The Importance of Direct Communication During Continuing Education Workshops for Deaf and Hard-of-Hearing Professionals

Gary L. Long, Ph.D.
Donald H. Beil, M.S.
National Technical Institute for the Deaf
Rochester Institute of Technology

Abstract

The Deaf Initiative in Information Technology (DIIT) was developed at the National Technical Institute for the Deaf (NTID) at the Rochester Institute of Technology through a National Science Foundation (NSF) grant with goals including the provision of continuing education for deaf and hard-of-hearing professionals. Instructors skilled in sign language delivered 21 technology-focused workshops to 145 professionals over the initial 3-year grant period. (The project has been funded by the NSF for an additional 3-year period.) Qualitative and quantitative measures were used to evaluate the workshops and obtain participants' perceptions. Findings indicate that deaf and hard-of-hearing professionals often experience frustration and report difficulties comprehending content material when attending traditional, lecture-focused workshops supported by sign language interpreters. These findings are contrasted to successful DIIT workshops where participants were able to communicate easily with the instructor and other attendees without the use of interpreters.

A primary goal of the Deaf Initiative in Information Technology (DIIT) project was to provide continuing education opportunities for deaf and hard-of-hearing professionals. In the course of evaluating the DIIT program, participants consistently compared this workshop experience to prior training they received through their employers. These participants indicated that the pace of instruction and communication barriers in company-provided training often precluded their active participation and impacted negatively on their ability to comprehend and master the content material. Often they felt isolated from the instructor and their hearing peers, which in turn had a negative impact on their active engagement with the material and its mastery. This report examines the extent to which challenges faced by the deaf and hard-of-hearing learners in secondary and post-secondary mainstream settings continue into post-graduate and continuing education settings.

In a small qualitative study of deaf and hard-of-hearing students new to a mainstream college setting, Kersting (1997) found that these students often felt lonely and isolated due to rejection from deaf peers and discrimination from hearing peers. Alienation from their deaf peers was related to a lack of sign skills, while the discrimination from hearing peers tended to be a result of physical factors on campus and stereotyping of deaf students. This social prejudice was seen by the deaf students as limiting the social interaction between deaf and hearing students in this educational setting.

In another study, deaf, hard-of-hearing, and hearing college students were found to have similar perceptions of communication ease and academic engagement (Foster, Long, & Snell, 1999). Both groups felt that participation in class and understanding of class material was central to their feeling a part of the class. Both said that the instructor's pace influenced their understanding of the material and their ease of communication in the classroom. While both groups agreed on what was important for learning, they differed on how these variables played out in the classroom. Both said the pace of instruction was important for learning, but deaf and hard-of-hearing students reported that teacher's pace was optimal for learning less frequently than hearing students did. Similarly, while both agreed that participation was important for feeling a part of the class, deaf and hard-of-hearing students expressed this sentiment less frequently than did hearing students. We believe that this constraint was imposed because the deaf and hard-of-hearing students utilized indirect communication (i.e., communicating through an interpreter), while the hearing students were able to communicate directly with the instructor and their hearing peers.

A series of studies conducted at the National Technical Institute for the Deaf (NTID) focused on the cognitive and affective dimensions of classroom communication and engagement. In this vein, we found that as deaf and hard-of-hearing students feel more at ease with their communication with teachers and peers, they see themselves as having control in the educational setting and are more likely to become engaged, active learners (Braeges, Stinson & Long, 1993; Garrison, Long & Stinson, 1993; Long, Stinson & Braeges, 1991). When the communication breaks down, students were less likely to become engaged, active learners.

With this study, we sought to determine whether parallels exist between our findings related to college students and the experiences of deaf and hard-of-hearing adults in the workplace who obtain additional training. We also examine the differences between two types of training obtained by deaf and hard-of-hearing adults in the workplace: (a) training obtained through traditional instruction offered in hearing environments with an interpreter, and (b) training offered by the DIIT project with workshop leaders skilled in sign language and in teaching deaf and hard-of-hearing individuals.

Deaf Initiative in Information Technology program description

The Deaf Initiative in Information Technology is a technical workforce development project funded continuously by the National Science Foundation (NSF) since 2000. The project is housed in the Applied Computer Technology Department (ACT) of the National Technical Institute for the Deaf, one of the eight colleges of Rochester Institute of Technology (RIT). A major goal of the national DIIT project is technical workforce development of deaf and hard-of-hearing professionals currently in the workforce or preparing to enter the workforce. Other project goals include curriculum revision and faculty development. Weeklong workshops are offered on a variety of technical topics to meet these goals.

When deaf and hard-of-hearing adults attend a traditional computer workshop offered to the general population, they usually do so with the assistance of sign language interpreters. However, the transfer of information from hearing workshop leaders (i.e., those who do not know sign language) through interpreters is a major concern to deaf and hard-of-hearing individuals who attend professional workshops or seminars. For even with skilled interpreters, problems remain:

1. There is always lag time between what is spoken and what is interpreted to a deaf or hard-of-hearing individual. If the deaf or hard-of-hearing person has a question about the message, he or she must stop the interpreter, who continues to receive and interpret additional information, ask his or her question, have the interpreter stop the lecturer to ask the question, and then watch as the answer goes back through the same route. This can be disruptive and can frequently leave all parties frustrated.

2. Learning at workshops takes place not only during the formal lecture, but also during breaks, as well as in social activities, small group activities, etc. Individuals who are deaf or hard-of-hearing may be without interpreting support for these times, or if interpreting support is available it may be awkward, and thus deaf or hard-of-hearing individuals may be effectively shut out of these activities.

In contrast, in the DIIT project, since all workshop leaders and attendees know sign language, there is direct communication between all participants and the workshop leader, as well as between all participants.

Since all of our workshops are designed and taught by experienced teachers of deaf and hard-of-hearing people and only attended by deaf and hard-of-hearing people, there are significant enhanced learning opportunities for participants.

Method

Evaluation components

A 3-part evaluation procedure was developed for the workshops and conducted on the last day of each 5-day-long workshop. Each evaluation was conducted by the first author (i.e., the project evaluation consultant), and took between 2 and 3 hours depending on the number of participants. Each procedure is described below:

1. The NTID Student Rating Survey (SRS). The NTID SRS computerized worksheet is the formal evaluation system in use by all faculty at NTID to obtain classroom perceptions from our full-time undergraduate students (McKee & Dowaliby, 1981; 1985). It has two sections, a "Summative Questions" section containing 4 standardized statements (e.g., "I am satisfied with this instructor's teaching skill," and "I am satisfied with this instructor's communication skill") asked of all students for all classes. Students are asked to rate their agreement with the statements on a 5-point Likert scale.

This instrument provides a strong baseline for assessment, since a workshop can be compared to an ex-

tremely large number of similar courses taught at NTID/RIT. Similar courses are those in which at least 75% of the students are motivated to learn the course materials, and the course focuses on content acquisition. The summative questions report section produces a one-page graphical analysis showing the means, standard deviations, and proportions of students responding to each of the 4 summative questions. That analysis provides a single graphical comparison of the feedback from a workshop compared with student feedback recorded from more than 7,000 NTID students in the daytime courses offered.

The second section of the SRS contains teacher-selected questions—formative items—with items chosen from a large bank of available questions. Authors selected 20 questions to evaluate DIIT workshops (e.g., "There was a good feeling in the classroom between the instructor and the students," and "I would tell my friends to take this course"), and have been used consistently for all workshops offered.

2. *Open-ended questionnaire*. The second instrument consists of a word processing file with approximately 20 open-ended questions developed by the authors. This instrument obtains attendee responses in their own words on items that are specific to the workshop. Examples of questions are, "How could the workshop be improved?" and "Did you come to the workshop with the right technical skills to be successful in this workshop?"

During the evaluation, we provide each attendee with a disk containing the word processing file with these questions. Each attendee, working at a computer, is asked to open the file and take as much time as needed to type answers to the questions. Their responses are used along with other data in preparing the formal written summary evaluation of each workshop. In addition, the complete survey with all anonymous responses is included in each evaluation report.

3. *Group interview*. The third evaluation procedure is a group interview conducted with attendees by the project evaluation consultant. The interview elicits additional information that might not have been provided by the other two evaluation instruments. Multiple issues are raised by the consultant researcher, ranging from "How difficult was it for you to receive support to participate in this workshop?" to "Does taking this workshop with other deaf participants provide an advantage to you?"

As participants signed their responses, one of two interpreters present voiced the comments into an audio recorder. The taped interview is later transcribed and then used in preparing the written evaluation of the workshop. It is included in the evaluation document.

Participants

A total of 145 deaf and hard-of-hearing professionals participated in the 21 workshops offered during the first 3 years of the DIIT project. Seventy-one percent of the attendees were male and 29% were female. The participants were from 21 states with 46 from New York, Virginia (18), New Jersey (13), and Maryland (12) having the greatest representation. Thirty-three percent of the attendees were employed in the government, 27% were in education, and 23% had business careers. The remaining 17% of the participants were either unemployed, self-employed, working in not-for-profits, retired, or had unknown employment.

Results

Ratings

Two of the DIIT workshops were presented as part of a biannual technology symposium and were not rated by participants. The resulting participant ratings (n=130) for the remaining 19 workshops on the summative items for the Student Rating Survey are presented in Table 1. It presents mean ratings by item for a comparison group of over 7,000 students who were enrolled in similar courses at NTID plus the grand means for the 19 DIIT workshops that were evaluated using the SRS instrument. Our goal was to examine the level of satisfaction of the adult participants with the DIIT workshops and determine if their satisfaction was comparable to that of students enrolled in NTID classes.

The mean ratings given by the DIIT workshop participants were consistently higher for each item than the ratings given by NTID students. Since all the DIIT average ratings were in the "Strongly Agree/Agree" range, overall, workshop participants were very satisfied with the teaching and communication skills of their instructors.

What is of even more interest is what participants said about the DIIT continuing education experience when compared to more traditional workshops they attended. The next section presents the results of the interview and open-ended questions that bear on the communication process.

Table 1
Summary of Instructor Ratings by DIIT Workshop Participants and by Students in NTID Courses

	I am satisfied with this instructor's teaching skill.*	I am satisfied with this instructor's communication skill.*	I learned a lot from this instructor.*	I would recommend this instructor to other students.*
Comparison Group of NTID Students (n = 7,000+)	4.35	4.36	4.30	4.24
Grand Means for DIIT/NSF workshop attendees (n = 130)	4.74	4.73	4.67	4.62
*NOTE: Likert scale: 5 = Strongly Agree; 4 = Agree; 3 = No opinion; 2 = Disagree; 1 = Strongly Disagree				

Qualitative findings

In an effort to clearly describe their perceptions of the DIIT direct instruction workshop experience, participants often described their prior experiences with indirect instruction. Indirect instruction occurs when a hearing instructor uses an interpreter to communicate the course information to deaf and hard-of-hearing individuals. Because the interpreter needs to translate the information, this creates a processing lag between the time the information is presented by the instructor and the time it is received by the participant. This lag and the need for the information to pass through a third party can have an impact on the communication and learning process. Most of the 130 participants interviewed had prior continuing education experiences through industry or government employers who provided indirect instruction.

The indirect instruction format often left deaf and hard-of-hearing participants feeling out of the loop or lagging so far behind the presentation that they did not feel comfortable asking questions, whereas in the direct instruction DIIT workshops, participants felt comfortable asking questions. Quotes from RIT workshop attendees illustrate these findings:

> "Sometimes in a hearing class you are afraid to ask questions because you may feel stupid. But here I can ask any question without any kind of apprehension because I am myself. I am comfortable here."

"Sometimes when you are working with an interpreter, the interpreter doesn't quite understand what is going on and can't quite keep up with the instructor. There can be some mishaps in the communication process. And, that is only natural because you are bringing this third person into what should be a one-to-one communication process. You're bringing in a third person, making a triangle. So, this one-to-one direct access (in the DIIT workshop) is wonderful. Very wonderful."

"With the deaf (DIIT) workshop I don't have any fear about asking a question at anytime. I feel free to interrupt. I feel free to just ask what I need to. But, with a hearing class, if I have a question, I don't know if somebody else has asked about it. I feel stupid if I have asked the same question. Hey, we already asked that! I feel like I am going to just kind of look stupid or a little bit embarrassed. But, in this situation I had none of these problems and I was able to ask questions without any fear."

"[In the DIIT workshop] it was easier to understand, and I could communicate directly with the teacher instead of having to go through an interpreter and hope the interpreter could relay the message accurately both ways."

A number of the participants mentioned that with indirect instruction, the attention that is required when constantly obtaining all the information through the eyes leads to feelings of stress and fatigue. Constantly needing to shift attention between the instructor, the interpreter, a PowerPoint presentation, the attendee's computer screen, and other media, also contributed to increased feelings of stress and fatigue. Participants felt that the flow of communication was better handled in the DIIT workshops, with the instructor taking an active role in directing the attention of attendees.

> "It was great sitting and watching a professor sign compared to going to a hearing workshop that I have been to twice a year. And I have to watch the interpreter all day. I get home, and my eyes hurt. There is so much information. It is so much to take in. It was great to be able to sit here and relax and take everything in and talk about the workshop instead of being all by myself with a bunch of hearing people, I felt isolated. This is great—a real deaf classroom. It was great."

> "With an interpreter you have to decide if you are going to look at the interpreter or the computer screen, and you can't watch the media and the examples and the interpreter all at the same time. But, the DIIT instructor can keep everything within the same peripheral field of vision so you can see what they are signing. You can see what is happening on the screen. You can see when they move the mouse, all at the same time. And, they can coordinate all that."

> "I didn't have to strain myself to watch an interpreter or do whatever. It was our natural language happening in its natural pace and with all of its cultural comfort, and I think it was really good to be able to socialize with people at the same time."

> "…if you have an interpreter you look at the screen and you miss what the interpreter says. You see the interpreter but you can't see what the screen says. So, it gets very confusing. [Here] you don't have to stare at the interpreter all day. We get natural breaks and we can talk and we can look."

Many participants discussed their reluctance to join indirect instructional settings because the information they received was lagging behind the instructor and because they were not confident they would be understood correctly by the interpreter or correctly represented to the teacher and the class by the interpreter. This reluctance to participate in indirect instructional settings is often associated with feelings of isolation and loneliness. Because participants were not free to interact with instructors and peers in a related manner, they got less out of the instruction and the informal interactions that occurred with peers.

> "In other workshops I go to, everybody is hearing. You know I can talk with the interpreter, but I don't have any interaction with the other professionals or the teacher."

> "In hearing workshops, I have a partner and they are afraid to communicate with me, so I feel really alone and you only have an interpreter and can't depend on the interpreter for technical information. And so here (in the DIIT workshop) there was interaction among us that was wonderful."

> "I think with hearing groups you are intimidated . . . no offense to the interpreters but, sometimes I can't get my point across. They don't understand. So, I think this interaction with us is really helpful because we have questions and we can bounce information off of each other. You can ask me questions and then we can learn more from each other."

> "The communication mode, ASL,(American Sign Language) simply makes a difference. In other training that I had it was somewhat difficult since the interpreter was required. I usually was the only deaf person in the group of hearing. I felt I was alone in the crowd. Not able to exchange the work experience along with the colleagues."

> "It was great to be able to sit here and relax and take everything in and talk about the workshop instead of being all by myself with a bunch of hearing people, I feel isolated. This (DIIT) is great. A real deaf classroom."

The added benefit of being able to interact and share content and informal information with deaf peers was one of the greatest benefits of the DIIT direct instruction format. It appears that these adult learners were more actively engaged in learning with this direct instruction format. The following comments relate to the ease of communication that was experienced in the direct instructional setting of DIIT.

"This workshop was good to bring people together because each of us had strengths and weaknesses and we could support one another. So that was a really good experience. I learned a lot from the other people in the group and I was able to teach them some of my stuff. So it was really good."

"I attended many workshops in my lifetime, but this technical workshop was much different, obviously we can communicate with each other, share our knowledge or experience and express what we know instantly."

"It's great to have an information technology workshop for hearing impaired and deaf professionals. The social environment is also great since you have your peers to communicate with."

"I was able to fully participate in the class through questions and discussions and interact with other deaf and hard-of-hearing students. This doesn't often happen in a class with a hearing instructor. Communicating in sign language permitted me to fully participate in the class."

The most compelling aspect of comparing the direct and indirect instructional formats for these deaf or hard-of-hearing professionals was the extent to which prior indirect instructional experiences had led them to question their own competence and their ability to learn information technology content. As one participant said:

"It felt a lot easier here (at the DIIT Workshop). And, often when you are in deaf/hearing group you know the deaf people end up feeling somewhat less than the other participants."

Prior research with students who are deaf and hard-of-hearing in secondary and postsecondary settings suggests the importance of access to communication for active participation in classroom learning. When deaf and hard-of-hearing students are denied equal access to communication with teachers and peers, they ask fewer questions, do not feel confident about their understanding of the material, and do not feel a part of the class setting. The communication barrier that exists with indirect instruction can lead to feelings of isolation and loneliness on the part of these students.

This study found parallels in continuing education settings where adult participants who are deaf or hard-of-hearing participate in training provided by their employers. These individuals reported difficulty with the pace of instruction and the ease of communication in these indirect communication settings.

These reports of isolation and feeling like "second-class citizens" in indirect instruction settings were contrasted with the ease of interaction and communication with the instructor and peers in the DIIT direct instruction workshops. With a teacher who signs and is sensitive to the pace of instruction required, participants felt free to ask questions and were engaged, active learners. Since their fellow participants also signed, they learned from each other and took pride in their abilities to explain concepts to their peers. This ease of communication led to sharing of information at lunch, during breaks, and in the evening. Instead of being isolated and on their own, as occurred when all communication required an interpreter, the DIIT workshop attendees shared work experiences as well as stories about what it is like to work at their place of employment and how they have learned to be successful in the "hearing world."

The DIIT program was successful in providing technical, continuing education training to adult professionals who are deaf or hard-of-hearing. The most important accomplishment of this program may be its ability to reaffirm to these adults that they can master technical information given a learning environment that provides direct access to the instructor and fellow participants.

References

Braeges, J., Stinson, M., & Long, G. (1993). Teachers and deaf students' perceptions of communication ease and engagement. *Rehabilitation Psychology, 38*, 235–247.

Kersting, S. (1997). Balancing between deaf and hearing worlds: Reflections of mainstreamed college students on relationships and social interaction. *Journal of Deaf Studies and Deaf Education, 2*(4), 252–263.

Foster, S., Long, G., & Snell, K. (1999). Inclusive instruction and learning for deaf students in postsecondary education. *Journal of Deaf Studies and Deaf Education, 4*(3) 225–235.

Garrison, W., Long, G., & Stinson, M. (1993). The classroom communication ease scale. *American Annals of the Deaf, 138*, 132–140.

Long, G., Stinson, M., & Braeges, J. (1991). Students' perceptions of communication ease and engagement: How they relate to academic success. *American Annals of the Deaf, 136,* 414–421.

McKee, B. G., & Dowaliby, F. J. (1981). The dimensions used by hearing-impaired students to make judgments of instructors and courses: A factor analytic study. *Journal of Rehabilitation of the Deaf, 14,* 16–23.

McKee, B. G., & Dowaliby, F. J. (1985). The relationship between student, course, and instructor characteristics and hearing-impaired students' ratings of instruction. *The Volta Review, 87,* 77–86.

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