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Gesture as a Mediating Factor in Speech and Sign Language Storytelling

By: Talibah E. Buchanan*

There are many hearing individuals who do not know sign language but move their hands when speaking. Chances are these people would have a hard time telling the same story if asked not to use their hands. Additionally, the story told without the assistance of gesture would likely seem lackluster by comparison. The question becomes, to what degree is gesture an integral part of effective storytelling and how much does it add to the complexity and richness of a story? How does the gesture used in oral storytelling compare to that used in American Sign Language (ASL) storytelling? If gesture is taken into consideration, will the complexity of information conveyed be equivalent between languages? These are questions that Drs. Sarah Taub, Dennis Galvan, and Pilar Piñar sought to answer in their recent study on the contribution of hand and body movements to the complexity and depth of ASL, English, and Spanish storytelling (Taub, Galvan, & Piñar, 2004).



Dennis Galvan
Psychology



Pilar Piñar
Foreign Languages



Sarah Taub
Linguistics

Forming Questions

The inspiration to explore the above questions grew from the findings of Galvan and Taub's previous study (2004) in which they compared narratives by native ASL and English users. Results from this study indicated that when compared with English users, ASL signers consistently incorporated much more conceptual

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* Talibah E. Buchanan, a fifth year doctoral student in the Clinical Psychology program, is the 2004-2005 Walter G. Ross Graduate Fellow. She can be contacted at Talibah.Buchanan@Gallaudet.edu

Kozol Presentation Combines Wit, Wisdom, Outrage, and Compassion**

By Robert C. Johnson



Jonathan Kozol

Jonathan Kozol, author of such books as *Death at an Early Age* and *Savage Inequalities*, gave a presentation at Gallaudet on March 30 called "Shame of the Nation: Re-segregation, Inequality, and Over-Testing in Public Education." The talk was sponsored by the Gallaudet Research Institute as part of its Schaefer Distinguished Lecture Series.

In addition to the presentation, Kozol participated in several other sessions with Gallaudet faculty and students in which he reported learning a great deal about deaf students and their educational needs. He said he was particularly intrigued to learn from Gallaudet Department of Education faculty and students—deaf and hearing—that the statement "separate is never equal" does not necessarily apply to deaf students, many of whom thrive in education programs outside the mainstream. Kozol said his focus has not been on separate programs that are well designed and effectively meeting students' needs. His concern is that current governmental and socioeconomic factors in America are depriving many students of quality educational experiences because of "racial apartheid" which is forcing too many minority children to stay in inferior learning environments. During a question and answer session with Kozol, Dr. Barbara Gerner de Garcia, a faculty member in Gallaudet's Department of Educational Foundations and Research, pointed out that many of Kozol's concerns do indeed apply to deaf children. Over forty percent of deaf children are from minority populations, Gerner de Garcia said, and many of these are living in disadvantaged communities.

When one audience member asked Kozol what effect his books have had on U.S. educational policy, he said

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“None. Many people, including teachers, parents, and civil rights groups have gotten insight and comfort from my books, which for me is justification enough for continuing to write them. But the powers that be are generally indifferent or dismissive.”

That statement and the title of his presentation clearly suggest that Kozol is not impressed by such efforts of Congress and the president as the No Child Left Behind Act of 2001. To indicate why he is cynical about current educational policy, Kozol points to recent cuts in such programs as Head Start which he believes were beginning to close the education gap many years ago. Now, he said, children brought up in impoverished homes and communities are in fact left very much behind during their preschool years while wealthier children often have rich (and expensive) learning experiences. Once poor black or Hispanic children reach the third grade, they now begin to be “bludgeoned” by batteries of tests and rote-learning when what is needed is a helping hand earlier on: the kind of enriched learning that government for a while was fairly generously funding. “It’s outrageous,” Kozol said, “to demand that kids be accountable for passing tests if they are deprived of childhood educational experiences.”



Amy DiGaudio (left) and Heidi Holmes (right), first year doctoral students in Gallaudet's Department of Education, talk with Kozol.

Much of what Kozol had to say was framed by the no-holds-barred political analysis described above, but those who attended seemed equally if not more impressed by the vivid details Kozol used to make his points and by Kozol's poignant autobiographical narrative. As a Rhodes Scholar in love with English literature, Kozol was surprised to discover that he disliked the elitist environment at Oxford. He moved to France, where he was inspired to write by such authors as Richard Wright, William Styron, and James Baldwin, then he returned to Harvard Square to await inspiration.

The inspiration that sparked his entire professional and writing career came in 1964 when three college students who went to Mississippi to create summer schools for black children were murdered by policemen who were also members of the Ku Klux Klan. Kozol and millions of like-minded Americans were outraged, but Kozol took action, driving his VW bug from Harvard Square to an African Methodist Episcopal Church in a different neighborhood to ask the minister what he could do to help disadvantaged children. It was that short drive over a great divide that led to Kozol's career as a fourth grade teacher of black and Hispanic children in the inner cities of Boston and, later, the South Bronx and his many books on the experience of educating this neglected population.

Kozol said that children growing up in places like the South Bronx are far less likely than children in wealthier areas to receive early medical and dental care or vision testing or to arrive at school well-fed and ready to learn. Children in his classes have often suffered traumas such as witnessing homicides. One-fourth of the students in the South Bronx see their fathers only in prison--if at all. Many poor inner city children don't even go to school. Increasingly, children who can't pass tests are held back in school and eventually drop out. In the South Bronx, 99.8 percent of the children in elementary schools are not white, the victims of what Kozol calls “economic apartheid,” a segregation forced upon them by the price of housing. The educational effects of economic segregation have been reinforced since the Reagan administration, Kozol said, by an emphasis on allowing children to attend their local schools, in effect stopping the process of desegregation.

Compounding the disincentives these children feel toward going to school, the current mania for testing, Kozol said, is “eliminating all whim and joy and mischief from education. Testing has doubled since Bush became president. Principals, terrified of losing their jobs, are forced to become tyrants. Teachers have scripted lesson plans and are forced to teach books of little literary value.”

Kozol said that Fred Rogers of “Mr. Rogers' Neighborhood,” moved by one of his books, asked if he could visit the children in his class, though he was concerned the children might find him “intimidating.” Kozol and Rogers went together by subway to the church attended by many of his students, whereupon a six-year-old boy ran to and hugged the surprise guest, saying, “Welcome to MY neighborhood, Mr. Rogers!” Kozol said he hasn't taken down the sticky note on his wall with Mr. Rogers' phone number on it. “I like to think I could call him if necessary,” he said, with a rueful smile.

Gesture as a Mediator, Continued from page 1
 information into their descriptions of motion events. A motion event was defined as an event where an entity moves from place to place, or is identified as being located at a specific place.

For the purpose of their study, Galvan and Taub used a scene from the children's storybook, *Frog, Where Are You?* (Mayer, 1969) as a prompt for both ASL and English motion narratives. They then compared video clips of native ASL users and written transcripts of native English users retelling the story. Using this data, three distinct but related analyses were performed. In their first area of concentration, Galvan and Taub compared the amount of conceptual information specified by each of the narrators. Comparisons were based on a detailed analysis of the basic conceptual pieces of narratives, defined by Talmay (1985). These portions of the narrative included the figures or moving entities, the spatial relations between figures, the ground or landscape against which the figure(s) moved, the motion of the figure(s), the path of movement, the manner of movement, and the affective states of the figures.

A statistical analysis suggested that while there was no difference between languages for figure and ground

information, the languages approached a significant difference in the extent to which they encode specifics of spatial relations. ASL users gave more specific accounts of the spatial relations in the scene. ASL users also included information related to internal affective states, specifically mentioned instances of motion, specified the path of figures, and detailed the manner of motion significantly more often than English users.

In a second analysis Galvan and Taub looked at the frequency of encoding each piece of information. This information was conceptualized as the "reinforced" information because the repetition served to reinforce the viewer's mental imagery and assist with comprehension of new information that was mixed with the repeated information. Therefore, results indicated that overall ASL users "reinforce" the information more than English users. Just as in the first area of analysis the difference was not observed within each basic conceptual piece of the narrative, but was significant for information about the figures, motion events, manner of those events, path of motion, and reported internal affective states of the figures. ASL narrators not only gave more specific accounts of the spatial relationships, but they also gave them more often. ASL users repeatedly presented the same information.

In their final analysis of the narratives Galvan and Taub catalogued the syntactic forms used in each language to express the content of the scene. Together the basic conceptual pieces of the narrative revealed that English narrators relied on nouns, pronouns, prepositional phrases, plural pronouns, a variety of verb forms, and conjunctions. In contrast, ASL narrators primarily relied on classifier constructions and occasional referential shifts.

Taken together, the three areas of analysis revealed that ASL signers consistently incorporated more conceptual information into their descriptions of motion events when compared with English speakers. Moreover, ASL signers repeated this information more frequently and had a strong preference for expressing conceptual elements through classifiers and referential shifts.

Such a finding could lead one to believe that when compared with spoken English, ASL is a much more complex and rich language. However, upon examination Galvan and Taub were not fully convinced that this was the reality. They were troubled by the fact that the comparisons in their study were between video clips and written transcripts. Such an analysis could give an advantage to the ASL narratives since they were permitted full access to spatial and nonmanual elements (e.g. body shifts) that were not noted in the written English transcripts. This view was further supported by McNeil's (1992) work in which he illustrated how gestures are

Research at Gallaudet is available free of charge. Address inquiries to Research at Gallaudet, Gallaudet Research Institute, Gallaudet University, 800 Florida Ave., NE, Washington, DC 20002-3660. Phone: (202) 651-5995 (V/TTY). Contributing to this issue were Talibah E. Buchanan, and Robert Clover Johnson. Special thanks are due to Dennis Galvan, Michael Karchmer, Pilar Pinar, Larry Siegel, and Sarah Taub, for the materials and advice they provided for the articles and photos in this issue. Comments related to articles in this issue are welcomed by the editor and may be sent by e-mail to Robert.C.Johnson@gallaudet.edu.

Robert Clover Johnson
 Senior Research Editor

Talibah E. Buchanan
 Walter Ross Fellow

Michael A. Karchmer, Director
 Gallaudet Research Institute

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 Gallaudet University, Washington, D.C.

tightly bound to the spoken message they accompany, and that much of the conceptual information of a narrative may be expressed through meaningful gesture. Therefore Galvan and Taub decided to design a study in which the meaningful gesture that accompanied spoken language was included in analysis.

Designing a Comprehensive Study

In their efforts to design a study that would investigate the contribution of meaningful gesture Taub and Galvan joined forces with Piñar. Together the three investigators collaboratively proposed a comprehensive study in which videotaped narratives of native ASL users, native English speakers who did not know sign language, and native Spanish speakers who did not know sign language would be compared. By including both English and Spanish users, Taub, Galvan, and Piñar allowed for differences to be explored across distinct aural/oral languages as well as between aural/oral and sign languages.

The use of multiple languages and various modes of communication in the current study design was not only theoretically supported but was also substantiated by the findings of earlier research. Slobin's (1996) study indicated that in written narratives, Spanish users consistently present fewer explicit Manner and Path elements than English users (Slobin, 1996). On the other hand, in the study described above, Taub and Galvan (2004) found that ASL signers expressed more information elements of all types (except ground) than English speakers. However, McNeill (1992) maintained that when examining informational components of languages it is crucial to include the contribution of gesture. He contended that gestures tend to highlight information that is in some way novel or salient in the discourse and that they are often used in a language-specific manner. In general, the use of gesture was considered unique to the information structure of the specific language. Therefore, for English speakers it would make sense that gesture could be used to modulate manner and fill in the lexical gaps. For Spanish speakers gesture would likely be used to express manner, path, or other lexical information. For ASL users, lexical and gestural elements are more difficult to distinguish and therefore the elements of the language that are expressed through the use of gesture were not predictable.

Conducting the Study

After obtaining a Gallaudet University priority grant from the Gallaudet Research Institute, and with the theoretical differences of gestural use between languages in mind, Taub, Galvan, and Piñar recruited twelve native English speakers, twelve native Spanish speakers, and

eleven native ASL signers. English and ASL users were recruited in the United States and Spanish speakers were recruited in Spain. Each subject was paired with another native user of the same language. Subjects were then asked to watch an animated "Tweety Bird" cartoon and retell the story to the other native user with whom they were paired. The instructions were then to relate the cartoon clearly enough for the partner to tell the story to a third person. Both the subject and their partner's retelling of the cartoon were videotaped, but only the subject's videotape was analyzed for the present study.

Once the videotaped narratives were collected, a single motion scene was isolated. This scene was then transcribed and analyzed by the member of the research team who was a native speaker of the language. However, in order to ensure consistency in coding criteria and coder reliability across subjects or languages, the coding for each subject in each language was subsequently discussed by all three of the investigators.

In the scene selected for analysis, the cat and the bird were on the same floor of two high-rise apartment buildings that were on opposite sides of an alley. The cat studied the bird through his window and calculated the distance between himself and the bird. He then grabbed a rope and swung in an arc from his window toward the bird's window. Missing the window, the cat smashed into the brick wall beside it and slid to the street below.

Based on the isolated portion of the cartoon, the researchers developed a comprehensive list of the conceptual elements, including potential Figure (e.g., cat or bird), Ground (e.g., building or window), Path (e.g., arc, across, or towards the window), Manner (e.g., swinging or smashing), and Instrument (e.g., rope) elements. Using this list the total number of conceptual elements expressed for each conceptual category; the number of elements expressed through speech or lexical sign elements; and the number of elements expressed through meaningful gesture or gestural sign elements were calculated. The total length of time to retell the cartoon was also noted.

Determining what portions of the signed stories were lexical and which were spatially mapped (gestural) was a complex process. Through repeated theoretical discussions and the use of previous research (Liddell, 2000), Taub, Galvan, and Piñar developed operational definitions for classification. If a sign or component of a sign could be described phonologically as a discrete unit or a composition of discrete units, was systematically shared by all members of the linguistic community, and had to be remembered, then it was considered to be lexical. In contrast, if the sign or component of the sign was not conventionalized and not listed in the

lexicon it was determined to be a spatially mapped sign element. In general, spatially mapped sign elements were creatively made up by the signer on the spot. For example the concept of a cat is usually introduced through a lexical sign which has been fully established and is conventionalized. However, the cat grasping a rope is usually shown by taking on the cat's role and demonstrating or mapping his movements.

For all languages, the conceptual elements expressed were counted once per narrative. When an element was expressed bimodally (both lexically and through meaningful gesture), the specific element was coded as both lexical and gestural, but counted only once in the overall amount of conceptual information for the narrative.

A New Perspective

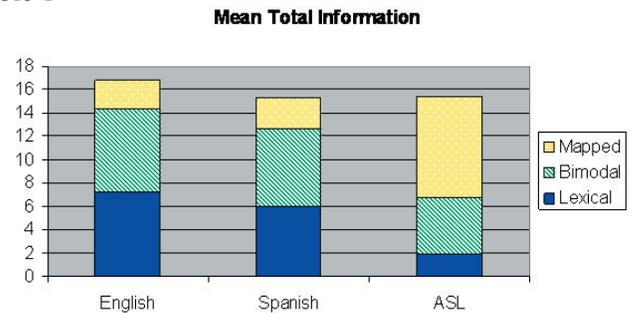
When examining the videotaped narratives of each subject group it was evident that spatial mapping (meaningful gesture) was a crucial part of the storytelling for users from all three languages. As seen in Figure 1, users of both signed and spoken languages used their bodies to show the actions and locations of imagined characters. When asked to retell the animated motion story in their own language, deaf ASL signers, hearing English speakers, and hearing Spanish speakers all combined established words and grammar with remarkably similar body postures. Furthermore, certain types of information were consistently expressed through body postures, regardless of whether the overall language was signed or spoken.

Figure 1



After demonstrating that all language users were using meaningful gesture when re-telling the cartoon, Taub, Galvan, and Piñar set out to analyze the information conveyed through spatial mapping. A detailed analysis suggested that when both lexical and meaningful gestural information were taken into consideration for English and Spanish speakers, similar amounts of conceptual information could be found in the narratives of each language group. As seen in Table 1 some of the information for each language was expressed solely through lexical means (the lower section of the bar). Other information was expressed purely through spatially mapped means (the upper section of the bar). Additionally, some of the information was expressed through both lexical and spatially mapped methods (the middle section of the bar).

Table 1

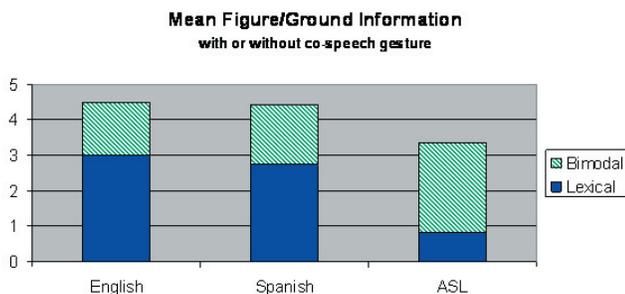


In comparing languages, Taub, Galvan, and Piñar found that Spanish and English users expressed more

information lexically, whereas ASL users expressed more information through spatial mapping. This difference in how information is expressed helped to explain the results previously found by Galvan and Taub (2004). If one were to compare only the lexical information expressed in the two spoken languages with the total amount of information (mapped and lexical) expressed in ASL, there would be a disparity between ASL and the two spoken languages, with ASL expressing more overall information. However, the difference between the spoken languages and ASL fades when the gestural information (spatial mapping), that was not also expressed lexically, is taken into consideration.

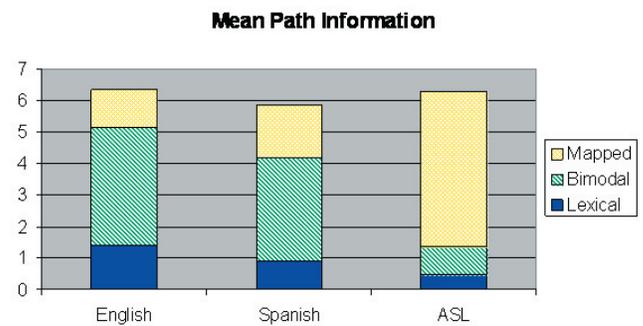
After showing that spatial mapping contributed to the amount of information expressed, Taub, Galvan, and Piñar set out to determine if similar types of information were conveyed in a similar way. Through this analysis they determined that Figure and Ground information was primarily conveyed lexically across all three languages. Although some Figure/Ground information was expressed bimodally for all languages, no Figure/Ground information was expressed solely through spatial mapping. In addition, when looking at the total Figure/Ground information expressed, ASL users expressed less overall information but exhibited more spatial mapping than English or Spanish users (Table 2).

Table 2



Path information, on the contrary, was primarily conveyed through spatial mapping in all three languages. As seen in Table 3, ASL users almost exclusively made use of spatial mapping to express Path information, even though, in some cases, the same information was expressed bimodally. For the most part, every time a Spanish or English user expressed Path information lexically, the same information was also encoded spatially. Only in a few instances was Path information expressed entirely through a lexical modality. On the other hand, some Path information was conveyed exclusively through spatial mapping.

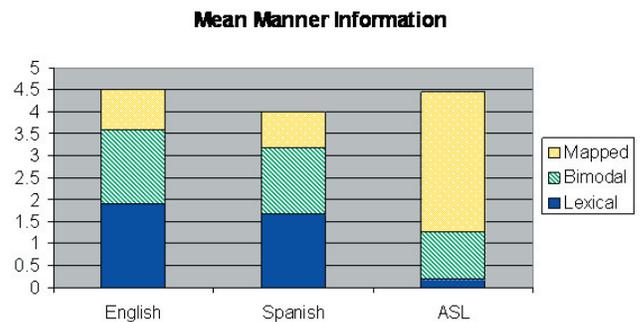
Table 3



Overall, there were no differences observed between languages when focusing on the spatially mapped Path information. This may be due to the generous use of mapping to express Path information in both of the spoken languages. Once the contribution of gesture was taken into account, any discrepancies in the amount of path information conveyed across languages vanished.

Manner information, on the other hand, was not consistently conveyed across the three languages. For English and Spanish speakers, it was most commonly expressed by lexical means; however, for ASL users it was expressed through spatial mapping (Table 4). Once gesture was factored in, dissimilarities in the overall amount of information across languages disappeared.

Table 4



What it all Means

Taken together, the analysis conducted by Taub, Galvan, and Piñar seems to demonstrate that in spoken languages a significant amount of additional information is conveyed through meaningful gesture. The contribution of spatial mapping allows for a rough equalization of the amount of information that is expressed among languages. In addition, meaningful gestures not only reinforce the information presented through speech, but spatial mapping is also a modality for presenting new information. Moreover, particular categories of conceptual items appear universally in speech and meaningful gesture.

There are patterns of conveying information that can be observed when separating spatially mapped and lexical elements within sign language, as well as those patterns that are present when considering the gestural components of spoken language. Taub, Galvan, and Piñar found that ASL, Spanish, and English show a remarkable consistency within each language regarding what type of conceptual information is likely to be expressed through spatial mapping.

Future Directions

Now that Taub, Galvan, and Piñar have found patterns of conceptual information that are expressed through meaningful gesture, the argument for considering spatially-mapped information when evaluating the information structure of languages is amplified. The next step in looking at co-speech gesture is to determine the implications of meaningful gesture for models of language acquisition and production. This is exactly what Taub, Galvan, Piñar, and Mather are focusing on in their current research efforts. With the support of another priority grant, these researchers are collaborating on a project that aims to investigate whether the quality of spatial mapping in co-speech gesture can predict aptitude for learning ASL spatial mapping. In particular, the researchers are interested in whether speakers who show clear and sophisticated spatial mapping in their gesture will have an advantage for producing spatially mapped structures in ASL.

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Sara Taub, Dennis Galvan, and Pilar Piñar can be contacted at Sarah.Taub@Gallaudet.edu, Dennis.Galvan@Gallaudet.edu, and Pilar.Pinar@Gallaudet.edu.

Larry Siegel Cites U.S. Constitution in Support of Deaf Children's Right to Communication



Larry Siegel

As Larry Siegel, the 2004-2005 Powrie V. Doctor Chair, nears the end of his stay at Gallaudet, he continues to develop a book about deaf and hard of hearing children's constitutional right to communication and language. He has also given numerous presentations to explain the need for a legal recognition of this right.

Although the Individuals with Disabilities Education Act (IDEA) contains many provisions intended to ensure that children with disabilities receive the best possible educational experience, Siegel says the law overlooks or obscures key aspects of deaf children's communication and language needs. The problem, in his view, is that IDEA is primarily a placement-driven policy in which "least restrictive environment" is more often interpreted to mean close to home or mainstreamed rather than truly accommodating. When the appropriateness of a placement for a deaf child is discussed in an Individualized Education Program (IEP) meeting, there is no established legal requirement that the student be assessed for communication and language proficiency or provided services needed to ensure access to instruction. Many deaf children, in other words, are placed in settings in which self-expression and access to information while at school are in effect denied.

Siegel states, however, that the 1st and 14th amendments of the U.S. Constitution have an important, but little used applicability to deaf children. At a recent Center for ASL/English Bilingual Education and Research (CAEBER) conference held at Gallaudet, Siegel presented his argument to an audience of leaders in bilingual education and professionals from schools for the deaf from around the country. He quoted the following from the First Amendment: "Congress shall make no law prohibiting the free exercise thereof or abridging the freedom of speech." He stated that the word "speech" in the First Amendment does not refer simply to the oral production of language, but embraces the larger right to understand what is being said and to express one's thoughts, that is, the right to the "free flow of information." The First Amendment, in other words, can be taken to guarantee that children be instructed in a language or communication modality that is accessible to the child.

Siegel pointed out that the constitutional right to free speech has many implications for children attending schools in a democratic society. The discourse of school is intended to give each child full access to academic and intellectual growth in environments in which students are free to inquire and evaluate the information and views articulated by others. Schooling is also expected to enable students to compete successfully in the economic marketplace. These rights, along with the First Amendment right of association, are available to all children in the classroom only as long as channels of communication are open. Siegel argued that many deaf children are denied this right when schools refuse to provide interpreters, provide unqualified interpreters, place students in communication-deficient environments, or otherwise deny students a fair chance to develop language and learn using their primary mode of communication.

Many deaf children, according to Siegel, are denied their right to the "Equal Protection" of the law as guaranteed by the 14th Amendment, which requires that all people be treated the same under the law and that distinctions be made only when there is a compelling reason to do so. Siegel argued that deaf children have repeatedly been denied this protection when denied access

to the programs and communication available to all other children. Failure to provide a qualified interpreter or access to a state school for the deaf, for example, denies the deaf child what all other children take for granted: access to the academic, social, and linguistic components of an education. The landmark 1954 *Brown v. The Board of Education* ruling stated that "...where the state has undertaken to provide education [it] is a right which must be made available to all on equal terms," a legal standard not adequately applied to deaf children.

Siegel also cited a number of court decisions that upheld the right of hearing, speaking children to a true bilingual education. The failure to provide similar educational and bilingual opportunities to deaf children represents an equally important failure to provide "equal protection" of the law to this student population.

Larry Siegel can be contacted at ndep@worldnet.att.net

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