, November 11, 1981, p. 12.

^cBased on 95% of the median annual salary for college counselors, 1978 (\$18,100) plus 20% fringe benefits. U. S. Department of Labor, Bureau of Labor Statistics. *Occupational Outlook Handbook*, 1980-81 edition.

costs for developmental deaf students cover three special courses in reading, English, and mathematics offered by instructors from the respective departments. Since a faculty course load at CCC is 15 hours per week, these offerings reflect one-fifth of each of the three faculty member's assignments.

Tutoring is not only *available* to developmental hearing-impaired students, it is required that they sign up for one hour of learning laboratory credit. Thus, tutors who can communicate by signing are provided at minimum wage according to need. The number of hours provided varies from one semester to the next between thirty and fifty. Forty hours is the level of service indicated in the table. Additionally, one instructor spends three hours per week with students in the lab in addition to her regular class. This time reflects another one-fifth of her teaching load. Regular hearing-impaired students do not need to make use of the laboratory services.

Interpreting is the area of service which most readily comes to mind when institutions decide to serve the deaf student. While by far the best method of communicating with those deaf persons who know and communicate by means of sign is to sign and speak simultaneously, few

community college faculty members are fluent enough with their hands to conduct classes using sign. Thus, interpreting is a service which is needed by both developmental and regular hearing-impaired students. Six hours of interpreting per week are needed for instructors in the developmental program. On the other hand, regular deaf students must have an interpreter for every course in which they are enrolled. Currently no two of them are enrolled in the same course, so their needs must be met by 42 hours of interpreting services per week. Interpreters may be hired for between eight and nine dollars per hour; in the table they are priced at nine dollars an hour.

The program for hearing-impaired students is administered by a counselor at CCC so counseling and administration are considered as one item in Table 3. Ninety-five percent of her time is designated to be devoted to the program for the hearing-impaired so the cost of 95% of a counselor's salary is divided between the developmental and regular programs proportionally to the number of students enrolled in each.

Total direct personnel costs for a program such as the one at Catonsville are found to be over \$50,000, with the developmental program

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costing twice as much as the regular one. This imbalance could be predicted both because of the larger number of developmental students and the greater number of expensive services which they receive. An important point can be noted, however, by looking at the unit cost per billable hour for developmental as opposed to regular students. The developmental students turn out to be considerably less costly. This occurs despite the unusually heavy (and unbilled) cost of a faculty member in the learning laboratory. (The students, enrolled for one hour, are getting three hours of instructor time.) Of course, this more reasonable unit cost is dependent on a sufficient enrollment of developmental students.

To summarize, services provided to developmental hearing impaired students tend to be less costly (in terms of personnel time) per individual than those provided to regular hearing impaired students. These economies of scale do, of course, have a limit. For example, tutors report that services are utilized almost 100% of the time with the current number of students and students are sometimes forced to wait their turn. Thus, higher enrollments of students would probably require more tutors, all other things being equal.

On the other hand, these economies of scale point out another factor in the development of the current program: For each unique kind of service needed by an incoming hearing-impaired student, an additional investment is necessary to develop services to meet that need. CCC must decide whether offering a service is feasible, given current objectives and future demands. An example of this dilemma has occurred with the arrival of a hearing-impaired Latin American student. His need to learn English as a *third* language cannot adequately be met by either the developmental classes for hearing-impaired Americans or the English as a second language (ESL) classes. Does CCC see the unique type of service needed by this student as one that they wish to develop and which will be needed by other students in the future? This is a question which must be addressed whenever a unique need is identified.

The unstable status of the continuing education program for the deaf community does not permit detailed analysis of costs. Persons interested in furthering the goals of that kind of program for hearing impaired persons would do

well to see that records of requests and enrollment are carefully kept and analyzed periodically. This would serve to aid informed administrative decision-making.

IMPLICATIONS FOR SPECIAL NEEDS PROGRAMS

Important information for planning can be gleaned from the experiences of other institutions in developing special programs. This discussion has focused on provision of programs for one group with special needs – the hearing impaired population. It presented partial cost information on one configuration of services.

The ingredients method is recommended for identifying the costs of a program (Levin, 1975). In this article, only the *leading* ingredient, personnel costs, was analyzed. Other ingredients in any special program would include facilities, equipment, and indirect administrative costs. Facilities and administrative overhead would probably be no different for the deaf students than for other students. Unless the facilities are very old, they would probably include classes with good lighting and moveable furniture so that good visibility can be maintained between student and teacher, student and interpreter, and student and student.

Equipment, however, is a cost which should be taken into consideration for hearing impaired students. At least one telecommunications device for the deaf is essential and audiovisual equipment is useful as a teaching aid. Purchases might include videotape players and videotapes, captioned films and slide presentations, and dictionaries of technical terms in sign.

Further attention on the cost side should also be given to services which go beyond the basic ones outlined in this analysis. For example, at CCC opportunities for socializing through a deaf social club and interpreted drama productions are provided. These activities are vital to a special group and need to be considered if enrollment is to be maintained. Also, interpreters are often needed on short notice between deaf students and the rest of the community. CCC currently relies on the good graces of hearing students who can sign for these spontaneous needs. Likewise, notetakers in classes which are necessary to supplement interpreters are found among the ranks of hearing students who volunteer.

On the enrollment side of the picture, since

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the economic viability of the developmental program may rely on sufficient numbers of students, it is important to note the substantial number of dropouts (Table 1). Most of these dropouts come from the developmental program. At least some of these students left for reasons which had nothing to do with the community college program they were offered and the dropout problem is certainly not limited to hearing impaired students. However, given the large investment in a small, special program, the college may try to reduce this dropout rate

both by screening applicants more carefully in order to be assured of their sufficient maturity and by studying dropout causes to see if the college can remedy them.

The goal of serving historically excluded groups is an important one. In order to succeed, programs which address that goal should be initiated with knowledge and forethought. The wide variety of necessary services and their costs should be carefully analyzed in order to assure well thought-out implementation.

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