

NTID RESEARCH BULLETIN

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

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Dominic Peroni, assistant professor in NTID's Optical Finishing Technology Program, is one of many classroom teachers participating in the CRTL Teaching Research Program.

Research News and Views

Welcome to the first issue of the *NTID Research Bulletin*. Through the *Bulletin*, we hope to keep all of NTID's audiences informed of research occurring within the College and our future directions. But where do I start? Perhaps with a little history...

"The Mission statement of NTID commits the College to undertaking 'a program of applied research designed to enhance the social, economic, and educational accommodation of deaf people.'"

Consistent with the federal legislation that established the National Technical Institute for the Deaf, the Mission Statement of NTID commits the College to undertaking "a program of applied research designed to enhance the social, economic, and educational accommodation of deaf people" and to sharing its knowledge and expertise. To help reach those goals, the NTID Strategic Plan in 1993 created the Center for Research, Teaching and Learning (CRTL). Over the past two years, the CRTL has been working to implement the Strategic Plan and to achieve the vision of the NTID community.

Among its other initiatives, the CRTL has sought input from within the community and externally to ensure that our research efforts best serve the needs of deaf students and deaf people around the country; it has begun a program to foster collaboration on research across the College; and it has combined the Departments of Communication Research, Postsecondary Career Studies in Deafness, and Educational Research and Development into two new departments: the Department of Applied Language and Cognition Research and the Department of Educational and Career Research.

In addition, the NTID Staff Resource Center (part of the CRTL) has led a vigorous effort to make research more accessible and available to a wider audience. Beyond the *Bulletin*, those interested in NTID research can now obtain our *Papers and Publications 1996*, which lists recent research articles available from across NTID. That document, the *Bulletin*, and a complete description of CRTL research activities are also available on the World Wide Web at <http://www.rit.edu/~490www>.

In recent months, the CRTL has further expanded its collaboration efforts to include school programs around the country and has renewed dialogues with groups such as Conference of Educational Administrators Serving the Deaf, special interest groups of the American Educational Research Association and the American Psychological Association, and NTID's National Advisory Group. We have shared our accomplishments and our visions with visiting scholars and sought to initiate new lines of research that have been identified by groups ranging from the NTID Research Advisory Group to the National Institutes of Health. These and other efforts have been well rewarded: publication rates and access to our research are increasing, external funding for research is growing, and we have seen Oxford University Press begin the new *Journal of Deaf Studies and Deaf Education*. With its editorial offices in the CRTL and several NTID faculty on the Editorial Board, *JDSDE* gives us yet another opportunity to foster research collaboration around the country and to meet the challenge of NTID's national responsibilities.

In all of these efforts, we welcome your participation and look forward to your support.



Marc Marschark
Director, CRTL

What Makes Effective Teaching?

by Harry G. Lang



Harry Lang is a professor in the Department of Educational and Career Research at NTID. He has published over thirty research and theoretical papers on teaching science to deaf students. Lang will co-direct a major National Science Foundation grant project over the next three years, establishing a network of science teachers interested in addressing the English language skills of deaf students in the context of science classes and conducting research on teaching and learning science.

The Teaching Research Program at NTID brings teachers and researchers together to systematically investigate the characteristics of quality instruction.

The Teaching Research Program at the National Technical Institute for the Deaf (NTID) is a collaborative project involving teachers and researchers working together to investigate the characteristics of effective teachers.

The agenda for the Teaching Research Program is decided by the teachers. More than 100 NTID teachers participated in a survey several years ago to identify research priorities; the four topics ranked as having the highest importance for research included:

- characteristics of effective teachers
- teaching and learning styles
- communication in the classroom
- organization and structure in teaching

Following this survey, a series of research studies was begun to address each of these target areas. Every investigation in the Teaching Research Program bridges research and teaching in the following ways:

- At least one of the investigators is a classroom teacher.
- The results are presented in NTID's faculty development program workshops where discussions among colleagues interested in teaching and research draw implications for instruction and for further research.
- The results are presented at conferences attended by teachers of deaf students and published in journals most likely read by these teachers.

Characteristics of Effective Teachers

NTID instructors indicated that their highest priority was the identification of the characteristics of effective teaching. The first two studies conducted in the Teaching Research Program therefore addressed this need. In the first study I conducted with researcher Barbara McKee and Business Occupations Department professor Karen Conner (1993), interviews were conducted with ten deaf and ten hearing teachers; 32 different teaching characteristics were identified as important to them.

Deaf students, classroom teachers, and administrators were then asked to rank the characteristics by their importance to learning course content. The results indicated that, first, deaf college students held similar perceptions about effective teaching as do their hearing peers, ranking "knowledge of subject matter" as the most important characteristic. The students place great value on teachers who are clear in their presentation style, use many appropriate examples, organize their lectures carefully, and use interesting visual aids. Two highly ranked characteristics were unique to deaf students: the ability to sign clearly, and to understand the effects of hearing loss on learning.

In a second study I conducted with researcher Fred Dowaliby and Hugh Anderson, an associate professor in NTID's Construction Technologies program, an "unstructured response" approach was used to determine the characteristics of effective teaching. That is, unlike the first study where deaf students were asked to examine a list determined by teachers, this time the deaf students were interviewed first and asked to reflect on their classroom learning experiences of effective and ineffective teaching. During the interviews with 57 deaf college students, 839 reflections (or "critical incidents") related to teaching were collected and grouped into 33 distinct categories of teaching characteristics by a team of three teachers.

Once again, the results were similar to those found in studies with hearing students. Generally speaking, both deaf and hearing students, when free to reflect on their experiences in learning from effective and ineffective teaching, indicate a strong preference for affective characteristics. They especially like teachers who are warm, friendly, and caring.

Teaching and Learning Styles

"Both deaf and hearing students...indicate a strong preference for affective characteristics. They especially like teachers who are warm, friendly, and caring."

To address the topic of teaching and learning styles, which was also ranked highly by teachers in the initial survey, I led a study with researcher Michael Stinson, Mary Lou Basile of the Business Occupations Department, and Firoza Kavanagh, a graduate student at Rochester Institute of Technology, which used the Grasha-Reichmann Student Learning Styles Scale. This measure was administered to 100 deaf students. A teaching style scale was also given to their sixteen instructors who volunteered to participate in the investigation. The measures provided scores for each student and teacher in six different styles: dependent, independent, participative, avoidant, competitive, and collaborative.



Mary Lou Basile, co-investigator in a study of teaching and learning styles, instructs students in a Business Occupations course.

One of the most important findings in this study was that a participative learning style correlated significantly with course grades. Actively involving the students in the classroom is critical. The results of this study, too, were similar to those found in studies with hearing students using the same measure; like hearing students, deaf students rated themselves high on the participative and collaborative scales. "This reinforces our belief that teaching strategies which emphasize active learning experiences in the classroom will likely lead to better achievement," Mary Lou Basile summarized. "While we learn many new things from research, the studies also often verify what we believe from experience is important to effective teaching."

Communication in the Classroom

To address the highly ranked topic of communication competence in the classroom, three studies have been carried out or are now in progress. June Reeves, an assistant professor in the Center for Sign Language and Interpreter Education (CSLIE), is the principal investigator in one study. Reeves' study focuses on the design of a classroom observational process to help teachers identify their sign communication strengths and to identify and prioritize those areas in need of improvement. Her research team includes her colleague Barbara Ray Holcomb in CSLIE and William Newell and myself from NTID's Center for Research, Teaching and Learning.

June Reeves leads her research team studying an observational process for enhancing sign communication skills of classroom teachers. The team includes (seated left to right) Elissa Olsen, Barbara Ray Holcomb, Harry Lang, and Bill Newell.



In this study, teachers and students were interviewed about the features of signing in the classroom that are critical to conveying course content. Teachers are now helping to pilot the new observation process that resulted from these interviews. "Collaborating with colleagues in research," she explains, "has allowed me to apply my own knowledge and experience to develop a process that is reflective of the NTID classroom, is informed by students and instructors, and has a strong theoretical base."

Two other studies examined the factors that motivate or discourage 176 teachers and other professionals who are learning American Sign Language (ASL) as a second language. I conducted both investigations with researcher Susan Foster, Donna Gustina, coordinator of the Office of Communications Assessment Services, Gary Mowl, former chairperson of the CSLIE, and Yufang Liu, a graduate student from the University of Rochester (1996a). The first, a quantitative evaluation of two types of motivation and two types of attitude toward deaf people, revealed that proficiency in sign language correlated significantly with integrative motivation and cultural attitude, in particular. In our second study, a qualitative investigation (1996b), the critical incident technique was used to collect 742 recollections of factors that motivated and demotivated faculty and staff learning ASL as a second language. Here, a number of factors came into play: the integrative motivation identified in the first study, including a strong intrinsic motivation to be the best one can be on the job, a love for the language, professional advancement, and the expectations for proficiency established by the college of NTID.

Demotivating factors included three broad categories. First, to maintain positive motivation, adult learners need sign language teachers who collaborate with them in developing both teaching strategies and the sign curriculum. Second, sign courses often compete with other work-related responsibilities; there is a need for the college administrators to provide support for faculty and staff pursuing higher levels of sign communication proficiency. Third, there are many attitude factors that influence motivation, including fear of embarrassment, acceptance by deaf people, and frustration in not being able to learn as fast as one wants. These and many other factors emerging in this qualitative study provided some general themes that bear further investigation.

Organization and Structure in the Classroom

Several studies which will address the importance of structuring course content, communicating expectations, and clearly presenting course material will begin next year. These studies will again encourage collaboration among full-time teaching faculty and their colleagues in the Center for Research, Teaching and Learning.

Summary

The Teaching Research Program at NTID brings deaf and hearing professionals together not only to enhance teaching through systematic investigation, but also to provide opportunities for full-time teachers to be full partners in this search, ensuring a higher probability that teachers will sustain use of practices found successful through the investigations. As Hugh Anderson in NTID's Construction Technologies Department summarized, "I enjoyed the opportunity of working on this project because it gave me a better understanding of how research can be used to identify ways to improve instruction. More instructors should have an opportunity for this kind of collaboration.

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“The opportunity to participate as a member of the research team has provided me with new insights into the teaching/learning process. I have also enjoyed working with instructors from other areas of the college and look forward to continued participation in the Teaching Research Program.”

*-Professor Karen Conner
NTID Business Occupations Department*

Visual Cognition in Deaf People

by Ila Parasnis



*Ila Parasnis' primary research interests are in the areas of visual perception, visual learning and memory, bilingualism-biculturalism, and deaf education. Her research goals are to find effective teaching and learning strategies that incorporate the use of visual modality and the use of a visual-spatial language, and to find out how the bilingual-bicultural developmental experiences of deaf learners influence their educational achievements. In addition to her numerous research presentations, Parasnis has edited **Cultural and Language Diversity and the Deaf Experience**, to be published by Cambridge University Press in May, 1996.*

This article summarizes research studies which have investigated whether deafness and knowledge of a sign language influence visual cognition in deaf people.

Profoundly deaf people rely primarily on their eyes when they develop skills and use American Sign Language (ASL), when they read and write in English, or when they speechread others. Hearing people, on the other hand, primarily rely on hearing and speech to develop and use language skills. It is well known that visual skills are highly valued within the Deaf culture. But do deaf people have better visual skills than hearing people? Can they pay attention to what they see better than hearing people?

My research on visual cognition in deaf people has revolved around these questions. In two reviews of the research literature (1983a and 1983b), I reported that deaf people have a higher incidence of vision problems, including retinitis pigmentosa (RP) which eventually leads to blindness, than hearing people. As for visual perception, the results of the studies were mixed and supported neither the classic "perceptual compensation" hypothesis nor the classic "perceptual deficit" hypothesis, both of which assume that if one sense is impaired, the general functioning of the other sense is affected. This suggests that there may not be any general differences in the visual abilities of deaf and hearing people, but, rather, specific perceptual strategy differences may exist.

Evidence for a strategy difference has been found in two studies (1979 and 1983c) which showed that deaf people may develop a "global strategy," that is, a strategy to see the whole pattern when they view visual information, and that this strategy might be more common for deaf women. Furthermore,

Vincent J. Samar, associate professor at NTID, and I suggested that strategy differences would be found in the ways in which deaf and hearing people control and direct their visual attention (1982). A later study revealed that deaf fluent signers were better than hearing non-signers in their visual attentional control when they shifted their attention from one side of a computer screen to the other while ignoring visual information present in the middle of the screen (1985). This research suggests that both deafness and the use of a visual-spatial language, such as ASL, might influence how deaf people attend to visual information and remember it.

Interestingly, one study demonstrated that deaf fluent signers who were good readers were not different from deaf poor readers in controlling their visual attention (1992), although a positive relationship between visual attention control and reading skills has been reported for hearing readers. In another study with deaf and hearing fluent signers (1993), subjects judged in a computer controlled task whether the second word of a pair correctly named the color of the ink in which the first word was written. For example, when the word "red," printed in green ink, was presented, and the next word was "green," a correct match, the subjects pressed a "yes" key. If the next word was "red," an incorrect match, the subjects pressed a "no" key. Deaf signers were better than hearing signers in attending to the color in which a word was written while ignoring what the word said. These results confirmed the existence of attentional control differences even when both deaf and hearing groups were fluent signers. Importantly, reading skills were not related to attentional control in the deaf group.

"Deafness, by itself, may not lead to the development of different visual skills in deaf people. Deafness may need to be combined with the knowledge and use of a sign language."

Recently, Samar, Jeff Bettger of Salk Institute, Kamala Sathe of Pune, India, and I tested deaf and hearing children in India on a number of visual perceptual and memory tests (in press). These deaf children were not systematically exposed to any sign language, according to their self reports and their parents and teachers. No significant group differences were found on any of the tests, including those on which differences have been previously reported between deaf signers and hearing non-signers. Our results suggest that deafness, by itself, may not lead to the development of different visual skills in deaf people. Deafness may need to be combined with the knowledge and use of a sign language.

My studies have shown that deaf people have better attentional control than hearing people and use different strategies in coding and remembering visual information. This research suggests that in designing and presenting curriculum to deaf students in the classroom, teachers should use visual organizational principles and rely on the use of visual attentional cues and visual aids. Multimedia displays could include visual information in the periphery to a greater extent than is appropriate for hearing students, and could use a panoramic view of the visual information to be presented. Finally, curricula and multimedia materials that encourage deaf students to rely on their visual imagery and visual memory may be particularly effective.

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Notes of Note

The CRTL Web site incorporates more than 200 documents, photos and images, including department and individual home pages, addresses, telephone numbers, e-mail addresses, and photos of each CRTL member. The center's mission statement, POW:2000 (Plan of Work toward the year 2000), list of faculty/staff publications (*NTID Papers & Publications 1996*), the center newsletter and *NTID Research Bulletin* archives, and services are also included at <http://www.rit.edu/~490www>.

The 1996 edition of *NTID Papers & Publications* covers research in cognition; communication and language; culture; educational issues; post-secondary education and employment; reading, writing and speech; social processes; and technology and classroom applications. The final section covers recent books and media by NTID faculty. Copies of it, as well as the publications mentioned in this issue of the Bulletin are available by contacting **Gail Kovalik** at NTID, 585 475-5343 (V/TTY), e-mail glk9638@rit.edu.

William Newell, associate professor in the Department of Applied Language and Cognition Research, is working with the American Sign Language Teachers Association, a section of the National Association of the Deaf, to revise content and procedures used in NAD's national certification system for teachers of ASL. The committee will present its recommendations to the Executive Board of ASLTA at its biennial convention in July. For more information, contact Newell at 585 475-6275 (V/TTY), e-mail wjnncd@rit.edu.

CRTL's first visiting scholar, **Norm Coombs**, is exploring how distance learning can be made more accessible and friendly to deaf students. Coombs has created a web page on the Internet to display the progress of this project, at <http://www.rit.edu/~nrcgsh/distance.html>. For interactive sharing, readers can participate in a listserv discussion by sending e-mail to listserv@sjvm.stjohns.edu with one line of text saying: sub alliance "first name last name." Coombs can be contacted directly at 585 475-2462 (V), e-mail nrcgsh@rit.edu.

In response to requests from NTID program administrators for information regarding the perceptions of deaf minority students about the quality of their college experience, Susan Foster, associate professor in the Department of Educational and Career Research, and **Waithera Kinuthia**, visiting instructor in the Department of English, undertook three studies to explore the special needs of deaf racial and ethnic minority students. These studies focused on pre-college experiences, experiences at RIT/NTID, and recommendations regarding improvement of campus life for minority deaf persons. Foster can be contacted at 585 475-6137 (V/TTY) or e-mail sbfnis@rit.edu.

The second in a series of articles on speech during simultaneous communication ("Voice onset time in speech produced during simultaneous communication"), based on a research program headed by **Robert Whitehead**, professor in the Department of Applied Language and Cognition Research, will appear in the April 1996 issue of the *Journal of Speech and Hearing Research*. The first article, "Temporal characteristics of speech in simultaneous communication" was published in the October issue of the same journal. Two additional manuscripts pertaining to perceptual features of speech produced in conjunction with simultaneous communication will be published in the near future. Whitehead can be reached at 585 475-6457, e-mail rwwncr@rit.edu.

Janet MacLeod-Gallinger and **Susan Foster**, of the Department of Educational and Career Research at NTID, are currently studying the characteristics and circumstances of NTID alumni who have become supervisors or managers in the course of their employment. The focus of the study is on deaf supervisors working in environments that are not staffed by or serving primarily deaf people. The results of the study will be used to develop educational curricula and programs designed to enhance opportunities for deaf people to move into supervisory or management positions in their places of employment. Potential audiences for in-service training and continuing education include deaf people, their employers and co-workers. MacLeod-Gallinger can be contacted at 585 475-5222, e-mail jem4496@rit.edu.

A videotape to inform ASL teachers regarding the American Sign Language Teachers Association's Evaluation and Certification System is being produced by **William Newell**, Department of Applied Language and Cognition, and **Keith Cagle**, former NTID instructor of ASL and currently Director of the Mid-Western Regional Resource Center for the Deaf and Hard of Hearing in Morganton, NC. The videotape is being produced by DawnSignPress, and is projected for release to coincide with the NAD biennial convention and meeting of ASLTA in July 1996. Newell can be contacted at 585 475-6275 (V/TTY), e-mail wjnncd@rit.edu.

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Opinions expressed in the *NTID Research Bulletin* do not reflect those of NTID or RIT. Your comments, questions, and requests for more information are welcome. Address them to *NTID Research Bulletin*, c/o Gail Kovalik, NTID, 52 Lomb Memorial Drive, Rochester, NY 14623-5604, 585 475-5343 (V/TTY), Fax: 585 475- 6500, e-mail glk9638@rit.edu.

If you wish to be placed on the mailing list for the print version of the *NTID Research Bulletin*, or if you know of colleagues who would enjoy receiving the *NTID Research Bulletin*, please send names and addresses to Gail Kovalik, NTID at RIT, 52 Lomb Memorial Drive, Rochester, NY 14623-5604.

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