

NTID RESEARCH BULLETIN

Center for Research, Teaching and Learning · National Technical Institute for the Deaf · Rochester Institute of Technology

Vol. 2 No. 2, Spring 1997



Using CU-SeeMe, students are able to see each other sign, type a message in the Talk Window, or use the Audio control to speak and listen. The photo shows students Leah Scarpace and John Meusel using the CU-SeeMe system. For a description of the CU-SeeMe Desktop Videoconferencing System, see the article at the end of this newsletter.

Mind the Gap!

For reasons more or less explicable, the topic of how we can best bridge "basic" and "applied" research seems to be hot at the moment. Surely, this is a constant issue in several other fields, and has been a nagging concern in deaf studies and deaf education. So why now?

In part, the current discussion stems from recent changes in research both here at NTID and at Gallaudet University. But it goes further. Until recently, many people within the field assumed that "applied research" was the only kind of study we needed to improve the educational process for deaf students. The situation is never so simple or clear-cut, of course, and it is now clear that a combination of applied and basic investigation can provide much more direction than either alone--if we can put it all together.

Decades of research on educational and basic scientific questions relating to deaf children and adults have yielded a wealth of knowledge in both domains; we now know a great deal about how deaf children learn and develop as thinking, social, problem-solving individuals. Knowledge gained from

research is not always translated effectively into practice, but we know that there are often many benefits to be gained.

Advances relating to the education of deaf children often have been led by scientific studies on topics such as the social- psychological benefits of early intervention programs, the linguistics of American Sign Language, memory for verbal and nonverbal information, and the reading strategies employed (or not employed) by deaf students. In the same way, many of these basic studies clearly have been driven by the need to understand the complex learning processes necessary for educational, social, and personal success of deaf individuals. Recent studies of teaching and learning processes among deaf students have brought these areas closer together, but the divide stubbornly remains.

To a considerable extent, this situation is an artificial one, entirely of our own making. Most researchers involved in "deaf education," per se, started out in this field and have focused most specifically on students in the classroom; until recently they have been less concerned with the "lower level processes" of learning. Most researchers involved in related "basic research" on problem solving, memory, or reading started out in other fields, such as psychology or linguistics; and until recently they have been less concerned with the practical implications of their findings. As a result, we tend to use different methodologies and focus on different levels of analysis, publish in different journals and attend different conferences. But we all want to understand the learning process and the ways in which characteristics of teachers and learners influence outcomes.

With reduced resources and greater pressure from our constituencies to demonstrate the impact of our research, people on both sides of the basic-applied gap are feeling pressure. This situation presents both an opportunity and a potential trap. This is not the time for competition, down-sizing, and rhetoric. It is a time to push up our shirtsleeves, set clear goals, and start building bridges. There will be no better time...and we're all in this together.



[Marc Marschark](#)
Director, CRTL

Deaf Adults Who are Ethnic Minorities: How Do They Fare?

Janet MacLeod-Gallinger



[Janet MacLeod-Gallinger](#) is a Research Associate in the Department of Educational and Career Research at NTID. She has conducted follow-up studies relative to employment and education with deaf secondary graduates for over 12 years. More recently her focus has been on issues of career development and employment among deaf women and minorities, and on deaf alumni of Rochester Institute of Technology who are supervisors of hearing employees. For more information, she can be reached at JEM4496@RIT.EDU

Abstract: Results of information gathered from 6430 deaf high school graduates who responded to surveys sent over the period 1982-1992 indicate that deaf minority persons in this study reflect the educational and occupational patterns of their hearing counterparts, and that dual minority status, i.e., deaf adults who are also members of ethnic minority groups, serves to compound the effects of being a member of one group or the other.

Demographers have projected that by the turn of the century our population will be largely geriatric while the number of youths available to replace these workers in the workforce will be reduced. Moreover, the fastest growing populations are of minority status, persons who, heretofore, have been undereducated and under trained relative to the current majority. An historic gap exists in the achievement of some minority groups relative to the majority. In addition, since the 1970's, these groups have experienced a decline in both high school graduation rates and progression to college.

Despite some lack of concurrence about whether being deaf means having a "disability," deafness is counted as a disability by the U.S. Bureau of the Census. Deaf persons also come from minority backgrounds. In the 1988-89 Annual Survey of Hearing Impaired Youth, over 35 percent of the 46,178 hearing impaired students were ethnic minorities. Further, according to the U.S. Bureau of the Census (1993), "...more than one-third of all severely disabled working-age Americans were minority group members." Understandably, deaf educators are concerned that dual minority status for many young deaf students may also impose a double liability.

In response to these projections and concerns, Allen (1986), Allen, Rawlings et al. (1989), Schildroth et al. (1991), Cohen (1991), Anderson and Grace, (1991) and Rodriguez and Santiviago (1991), among others, investigated the elementary and high school experiences of deaf students, with a focus on the minority groups among them. Some focal points of their findings are as follows:

- African-American students are second only to Whites in attendance at programs serving the deaf.
- Hispanics are the fastest growing population of youth, and are becoming the majority in many urban educational programs for the deaf.
- Fewer African-American and Hispanic deaf students receive diplomas from high school relative to their White peers.
- Hispanic deaf students have lower reading comprehension and math computation scores than Whites, and are more likely to drop out of school.
- During high school, African-American and Hispanic deaf students receive less academic training (44 and 42 percent respectively) as compared to Whites (62 percent receive primarily academic training versus vocational).
- Minority deaf students were more frequently enrolled in vocational programs that require lower levels of academic skill, i.e., food preparation or automotive repair programs, whereas when White students receive vocational training, it is more often in computer related fields.

Outcomes like these prompt the question, if there are significant discrepancies at the elementary and secondary level, what are the repercussions for postsecondary attainment? The Secondary School Graduate Follow-up Program for the Deaf database provided some answers to this question. This database contains survey responses from deaf high school graduates in the United States about their postsecondary education, employment, occupations, earnings, job seeking, job satisfaction, and marital status.

The study includes 6412 respondents from yearly surveys conducted over the period 1982 through 1992 who reported their race. Each annual survey targets graduating classes one, three, five, ten and twenty years out of high school. Respondents range in age from 17 to 45. Surveying graduates at these intervals weights the sample toward younger adults. Therefore, the average age is 25.

Over the Follow-up survey years, analyses comparing respondents with their hearing counterparts have consistently found that they are unemployed three times as often, their earnings are only three-quarters

that of hearing workers, and they are most likely to be employed as operatives and service workers, except when they have earned associate's or higher level degrees. When these deaf high school graduates were compared to each other by ethnic category, additional differences emerged.

Findings

Comparative analyses were done using six racial groupings. The sample consist of Whites (n=5322); African-Americans (n=691); Hispanics (n=242); Asians (n=72); American Indians (n=49); and Others (those who identified themselves by more than one racial category, n=36). Figure 1 displays this breakdown by percentages for respondents and for the nation as a whole.

Figure 1.
Percentages by Race

	<i>Sample</i>	<i>National</i>
<i>White</i>	82.9	76.4
<i>African American</i>	10.8	11.5
<i>Hispanic</i>	3.8	8.5
<i>Asian</i>	1.1	2.8
<i>American Indian</i>	.8	.8
<i>Other</i>	.6	*

*National data does not report "Other." It is subsumed by "Hispanic Origin," which may include any race.

Across educational, labor force, occupational, and earnings variables, the ethnic subgroups maintained a consistent relative standing--a micro version of what occurs in the larger, general population. Deaf Asians and Whites generally fared best, Hispanics third, and African-Americans and American Indians alternated for the least success. Those categorized as "Other" varied.

- **Education:** African-American deaf high school graduates were least likely to have completed postsecondary degrees, and Hispanics, second least. Although deaf Hispanic high school graduates entered postsecondary degree programs at relatively high rates, completion rates were low. None of the American Indians, and less than one percent of the African-Americans, earned bachelor's degrees. African-Americans more often earned certificates and diplomas in vocational versus academic programs. Deaf Whites and Asians had the highest rates of postsecondary degree completion, mostly at the associate's and bachelor's degree level.
- **Labor Force Status:** Persons who are either working, or not working but actively looking for work, are labor force participants. American Indians in this sample were most often looking for work compared to the other subgroups, but were least likely to find employment. Relative to other groups, deaf Asians were pursuing college degrees rather than seeking employment upon graduation from high school. Consequently they experienced higher rates of employment when they did look for jobs. With only a high school education, unemployment rates among African-Americans, Hispanics, and Others were very high. Yet, all who had gone on to earn associate's degrees or higher were employed. (See Figure 2.)

Figure 2.
Labor Force Status by Race and Age

	<i>All Ages Participation Rate</i>	<i>All Ages Unemployment Rate</i>	<i>Age 25-34 Unemployment Rate</i>
<i>White</i>	69.0	27.8	17.3
<i>African American</i>	69.4	44.8	34.7
<i>Hispanic</i>	62.4	35.1	32.2
<i>Asian</i>	47.2	23.5	10.0
<i>American Indian</i>	73.4	66.6	50.0
<i>Other</i>	80.6	41.4	16.7

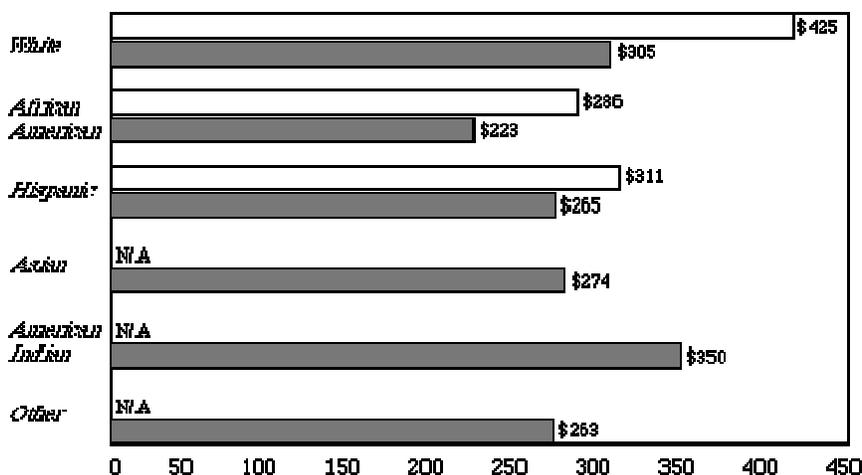
- Occupations and Earnings: Relative to the other groups, African-Americans were more often working in service occupations and were least likely to be working in a managerial or professional capacity. American Indians and Hispanics tended to work more often in precision production jobs. And, in view of their higher rates and level of degree completion, it is not surprising that greater percentages of Asians had in managerial and professional positions. (See Figure 3.)

Figure 3.
Occupations by Race

	White	African Amer.	Hispanic	Asian	Amer. Indian	Other
<i>Operators, Fabricators and Laborers</i>	26.7	29.1	15.5	25.0	33.3	18.8
<i>Precision Production, Craft and Repair</i>	9.8	4.4	16.5	4.2	16.7	6.3
<i>Farming, Fishing and Forestry</i>	2.9	1.5	2.1	8.3	0.0	6.3
<i>Service Occupations</i>	15.9	35.5	26.8	12.5	25.0	43.8
<i>Technical, Sales and Administrative Support</i>	35.5	27.7	33.0	33.3	25.0	25.0
<i>Managerial and Professional Specialty</i>	9.8	2.4	6.2	16.7	0.0	0.0

Differences in earnings were significant between Whites and African-Americans and also between Hispanic and African-American groups. Between both comparison groups, African-Americans reported lower earnings. Differences among other groups were not significant due to numbers reporting. (See Figure 4.)

Figure 4.
Median Weekly
Earnings by Race



□ National *

■ Deaf Sample

*Source: U.S. Department of Labor Statistics, USDL 92-232 (April 24, 1992)

- African-Americans more often receive vocational training, at both the secondary and postsecondary levels, in areas that typically lead to service or operative kinds of jobs. These jobs are often lower paying, which partially accounts for the relatively lower earnings of this group. The Hispanics and American Indians in this sample were more likely to have had apprenticeships leading to semi-skilled or precision production jobs, which generally garner higher wages.

It is important to note that while American Indians exhibited higher relative wages, they also were least likely to be employed. So figures are based on a few well-paid representatives. And even though African-Americans reported the lowest overall earnings, when they had earned baccalaureate level degrees, their earnings were commensurate with the other ethnic groups who

had the same level of education. Unfortunately, too few of them went on to complete associate's or bachelor's level degrees.

- Socioeconomic Status: The Socioeconomic Index (Stevens & Cho, 1985) combines educational, earnings and prestige levels to arrive at a point system assigned to various jobs. Significant differences occurred in the socioeconomic scores between Whites and African-Americans, between Hispanics and African-Americans, and between Asians and African-Americans. African-Americans, in this sample, had the lowest scores overall while Asians had the highest. Again, these relative standings are influenced by the differing educational attainments of these groups.

Commentary

Results of these analyses demonstrate that patterns of placement and tracking, set in place at the elementary and secondary levels for deaf minority students, tend to be maintained at the postsecondary level. Further, deaf minorities appear to represent a microcosm of the educational and labor force status of minorities at large, only intensified. Braddock and Bachelder (1994) also found that "employment opportunities for minorities with disabilities were sharply limited, partly because of the dual sources of discrimination: minority and disability". Thus, being deaf and a member of a minority group can impose a double liability.

Concern was expressed that a study like this might contribute to the current trend toward "hyphenation" of the Deaf community,* that is, further dividing individuals instead of bringing them together as a united body. This is a valid concern. The purpose of this study, however, was not to create dissidence, but to discern whether or not educational patterns among young deaf students, which had been identified by educators/researchers, continued at the postsecondary level. Although the conditions revealed by this examination may not be the result of any intent to create inequities, their existence should serve to alert educators of the need to break away from stereotypical educational placements. And the fact that educators and researchers are investigating deaf student outcomes proves that efforts to address inequities are underway. Ultimately, concerted efforts to provide equal opportunity should promote solidarity.

*Personal communication via letter received from Dr. Robert Kellogg (September 13, 1993), Assistant Commissioner of Education, Nebraska Department of Education.

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CU-SeeMe Desktop Videoconferencing as Used by Deaf Students

E. William Clymer
Douglas MacKenzie



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Doug MacKenzie is an assistant professor in the Audiology Department, Center for Student Resources, at NTID. He provides audiological services to deaf and hard- of-hearing students. He is also involved in classroom instruction and course/curriculum development in the area of telecommunications. For more information, he can be reached at DJMNA@RIT.EDU

In 1995, in collaboration with Professor [Tsutomu Araki](#), an associate professor of Mechanical Engineering at [Tsukuba College of Technology](#) (TCT), Tsukuba, Japan, NTID established its first Internet videoconferencing connection. The system was simple, including a personal computer connected to the Internet via an Ethernet connection, a black and white QuickCam (tm) video camera (Connectix, 1997), and shareware software from Cornell University called "CU-SeeMe" (CU-SeeMe, 1997). With this simple mix of hardware, software and Internet access, real-time communication, including motion video display, audio, and text display between Rochester and Japan, was possible. Students and faculty were amazed to see real-time video images from Japan. It was even possible for students to communicate using sign language, if signs were produced slowly.

When a successful connection is made to a remote site using CU- SeeMe, users are able to see themselves and the remote site on the computer monitor. It is possible to speak and listen, attempt to use signs and to type messages in a TTY format. The audio quality is very good and text appears almost instantly. The video display ranges between 1.5 to four frames per second. This rate of display is quite slow and makes sign language difficult to read over the system when produced at a normal rate. However, communication via this mode is possible.

A research pilot project has been initiated to investigate the feasibility of using CU-SeeMe as a means of remote communication by individuals who are deaf. Subjects selected for this project were deaf college students enrolled in the course "New Telecommunication Technology for the Job." This course introduces students to various telecommunication technologies utilized in the workplace and contains a laboratory component that enables students to evaluate each technology while engaging in various communicative situations common to the work environment.

Students were randomly paired with a classmate and presented with a mock situation of having to schedule an appointment with a co-worker using the CU-SeeMe videoconferencing program. Each student was given a weekly planning schedule that varied in terms of available open time blocks and was instructed to negotiate a common meeting time with their calling partner. Students were given printed instructions on how to use the various communication parameters contained within the software, and they were given the option of communicating by any combination of the three primary modes available: interactive video, audio, or text.

All calls were timed and evaluated in terms of accuracy (i.e., appropriate selection of a common meeting time). At the conclusion of their call, students were asked to complete a written evaluation of their experience.

A total of 12 students (six calling groups) participated in the pilot project. Calls ranged in length from four to 13 minutes with an average call-length of 6.5 minutes. An accuracy score of 100% was demonstrated by the sample group. Of the six calling groups that participated in this project, three of the groups opted to use video-only throughout the call, while two groups used a combination of video and text, and one group used text-only. None of the groups opted to use the audio mode for communication.

Students were asked about their opinion regarding the CU-SeeMe system. Comments specifically related to sign communication included the need for a faster transmission speed, larger video window, color images, and improved picture quality. Most noted that signs could be communicated clearly if the signer slowed their production, although this tended to make communication "awkward" or "uncomfortable." Most students reported a need to ask for repetition to confirm information communicated through signs and finger spelling.

Each student was asked to describe what they liked and didn't like about CU-SeeMe. Positive comments included the ability to see the caller to gain information on his or her mood and emotions by analyzing facial expression and body movement. Other positive comments included the ability to use sign and text to communicate, and to position the camera to show documents.

Negative comments dealt mainly with the quality of the video image. These included dissatisfaction with the transmission speed for communicating via sign language, size of the video window, and the quality of the black and white video image. However, when students were asked to select which type of technology they would find most useful when calling a co-worker in the future, eight students (67%) selected CU-SeeMe, while the four remaining students (33%) selected direct TTY communication.

This initial investigation will be followed by a more comprehensive study and report.

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Endnote

This article is reprinted from the October/November, 1996, *CRTL Newsletter* (<http://www.rit.edu/NTID/CRTL/Newslet/10-96news.html>).

Notes of Note

After twelve years as dean of NTID, **James DeCaro** has announced that he will leave the post effective June 30, 1998. As dean, DeCaro provided stewardship during the development and implementation of the college's strategic plan. He also acted as interim director during 1995 and 1996, and was successful in preserving NTID's federal funding base. In 1996, DeCaro received the Special Service Award from the American Society for Deaf Children and the Dan Cloud Award for outstanding service to the field from the National Center on Deafness.

At the end of the 1997-1998 academic year, DeCaro will be granted a professional and administrative leave, following which he will return to NTID as a research professor.

Ila Parasnis, Department of Applied Language and Cognition Research, is Guest Editor of the 1997 Reference Issue of the *American Annals of the Deaf*. This is *Annals'* 150th year of publication.

Each year, a special topic of interest is featured in the issue. This year's special topic is "Issues Related to Cultural Identity and Diversity in Deaf Education." A full-length lead article by Parasnis is followed by nine short articles contributed by experienced deaf and hearing professionals in the field of deaf education: Oscar P. Cohen, **Reginald Lee Redding**, Cheryl Wu and Nancy Grant, Thomas K. Holcomb, **Dorothy Wilkins** and **Karen Christie**, **Patricia Mudgett-DeCaro** and **T. Alan Hurwitz**, Bonnie Meath-Lang, **Christine Monikowski**, and E. William Clymer and Barbara G. McKee. Individuals in bold type are at NTID.

Over 90 percent of all deaf children are born to hearing parents. For most of these mothers and fathers, their own child is the first deaf person they have ever met.

Raising and Educating a Deaf Child: A Comprehensive Guide to the Choices, Controversies, and Decisions Faced by Parents and Educators (Oxford University Press, 1997), by CRTL center director **Marc Marschark**, offers parents and teachers a readable and comprehensive summary that helps guide them through the many conflicting suggestions and programs for raising deaf children, as well as the likely implications of taking one direction or the other. Based on the most current educational and scientific literature, this is a survey of what is known about the language, the social and intellectual development of deaf children, and the educational and practical issues facing them and their families.

Vince Samar, **Ila Parasnis**, and **Gerald Berent**, Department of Applied Language and Cognition Research, have recently been awarded a T.O.V.A. Research Foundation Grant to conduct a normative study on the use of the Test of Variables of Attention (T.O.V.A.) to identify deaf students with attention deficit disorder (ADD).

ADD is present in about 5-10% of the general population. It can have a significant negative impact on a student's learning and academic achievement, and can seriously diminish self-esteem. ADD is expected to be at or above this level of incidence in the deaf population.

Samar, Berent and **Parasnis** have also recently created the Learning Disabilities, Attention Deficit Disorders, and Deafness Resource Page on the World Wide Web (<http://www.rit.edu/NTID/CRTL/LCR/ld.html>). This page is a resource for parents, teachers, counselors, administrators, researchers and other professionals who work with deaf people, and for deaf individuals with learning disabilities (LD) or ADD themselves. Links are provided to general information relevant to LD and ADD and to information about the identification, nature, accommodation, and remediation of LD and ADD in deaf children and adults.

Individuals who know of links or information that should be published on this web page are encouraged to contact Samar at VJSNCR@RIT.EDU

Susan Foster, Department of Educational and Career Research, recently received the annual award for research by the Gamma Theta chapter of Phi Delta Kappa. Foster has published extensively on the topics of education and employment of deaf persons. Current research projects focus on access for deaf students in educational settings, and the career development of deaf professionals.

The Symposium on Automatic Speech Recognition and Applications for Deaf and Hard of Hearing People, jointly convened by Rochester Institute of Technology and the University of Rochester on April 10-11, 1997, was co-chaired by **Ross Stuckless**, Department of Educational and Career Research. A report from that symposium will appear in the next issue of the *NTID Research Bulletin*.

Historical note: In the late 1960s, **Ross Stuckless** developed a note taking process for use by cross-registered NTID students. It included the design and field testing of a plastic-covered "NTID Note taker" which used NCR pressure-sensitive paper. The "Note taker" was developed before NTID had its first class of deaf students, and was field tested off campus with the help of Ramon Rodriguez, now Director of the U.S. Department of Education's Special Institution Liaison Office, who was working with 20 deaf high school students in Cleveland.

Although the system could have been replaced by photocopying or paid note takers, in 1996 alone the RIT bookstore sold 13,200 copies off-campus, primarily to local school districts. For more information on the system, contact the RIT bookstore at (585) 475- 2501 (V), 475-7071 (TTY), or 475-6499 (FAX).

NTID Research Bulletin

The NTID Research Bulletin is published periodically by the Center for Research, Teaching and Learning, National Technical Institute for the Deaf, a college of Rochester Institute of Technology. It is available without charge.

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