

NTID RESEARCH BULLETIN

Department of Research • National Technical Institute for the Deaf • Rochester Institute of Technology

Vol.8 No.3 Spring 2003



Sara Schley is an assistant professor in the Department of Research at NTID.



John Albertini is a professor in the Department of Research at NTID.

Writing Assessment: Tools for Teachers and Writers

By Sara Schley and John Albertini

As educators and researchers, we give writing tests to measure achievement, to place students in appropriate courses, and to diagnose strengths and weaknesses. Whatever their purpose, students rarely make a connection between writing tests and learning how to write well. Indeed many instructors view testing—especially “high stakes” testing—as an impediment to meaningful, effective instruction. The terms grades, tests, and assessment are so often used interchangeably that many in the profession believe “that assessing student writing somehow interferes with our ability to teach it” (Huot, 2002, p.163). In this report we describe recent research on a writing test used with deaf college students and suggest ways in which this test may connect to the teaching, or better yet, learning of writing.

The assessment of writing

In the US in the 1960’s, the best predictor of teachers’ ratings of writing quality was grammatical correctness (Stuckless & Marks, 1966). Formal assessment of deaf students’ writing followed a writing curriculum that focused almost exclusively on the production of grammatically correct sentences and the choice of appropriate vocabulary (Albertini & Schley, 2003). However, as the teaching of writing expanded beyond a focus on sentence-level grammatical correctness, so too did the scope of what was assessed. Current tests, depending on their purpose, may also include content and such rhetorical attributes as focus, voice, and organization.

Today, writing skill is most often assessed in one of three ways: directly, as in essay tests; indirectly, as in multiple-choice tests; or longitudinally, as in portfolios. In essay tests a sample of writing is elicited and scored according to pre-established criteria. In multiple-choice tests, students are asked to select among grammatical and stylistic alternatives. In portfolio assessments, a collection of writing samples from a term or school year are rated and also assessed descriptively. The selection of appropriate assessment method depends on a range of factors, not least among which are considerations of fairness for students who are deaf or hard of hearing, and of the accountability of educational programs that certify these students. These issues are at the heart of educators’ concerns about high stakes testing and deaf students. The possibility exists that under increased pressure to show gains on standardized tests across school districts, standards of validity and reliability for special populations will be overlooked or compromised.

With an increase in the number of deaf students entering postsecondary institutions in the United States, indirect multiple-choice tests (for example, The Written English Expression Placement Test, 1985) are frequently used for placement in reading and writing courses. Is this a fair and appropriate choice, given that such tests target skills known to be difficult for deaf students: the recognition of writing conventions and correct usage? Also, the tests involve significant amounts of reading (Berent et al., 1996) Another approach and one that has been used for several years at NTID to place students in developmental writing courses is a holistic rating of

Writing Assessment continued on page 3

Notes of Note

C-Print project members from the Department of Research, **Michael Stinson**, **Pamela Francis**, and **Gina Coyne**, made three invited presentations in Washington, DC, in September. The first two, on the C-Print speech-to-text system for support of communication access and learning, were to staff at the Office of Special Education and Rehabilitative Services (OSERS) and at the OSERS Technology Project Director’s Conference. The presentations

included demonstration of the recently developed C-Print® *Pro* user interface software. This specialized software produces real-time text through automatic speech recognition and/or a computerized keyboard-based abbreviation system. The software has computer networking capabilities and displays for the captionist (host) and student (client) computers, enabling students to participate in class discussion, to highlight the text produced by the captionist, and to

Notes of Note continued on page 3



Kathryn Schmitz is an assistant professor in the English Department at NTID.



Elizabeth O'Brien is a professor in the English Department at NTID.

[For this issue of the *NTID Research Bulletin*, we've asked Kathryn Schmitz and Elizabeth O'Brien, both of the NTID English Department, to comment on the two articles. Faculty in the NTID English Department who have been trained to score the NTID Writing Test are listed on p. 8 of this issue. Ed.]

Comments on "Writing Assessment: Tools for Teachers and Writers"

Kathryn L. Schmitz, Assistant Professor

Standardized tests have long been famous for not always fairly and accurately measuring the performance of students who are disadvantaged in some way, including deaf students. Using a writing sample and scoring it holistically is fairer than a standardized test because such a method is a direct measure of a student's writing skills. An indirect test like the ACT is not as appropriate for placing our students in writing courses, as this research study shows.

My view of the NTID Writing Test as a placement test is that students benefit from the experience, because the scorers are also English teachers. The strong inter-rater reliability revealed by this research study reflects positively on the test scoring system and results in few inappropriate placements of students. In the cases where students were placed inappropriately, my experience is that the students were tired the day they took the test and simply didn't write as well as they ordinarily might have, which is not necessarily a failure of the test itself.

Comments on "Speech Produced During Simultaneous Communication: Research Update"

Elizabeth H. O'Brien, Professor

From my perspective as a Simultaneous Communication (SC) practitioner, Dr. Whitehead's research is meaningful for teachers who utilize SC with deaf and hard-of-hearing students in the classroom. Several findings in particular struck me:

- Elongated speech parameters occur when longer fingerspelled words and/or elaborated signs are used.
- Speech naturalness decreases markedly when the length of the fingerspelling task increases.
- The speaker needs to alter the pace and complexity of fingerspelling and sign tasks to lessen speech disruption. Also, the speaker needs to use age-appropriate vocabulary with young children.

Dr. Whitehead's several studies concluded that even though an elongated temporal speech pattern occurs in SC, the speech pattern that results does not dramatically alter temporal and/or prosodic rules of spoken English. These findings confirm my experience of 38 years that many deaf and hard-of-hearing students do understand and benefit from the teacher using speech.

Rapid advances in hearing aid technology and cochlear implants have produced a generation of deaf and hard-of-hearing students at NTID who rely on and require speech as an integral part of classroom instruction. Further research should be conducted to analyze direct classroom instruction in SC to determine what information instructors who are proficient users of SC are conveying to students.

NTID RESEARCH BULLETIN

The *NTID Research Bulletin* is published three times per year by the Department of Research, National Technical Institute for the Deaf, a college of Rochester Institute of Technology. It is available without charge.

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. See following address.

If you wish a copy of the latest issue of

NTID Papers & Publications or if you know of colleagues who would enjoy receiving the *NTID Research Bulletin*, please send names and addresses to:

NTID Research Bulletin, Building 60-2847
52 Lomb Memorial Drive
Rochester, NY 14623-5604
Fax: 716-475-6500, E-mail: ASKCTRL@RIT.EDU

John Albertini, Chair, Department of Research
Gail Hyde, Editor

Sara Schley's background includes extensive research in areas of ASL and English language use across a variety of contexts, longitudinal development of educational success, and bilingual deaf education. She has taught language and literacy courses in graduate Deaf Education programs for six years, and currently is spending a lot of time figuring out how to effectively

integrate online resources into course teaching. Since arriving at NTID two years ago, a major focus of her work has been on inter-rater reliability of measures of both written English skill and signing proficiency. Schley has just received an RIT Online Learning Teaching Award for her course Psychology/Sociology of Adolescence. For more information, she can be contacted at SXSDOR@RIT.EDU.

Writing Assessment continued from page 1

a short essay. Two concerns surround this type of assessment: the validity of a holistic measurement and the reliability of ratings across a pool of raters.

Development of a writing test

The NTID Writing Test was developed by a team of English faculty and first administered experimentally in 1985. The team reviewed holistic rating procedures and pre-tested three that were designed to assess the writing of deaf students and hearing students of English as a Second Language who wanted to begin college level academic work. Because raters' standards may shift from paper to paper in a purely holistic procedure (Perkins, 1983), the team settled on a "modified holistic procedure" similar to that described by Jacobs and colleagues (1981). From 1986 to 1997, the test was administered annually to students entering NTID and the results used for advising and research purposes. Studies of test-retest and inter-rater reliability were conducted, as well as investigations of external, concurrent, and predictive validity (Albertini et al., 1986, 1996; Bochner, et al., 1992; Shannon, 1987).

In 1997, the college adopted the test to place entering students into a new writing course sequence. Subsequently, the test prompt was modified, and significant turnover in the pool of trained raters occurred. To determine the reliability of scoring across the new pool of raters and hence the reliability of placement in writing courses, new analyses of inter-rater reliability were conducted. To determine whether the effort and resources expended on rating samples of writing were still

warranted, we compared the validity of this direct measure to a standardized multiple choice measure of writing ability (the ACT which is used for admission to the college).

The sample

In the fall of 2001 the NTID Writing Test was administered to 237 entering students. These students varied in age from 17 to 49 – four were over the age of 30, and the median age was 19 years. They had an average hearing loss of 100db in both left and right ears (s.d.=17db). The test was administered on campus during the two-week student orientation program, at which time students investigate program and degree options and take a battery of placement tests. For writing, students are given thirty minutes to respond to the following prompt: "You are in a new place. Write an essay on your opinions of NTID and the people here. Give reasons and examples."

Three instructors trained in the scoring procedure read each essay independently and assigned ratings from 1 to 100, with 25 points assigned to each of four categories: organization, content, language and vocabulary. Students are placed in writing courses based on an average of the three ratings.

Inter-rater reliability

Inter-rater reliability means a high degree of consistency among the raters. To arrive at a solid estimate of inter-rater reliability, we used several tools. Using Pearson correlation coefficients to evaluate the association between each pairing of raters, we found that all correlations were strong

Writing Assessment continued on page 4

The NTID Writing Test was developed by a team of English faculty and first administered experimentally in 1985.... In 1997, the college adopted the test to place entering students into a new writing course sequence.... [This study] compares the validity of this direct measure to a standardized multiple choice measure of writing ability....

Notes of Note continued from page 1

easily take their own notes. Stinson gave the third presentation, "Emerging Technologies: Speech Recognition," at the OSERS Technology Project Director's Conference.

Papers by Donald Beil, professor in Applied Computer Technology (ACT), and **Gary Long** that reported on the Deaf Initiative in Information Technology, a National Science Foundation project at NTID/RIT [see *NTID Research Bulletin*, Fall 2002.

Ed.], were presented at two conferences recently. "Impact on Inservice Teacher Education and Faculty Professional Development of 'Leaves of Absence for Workshop' Swaps" was presented at the Society for Information Technology and Teacher Education International Conference (SITE) on March 27, 2003. "Three Goals—Faculty Development, Adult Workshops, Curriculum

Notes of Note continued on page 5

A language teacher and researcher, John Albertini has set up a writing lab and taught English language courses to NTID undergraduate students. He has taught language and literacy development to veteran teachers and to students preparing to be secondary school teachers. His current research focuses on literacy and how deaf students become accomplished readers and writers. For more information, he can be contacted at JAANCR@RIT.EDU.

Writing Assessment continued from page 3

and positive (all above .81, and several above .90). From this, we can tell that there is a high degree of consistency among the raters.

Intraclass correlation coefficients (ICCs) allowed us to account for the fact that each essay was rated by three raters, rather than by pairs (Shrout & Fleiss, 1979). Most of the ICCs for triads are in the .7–.9 range (one triad is just below that, .69; and one is above that, .94). We may interpret these triad coefficients similarly to correlation coefficients between pairs of raters. In all cases, the ICCs demonstrate a reasonably strong association between the ratings and hence strong inter-rater reliability. As one member of the triad rates an essay highly, so do the other two members; similarly, as one member gives the essay a lower score, so do the other two members of the triad.

Finally, we considered the magnitude of the differences among raters as well as the direction of their scores. As a general yardstick, we have accepted inter-rater differences of 10 points or less (out of a total of 100 points). Differences of more than 10 points are not desirable for placement purposes. Pairing individual raters with other individual raters, we calculated difference scores, and used the absolute values of these difference scores in a one-sample t-test. Difference scores that vary from each other on average by more than 10 points would indicate raters that are consistently less reliable.

Results indicate that the mean of the difference scores ranges from 5.33 to 9.48. In all cases, the average of these differences is less than 10 points. So on average, the paired differences show less than a 10 point spread. The standard deviation of these difference scores ranges from 4.2 to 7.58. In a paired-difference t-test for this analysis, with 10 points as the comparison mean, results clearly show that in no case are raters statistically significantly different by more than 10 points. All but one of the t-tests are significant ($p < .05$) in the negative direction—showing that most of the pairs differ from each other by less than 10 points. Only one pair is not significantly different from a 10 point criterion—the pair that is on average 9.5 points different from each other.

In summary, these three approaches show that this administration of the placement test has acceptable inter-rater reliability. Both simple correlation coefficients and intraclass correlation coefficients show inter-rater reliability at an acceptable level, and overall, differences between the raters do not go beyond an acceptable level of 10 points on average.

Validity of direct assessment

How valid is the NTID Writing Test as a placement tool? To estimate this we compared it to another test, the ACT. Of this entering class, 209 students provided the admissions office with ACT English scores, as well as ACT English subcomponent scores—Usage and Rhetoric. While these sub-scores do not exactly match our components of the writing test, they provide an interesting point of comparison.

A correlation of both writing test scores and ACT scores and subscores shows a positive and moderately strong relationship between the direct and indirect assessment measures. The correlation between ACT English scores and the NTID Writing Test is .49 ($p < .0001$), between the ACT Usage scores and the writing test is .47 ($p < .0001$), and between the ACT Rhetoric scores and the writing test is .36 ($p < .0001$). As scores get higher on the writing placement test, scores also tend to get higher on the ACT measures.

However, if we compare how the two tests place students in the developmental writing courses (Levels A-D in Table 1), we see that ACT scores do not distinguish among writing levels across the whole spectrum of student ability. While ACT scores are clearly higher at the upper levels and in the liberal arts course, there is no clear demarcation of ACT scores that would effectively place students in appropriate writing courses. In fact, at the two lower levels (A and B), there is no distinction between ACT scores. So, while indirect measures such as the ACT are available and even useful (they do correlate positively with other measures of writing ability), they may not help in determining placement levels in developmental writing courses.

Conclusions and implications

From the results of these analyses, it appears that the scoring across raters is consistent and that the writing test is more useful than the ACT for placing

[The use of several tools to measure inter-rater reliability shows] that this administration of the placement test has acceptable inter-rater reliability. Both simple correlation coefficients and intraclass correlation coefficients show inter-rater reliability at an acceptable level, and overall, differences between the raters do not go beyond an acceptable level of 10 points on average.

Table 1.
Means of ACT scores
by writing placement
group (and standard
deviations).

	Overall N=209	Level A N=53	Level B N=72	Level C N=52	Level D N=22	Liberal Arts N=9
ACT English	13.1 (3.4)	11.4 (2.2)	11.6 (1.9)	13.8 (3.2)	17.3 (3.5)	18.9 (1.6)
ACT Usage	5.7 (2.0)	4.8 (1.5)	4.9 (1.2)	6.2 (1.9)	8.1 (2.5)	9.1 (1.6)
ACT Rhetoric	6.9 (2.0)	6.2 (1.7)	6.0 (1.6)	7.3 (1.9)	9.1 (2.1)	9.8 (0.7)

From the results of these analyses, it appears that the scoring across raters is consistent and that the [NTID] writing test is more useful than the ACT for placing new students in writing courses. As a tool for teachers, therefore, it is both reliable and valid.

new students in writing courses. As a tool for teachers, therefore, it is both reliable and valid. How valid is the test from the students' point of view? How real are scoring categories (content, organization, language, and vocabulary) to students while composing and revising? Since teaching faculty constructed the rating test categories, the test relates to how writing is taught. However, we do not know how well the categories match instructors' criteria in providing feedback and in grading. Nor do we know how students in these courses assess their own writing. If teachers referred to these categories, would students consider them when editing their own writing? Would there be a connection, as Huot predicts, between a student's ability to assess one's writing and the perceived need to revise it? Such questions are worth pursuing, since we too believe that "being able to assess writing is an important part of being able to write well" (p. 165).

References

Albertini, J.A., Bochner, J.H., Cuneo, C.A., Hunt, L.S., Nielsen, R.B., Seago, L.M., & Shannon, N.B. (1986). Development of a writing test for deaf college students. *Teaching English to Deaf and Second-Language Students*, 4, 5-11.

Albertini, J.A., Bochner, J.H., Dowaliby, F., Henderson, J.B. (1996). Valid assessment of writing and access to academic discourse. *Journal of Deaf Studies and Deaf Education*, 2, 71-77.

Albertini, J.A. & Schley, S. (2003). Writing: Characteristics, instruction, and assessment. In M. Marschark & P. Spencer (Eds.), *Handbook of deaf studies, language, and education* (pp.123-135). New York: Oxford University Press.

Berent, G.P., Samar, V.J., Kelly, R.R., Berent, R., Bochner, J., Albertini, J., & Sacken, J. (1996). Validity of indirect assessment of writing competency for deaf and hard-of-hearing college students. *Journal of Deaf Studies and Deaf Education*, 1, 167-178.

Bochner, J.H., Albertini, J.A., Samar, V.J., Metz, D.E. (1992). External and diagnostic validity of the NTID Writing Test: An investigation using direct magnitude estimation and principal components analysis. *Research in the Teaching of English*, 26, 299-314.

Jacobs, H., Zinkgraf, S., Wormuth, D., Hartfiel, V., & Hughey, J. (1981). *Testing ESL composition: A practical approach*. Rowley, MA: Newbury House.

Huot, B. (2002). Toward a new discourse of assessment for the college writing classroom. *College English*, 65, 163-180.

Perkins, K. (1983). On the use of composition scoring techniques, objective measures, and objective tests to evaluate ESL writing ability. *TESOL Quarterly*, 4, 651-671.

Shannon, N. (1987). Retest report. (Unpublished report), Rochester, NY: National Technical Institute for the Deaf, Department of English.

Shrout, P.E. & Fleiss, J.L. (1997). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86, 420-428.

Stuckless, E.R. & Marks, C.H. (1966). *Assessment of the written language of deaf students*. (Report of Cooperative Research Project 2544, U.S. Department of Health, Education, and Welfare) Pittsburgh, PA: University of Pittsburgh.

The Written English Expression Placement Test. (1985). Princeton, NJ: Educational Testing Service.

Notes of Note
continued from page 3

Revision–One NSF Project” was presented at the American Association of Community Colleges 83rd Annual Convention on April 6, 2003. Dean Laury and Anthony Spiecker, faculty members in ACT, were co-authors on the latter paper.

Harry Lang was recently invited to serve on an advisory group to plan a PBS documentary, “History Through Deaf Eyes,” to be produced by WETA/ Gallaudet University.

His recent conference presentations include

- “Enhancing Reflection in Teaching: Strategies for Preservice Programs” with Nora Shannon and Gerry Bateman, at the Association of College Educators– Deaf and Hard of Hearing 2003 Conference: Super Professionals Involved in Creative Endeavors,
- “Evaluation of a Comprehensive Web-based Resource for Science and Mathematics Teacher Education” with Jim Mallory and Alan Cutcliffe,

Notes of Note continued on page 6



Robert Whitehead is a professor in the Department of Research at NTID.

Speech Produced During Simultaneous Communication: Research Update

By Robert Whitehead

For the past ten years a program of research has been underway at NTID that addresses questions relative to the temporal, acoustic, and perceptual features of speech produced during simultaneous communication. This program of research is a collaborative effort among my colleagues Nicholas Schiavetti and Dale Metz at the State University of New York, Geneseo, and me. A report on several of our initial investigations was published in the Winter 1997 edition of the *NTID Research Bulletin*. The purpose of this present *Research Bulletin* note is to report on three additional studies in this research program.

In the February 1998 issue of the *Journal of Speech, Language, and Hearing Research* we published a study that investigated the effect of fingerspelling task length on temporal characteristics and perceived naturalness of speech during simultaneous communication (Schiavetti, Whitehead, Whitehead, & Metz 1998). In this study stimulus words at four levels of fingerspelling task length (e.g., care – careless – carelessly – carelessness) were embedded in a sentence that was spoken and produced with simultaneous communication. Five temporal measures were calculated from acoustic recordings: (a) sentence duration; (b) stimulus word duration; (c) diphthong (before the stimulus word) duration; (d) interword interval before (the stimulus word) duration; and (e) interword interval after (the stimulus word) duration. Perceived speech naturalness was rated by a panel of listeners on a 9-point scale. Results indicated significant

differences in temporal measures and naturalness ratings between the speech and simultaneous communication conditions and among levels of fingerspelling task length. Speech produced during simultaneous communication was rated as less natural and demonstrated increased interword interval, diphthong, word, and sentence durations. Regression analysis indicated significant correlations between temporal measures and perceived speech naturalness, and analysis of variance showed significant increases in segmental and interword interval durations and perceived speech unnaturalness as fingerspelling task length increased.

In a related study (Whitehead, Schiavetti, Whitehead, & Metz 1997) we reported on the effect of the signing task on temporal features of speech during simultaneous communication. The effects of three independent variables: (a) communication mode (speech-only vs. simultaneous communication); (b) sign task demand (base vs. elaborated signs), and (c) type of sign movement (kinetic vs. morphokinetic) were studied on five dependent variables: (a) word duration; (b) sentence duration; (c) diphthong duration; (d) interword interval before signed experimental word (IWIB); and (e) interword interval after the signed experimental word (IWIA). Base words were represented by a simple sign with minimal movement. The elaboration words were represented by a sign that was an extension of the base sign and was accomplished by: (a) movement with maintenance of the handshape of the base sign (kinetic elaboration); or (b) movement accompanied by a change in handshape and/or number of hands (morphokinetic elaboration). Results indicated longer sentence durations for simultaneous

Notes of Note continued from page 5

at the same meeting, and

- “Web-based Science Education for Deaf Students: A Summary of Research and Development Efforts” with D. Steely, at the American Educational Research Association in Chicago.

Ronald Kelly has been appointed to the Editorial Board of Reviewers for *E-Journal of Teaching and Learning in Diverse Settings*. This is a new journal, with its first issue due in fall 2003. The publisher is Southern University-Baton Rouge College of

Education, Jimmy D. Lindsey, Ed.

His recent publications include

- “Using technology to meet the developmental needs of deaf students to improve their mathematical word problem solving skills” in *Mathematics and Computer Education*, 37(1), 8-15 (2003)
- “Deaf college students’ comprehension of relational language in arithmetic compare problems,” with **Harry Lang**, Keith Mousley and **Stacey Davis**, *Journal of Deaf Studies and Deaf Education*, 8(2), 120-132 (2003)

Bob Whitehead's research focuses on speech produced during simultaneous communication. For additional information on the topic, see earlier articles in the Winter 1997, and Spring 1998, issues of the NTID Research Bulletin. Whitehead teaches 'Law and Society' each quarter for the Department of Cultural and Creative Studies at NTID. For more information, he can be reached at RWWNCR@RIT.EDU.

The results indicated that vowel duration and fundamental frequency differences between stressed and unstressed syllables as well as intonation contour differences between declarative and interrogative sentences were essentially the same in both speech-only and simultaneous communication conditions. The conclusion that prosodic rules were not violated in simultaneous communication is consistent with our previous research....

communication than for speech-only, and longer anticipatory IWIB and diphthong durations before signed words, especially those using signs with greater task demand or movements including hand shape change. These results indicate finite effects of sign task demand and movement on pause and segment durations before the sign but not as strong an effect as has been reported for increased fingerspelling task length.

Since a large portion of our research had addressed issues related to the temporal (segmental) features of speech, we believed it was necessary to also address the prosodic (suprasegmental) aspects of speech. More specifically, we designed a study (Whitehead, Schiavetti, Metz, Galant, & Whitehead) which would elicit utterances, in both speech-only and simultaneous communication conditions, that would permit acoustic analysis of three prosodic variables: (a) fundamental frequency (Fo) contour differences between declarative and interrogative sentences; (b) vowel duration differences between stressed and unstressed monosyllables; and (c) vowel Fo differences between stressed and unstressed monosyllables.

The stimulus material used to examine the Fo contours associated with productions of the declarative and interrogative sentences consisted of a group of five sentences terminally punctuated with a period and a group of five sentences terminally punctuated with a question mark (e.g., "His name is Paul." versus "His name is Paul?").

To examine vowel Fo and vowel duration differences between stressed and unstressed monosyllables, each speaker read a set of six sentence sequences that contrasted stress on particular words. For example, in the sequence, "Was it a small bat? No, it was not a small bat.

It was a big bat" the word *big* in the third sentence should receive more stress than it would in the sequence, "Was it a big ball? No, it was not a big ball. It was a big bat." Similarly the word *bat* in the last sentence of the second sequence above should receive more stress than it would in the last sentence of the first sequence.

The results indicated that vowel duration and fundamental frequency differences between stressed and unstressed syllables as well as intonation contour differences between declarative and interrogative sentences were essentially the same in both speech-only and simultaneous communication conditions. The conclusion that prosodic rules were not violated in simultaneous communication is consistent with our previous research which has indicated that temporal alterations of speech produced during simultaneous communication do not involve violations of other temporal rules of spoken English.

References

- Schiavetti, N., Whitehead, R.L., Whitehead B. & Metz, D.E. (1998). Effect of fingerspelling task on temporal characteristics and perceived naturalness of speech in simultaneous communication. *Journal of Speech, Language, Hearing Research*, 41, 5-17.
- Whitehead, R.L., Schiavetti, N., Whitehead, B., & Metz, D.E. (1997). Effect of sign task on speech timing in simultaneous communication. *Journal of Communication Disorders*, 30, 439-455.
- Whitehead, R.L., Schiavetti, N., Metz, D.E., Gallant, D., & Whitehead, B. (2000). Sentence intonation and syllable stress in speech produced simultaneous communication. *Journal of Communication Disorders*, 33, 429-442.

-
- "Mathematics word problem solving for deaf students: A survey of practices in grades 6-12" with Harry Lang and C. Pagliaro, *Journal of Deaf Studies and Deaf Education*, 8(2), 104-119 (2003), and
 - "Deaf and hearing students' morphological knowledge applied to printed English" with Martha Gaustad, John-Allen Payne and Eugene Lylak, *American Annals of the Deaf*, 147(5), 5-21 (2002).

Kelly's recent presentations include

- "A Comparative Analysis of Morphographic Knowledge and Segmentation by Deaf and Hearing

Students Matched for Reading Level," with Martha Gaustad, at the Special Interest Group for Research on the Education of Deaf Persons at the 2003 AERA Convention.

- "Comparing Deaf and Hearing Students' Mental Arithmetic Skills under Two Interference Conditions," with **Stacey Davis**, at the same convention
- "Calculating Math Problems: A Comparative Look at Deaf and Hearing Students," at the Association of College Educators-Deaf and Hard of Hearing 2003 Conference.

Rochester Institute of Technology

National Technical Institute for the Deaf
Department of Research
Hugh L. Carey Building
52 Lomb Memorial Drive
Rochester, NY 14623-5604

Non-Profit Org.
U.S. Postage
PAID
Rochester, NY
Permit No. 626



NTID RESEARCH BULLETIN

Department of Research • National Technical Institute for the Deaf • Rochester Institute of Technology

*NTID English
Department faculty who
have been trained to score
the NTID Writing Test.
See the article on p. 1 for
an explanation of the use
of this tool to assess deaf
and hard-of-hearing
students' writing skills.*



Susan Keenan



Gene Lylak



Margie Brophy



Kathy Crandall



*Steven Aldersley
Department Chair*



Kathy Varone



Katie Schmitz



John Panara

IMPLICATIONS OF NTID RESEARCH

FOR DEAF AND HARD-OF-HEARING PEOPLE • NTID RESEARCH BULLETIN

Vol.8 No.3 Spring 2003

A primary mission of the Department of Research is to "foster advances in teaching and learning that enhance the academic, professional, social and personal lives of people who are deaf or hard of hearing." Among its other functions, the Department of Research conducts research relevant to that goal and supports research conducted by colleagues from across NTID.

As part of our collaborative efforts, the Department of Research regularly undertakes the collection and dissemination of relevant research findings from across NTID. NTID Papers and Publications is published every two years. Implications of NTID Research, published in alternate years, includes the implications of the research findings for each publication that the author thinks will be most relevant for NTID's audiences.

Marschark, M., Green, V., Hindmarsh, G., & Walker, S. (2000). Understanding theory of mind in children who are deaf. *Journal of Child Psychology and Psychiatry*, 41, 1067-1074.

This study explored *theory of mind* by examining stories told by children who are deaf and hearing (age 9-15 years) for statements ascribing behavior-relevant states of mind to themselves and others. Both groups produced such attributions, but there were reliable differences between them—in favor of the deaf children! Results are discussed in terms of the cognitive abilities assumed to underlie false belief and narrative paradigms and implications of attributing theory of mind solely on the basis of performance on the false belief task.

Implications

Research on *theory of mind* informs us both about cognitive development and social-emotional development. This study shows that, in contrast to claims by other investigators in this area, deaf children demonstrate theory of mind at least as competently as hearing peers by 9 years of age. This study does not consider whether the story-telling methodology would be effective with children as young as 5 years—the age at which theory of mind emerges

in hearing children—but it indicates that the false belief paradigm results in an underestimation of deaf children's skills.

Berent, G.P. (2001). English for deaf students: Assessing and addressing learners' grammar development. In D. Janáková (Ed.), *International Seminar on Teaching English to Deaf and Hard-of-Hearing Students at Secondary and Tertiary Levels of Education: Proceedings* (pp. 124-134). Prague, Czech Republic: Charles University, The Karolinum Press.

English now is being taught to deaf students in the Czech Republic as part of an effort to foster coordination and continuity in foreign language acquisition at all levels of deaf education within the Czech Republic. This project involved researching the grammatical structure of the Czech language in order to anticipate potential transfer errors expected of deaf students learning English who have a knowledge of Czech. It also involved determining the most effective classroom methods for assessing, addressing, and monitoring Czech deaf students' English language development.

Implications

This paper provides an overview of the

Editor

Gail Hyde
e-mail:
GLHGCI@RIT.EDU

Graphic Design

Alan Cutcliffe

Photography

Mark Benjamin

Editorial Office

Department of Research
National Technical Institute for the Deaf
52 Lomb Memorial Drive
Rochester, NY 14623-5604
e-mail: ASKCRTL@RIT.EDU
WWW: www.rit.edu/~490www/resbull.html

The *NTID Research Bulletin* is published three times a year during the academic year by the Department

of Research, National Technical Institute for the Deaf, a college of Rochester Institute of Technology. It is available without charge. Contact the Editorial Office for back issues, changes of address, or to subscribe to the *NTID Research Bulletin*.

Opinions expressed in the *NTID Research Bulletin* do not reflect those of NTID or RIT. Your comments, questions, and requests for information are welcome.

We encourage you to reproduce articles from

challenges that deaf students face in acquiring knowledge of the grammatical structure of English. Characteristics of difficult structures are explained in terms of deviations from expected word order patterns, interruption of major grammatical relations by other structures, movement of constituents from their logical positions, and identity relations between constituents. The paper describes several classroom methods for assessing deaf students' English knowledge.

Parasnis, I. (2000). Deaf ethnic-minority students: Diversity and identity (pp. 107). CD ROM Proceedings of the 19th International Congress on Education of the Deaf and 7th Asia-Pacific Congress on Deafness. Sydney, Australia: ICED 2000 APCD Secretariat.

Individual differences among ethnic-minority deaf students in the development of cultural identity need to be recognized to design and deliver successful educational programs for deaf people.

This paper focuses on the diversity and identity issues related to the experiences of deaf ethnic-minority students.

Implications

The stages of identity development in racial/ethnic minority group deaf students and issues related to bilingual-bicultural identity development are discussed to show how this information can be useful in conceptualizing Deaf identity development. This information will be useful for educators, counselors, and parents in enhancing the educational and social experiences of ethnic-minority deaf students.

If you would like to obtain information in an area beyond what you see listed, you can write to the first author of closely related papers, c/o NTID. If you are unable to obtain one of the publications on this sheet from your local library, you may send this form to: Educational Technology Resource Room, National Technical Institute for the Deaf, 52 Lomb Memorial Drive, Rochester, NY 14623-5604.

____Marschark, M., Green, V., Hindmarsh, G., & Walker, S. (2000). *Understanding theory of mind in children who are deaf.*

____Berent, G.P. (2001). *English for deaf students: Assessing and addressing learners' grammar development.*

____Parasnis, I. (2000). *Deaf ethnic-minority students: Diversity and identity.*

Name	Organization
Street	City
City	State Zip Code

Or send request via e-mail (ASKCRTL@RIT.EDU), giving full citation for the article.

this bulletin, or from the "Implications" sheet, in part or in full, for use in your newsletters to parents, teachers, and others in the field of deafness. This news-letter may be scanned into digital format, or you may capture it on the WWW: <http://www.rit.edu/~490www/resbull.html>. We can also send you a disk with text only, if you desire. We ask only that you give credit to the *NTID Research Bulletin* and that you send us a copy of your publication. If you have questions or need

more information, please contact the authors listed or the editor of the *NTID Research Bulletin* directly. Copies of complete articles abstracted in **Implications of NTID Research for Deaf and Hard-of-Hearing People** are available from the Educational Technology Resource Room at NTID, e-mail: ASKCRTL@RIT.EDU or mail: 52 Lomb Memorial Drive, Rochester, NY 14623-5604. Books may be borrowed via interlibrary loan services at your local public library.