AMERICAN SIGN LANGUAGE
AND THE SECOND LANGUAGE LEARNER:
THE INFLUENCE OF MODALITY
ON ADULT SECOND LANGUAGE ACQUISITION
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The acceptance of American Sign Language (ASL) as a natural language which has all the grammatical characteristics of spoken languages has come gradually over the past thirty years. Research into the structure of ASL was pioneered by William Stokoe's *Sign Language Structure* (written in 1960) and with the publication of *A Dictionary of American Sign Language on Linguistic Principles* (written in 1965), which he co-authored with two deaf colleagues at Gallaudet University. It was not until the 1970's, however, that linguists began to focus their attention on ASL and produce detailed analyses of its phonology, morphology and syntax. Research into the structure of ASL is still in its infancy compared with work on spoken languages, and research into the acquisition of ASL as a second language is scant compared to that written on spoken languages.

It is the purpose of this paper to investigate the acquisition of ASL as a second language by hearing adult learners. While we assume that the acquisition of any second language will present roughly the same set of problems, at least for the adult learner, it is of interest to find out in what ways, if any, the difference in modality, visual-gestural as opposed to auditory-vocal, may affect second language (L2) acquisition. As Newport and Meier (1985:882) have suggested, comparisons of the acquisition of ASL and spoken languages "may help to delineate those aspects of acquisition which are universal and those which are specific to certain linguistic and modality related typologies."

Part I of this paper will briefly introduce the reader to ASL and establish that it is a grammaticized, fully propositional language. Part II will examine first language (L1) acquisition of ASL in order to have an interesting basis for comparison with second language acquisition. Part III will develop the hypothesis about what effect the difference in modality will have on second language acquisition for hearing learners. Part IV will review responses from interviews with two hearing learners of ASL as a second language, and observations on the ASL interlanguage of three hearing graduate students. Part V will summarize the writer's modality/L2 acquisition hypothesis in light of the cumulative data of the paper's earlier sections.

Part I: An introduction to ASL

In 1816, Thomas Gallaudet brought Laurent Clerc to teach at the American Asylum for the Deaf in Hartford, Connecticut. Clerc, himself deaf, brought with him years of experience both learning and teaching at the National Institution for Deaf-Mutes in Paris and a sign language that had developed within the French Deaf community, French Sign Language. In contact with indigenous forms of sign used by Deaf communities in America, French Sign Language began to change and, within the first fifty years of its introduction, a new creolized form emerged--American Sign Language.

William Stokoe was the first to propose a linguistic parallel between the phonemes of spoken languages and the parameters of ASL which consist of handshape, location in relation to the signer's body (also often referred to as place of articulation), and movement within the signing location. Battison later suggested the addition of a fourth parameter, orientation of the palm. He estimated that there are twenty-five distinct locations, forty-five distinct handshapes, ten distinct movements and ten distinct palm orientations (cited in Tartter, 1986).

Each of these parameters has a limited number of values which Stokoe called *primes*. Primes and their possible combinations vary for sign languages around the world. (ASL and British Sign Language, New Zealand Sign Language, Chinese Sign Language, etc. are not

mutually comprehensible.) Combinations of the four parameters form morphological units which, when they vary contrastively by just one parameter, constitute minimal pairs.

Newport and Meier (1985) point out that ASL phonology differs from the phonology of spoken languages in that the four parameters occur simultaneously in a sign rather than sequentially as in speech. Simultaneity is attributable to ASL's modality. Speech is about twice as fast as sign when measured word by word or sign by sign, but ASL matches speech in the number of propositions it can convey within the same time frame (Bellugi & Fischer, 1972). Simultaneity, ASL signers report, also makes ASL easier to process than forms of signing that are sequential like Signed English.

Like spoken languages, ASL includes grammatical categories such as noun, pronoun, verb, adjective and adverb; however, it does not have signs for function words (e.g., articles, prepositions, inflections). Content words, spatial relations, movement direction, movement size and repetition, and facial expressions are used to express the notions conveyed by function words in English. For example, topics, questions, negatives and subordinate clauses are marked by facial expressions; tense is marked by the positioning of the sign in relation to the signer's body (directly in front of him/her for the present, further forward for the future and near the shoulder for the past); aspect (durative and habitual) is indicated by repeating the sign movement; pronouns are established by the signer's pointing to a spatial locus and referring back to it.

ASL does not make as sharp a distinction between nouns and verbs as English does. Stokoe (1975) gives the example that the sign SUITCASE also means CARRY.[1] "The same sign is noun, or verb, or both together. (T)he indeterminacy of word and sentence boundaries ... gives all of us a second way of looking at how experience, the contents, in part, of the intellect, gets put into symbols" (Stokoe, 1975:212).

Although ASL has canonical (SVO) word order (possibly due to the influence of English), in practice, word order is quite flexible. With intransitive verbs, all orders of subject, auxiliary and verb are possible, although slight changes in meaning will occur. With transitive verbs which have a non-reversible subject and object, word order is free. With transitive verbs which have a reversible subject and object, some restrictions apply. (See Fischer (1974) for a more detailed discussion of word order possibilities.)

Part II: First language acquisition of ASL

Children acquiring ASL as a first language follow a similar developmental pattern to children acquiring a spoken language: babbling, a one word/sign stage, a two word/sign stage, and finally a gradual move toward the adult grammar, with greater control of the syntax and morphology of the language (Newport & Meier, 1985).

Stage 1: *Babbling with the hands*
Deaf infants produce hand configurations that approximate ASL phonological forms, but have no apparent meaning.

Stage 2: *One sign stage*
There is an early preference for those handshapes that involve contact of the thumb and index finger or whole hand. This nicely parallels the preference of hearing children for stops, which have oral configurations they can feel, over fricatives of liquids, which have less exact, felt tongue or oral cavity positions. Early lexical signs are simplified; they have little or no internal morphology. This drive to make things simple is typical of hearing children also. As one might expect, early lexical signs are similar semantically to those words first acquired by hearing children:

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[1]Capitalization is typically used to indicate the English gloss for a sign.

MOMMY, DADDY, MILK.

Stage 3: *Two sign stage*

Young children use the least marked (canonical) word order with uninflected (i.e., morphologically simplified) lexical signs. At this stage, children acquire preverbal negation, but tend to use NO rather than NOT which is the appropriate adult grammar negator. Pronominal reference, pointing to self or others to designate reference, is acquired late in this stage, despite the fact that one might expect the iconicity of pointing to facilitate learning.

Stage 4: *Acquisition of ASL syntax and morphology*

The acquisition of syntax and morphology begins at around age 2.5 years and continues beyond age 5 years. Verb agreement with real-world noun subject and object and the morphology of aspect and number are acquired between 3 and 3.5 years of age. Verb agreement involving abstract anaphoric reference is not acquired until around 5.5 years of age, and errors involving the morphemes of complex verbs of motion continue for two or three years beyond that. Acquisition of ASL classifiers, which mark the semantic category of size and shape of relevant nouns, begins around age 3 and continues until age 8. Newport and Meier point out that "acquisition of the classifier system ... requires that the child have the ability to categorize objects into semantic or size/shape classes: human, animate nonhuman, plant, vehicle, and the like, or straight, round, large, small and the like" (1985:915). These are cognitive skills that mature over time.

While some research indicates that first signs are acquired somewhat earlier than spoken language (McIntire, 1977; Holmes & Holmes, 1980; Meier & Newport, 1990), this precocity does not appear to extend beyond the earlier stages of acquisition. One study of a hearing child learning English from his parents and ASL from his deaf grandmother, reported the acquisition of the child's first sign at 5.5 months, but his first word not until 11.5 months (Newport & Meier, 1985).

Newport & Meier (1985) offer three possible explanations for the earlier appearance of signs: "(1) earlier maturation of the motor or receptive systems involved in gesture than speech; (2) greater perspicuity, to the infant learner, of gestured than spoken words; and (3) greater recognizability, to the adult observer, of the ill-formed attempts of infants in gesture than in speech."

The same set of problems face the deaf child as the hearing child in filtering out gestures or sounds which are not part of the makeup of his/her language. However, it seems likely that deaf children will see a far greater range of non-linguistic gestures than the non-language-specific sounds to which hearing children are exposed. The innate linguistic faculty functions equally well in either situation to eliminate what is not language specific for ASL or English. Certainly, there is clear evidence of some set of principles that constrain the options from which a deaf child must choose when learning ASL.

Hearing children pay attention to the edges of sentences; deaf children must attend to the face of the signer as well as to his/her hand gestures and body position. What constitutes the edge of a sign or sequence of signs is likely to be, as in speech, what comes at the beginning and at the end of a sign sequence.

Deaf children make use of pantomime to express concepts for which they have not yet learned the signs. Klima and Bellugi note, however, that these invented signs "exhibit certain formal qualities not characteristic of free pantomime; the handshapes, the locations, and the movements are conventional in ways characteristic of existing ASL signs" (1979:11). In other words, there appears to be a strong pull towards conformity with underlying language specific conventions even when, superficially at least, invented signs may appear to

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be just mimetic.

Just as parents or caretakers modify their speech for young hearing children, so adult signers modify their signing for the young deaf child. Signs are often slightly exaggerated in size, and sign movements are repeated. The caretaker register in ASL may also involve signing directly on the child's body and molding a child's handshape and moving it through the appropriate sign motion. How much effect the caretaker's shaping of signs has on the child's acquisition of ASL has not been studied.

Obviously, the ability to physically guide a child through an oral speech act is not possible to the same degree as it is with ASL. However, L1 acquisition research indicates that children will acquire only what they are ready to acquire developmentally, regardless of caretaker input.

Research by Boyes-Braem (cited in McIntire, 1977) suggests that there is an order in the acquisition of ASL handshapes. The model developed by Boyes-Braem (see below) is based on "the gradually increasing ability, both physical and cognitive, of the child to control the weaker fingers, making possible the positive specification (production) of more and more *difficult* features" (McIntire, 1977:16). McIntire's research confirms that children will substitute handshapes from the earlier stages for those in later stages, until he/she is developmentally ready to produce these in signs. These substitutions, McIntire points out, are rule governed, not arbitrary.

As was noted above, this kind of substitution has parallels in spoken language. The order of preference in the model, moves from manipulation of only the thumb and index finger or the whole hand, to use of the ulnar group of fingers (middle, ring and pinky). Developmentally, children gain control of the ulnar fingers later than the thumb and index finger; likewise, it may be that control over the ulnar group is earliest lost by adults, which suggests that we might find similar handshape preferences in adult L2 learners of ASL.

Part III: Second language acquisition of ASL

It is this paper's hypothesis that the acquisition of a second language, whatever its modality, will pose roughly the same set of problems for the post-pubescent learner. While errors will be made with the hands, face and body rather than with the vocal or auditory apparatus, this suggests that L2 learners of ASL will experience very similar problems with articulation, with the identification of sign boundaries, with complex morphology and so forth, that adult L2 learners of spoken languages experience. Also, it is likely that parallels will be found between the deaf child's L1 and the adult's L2 acquisition of ASL.

It must be noted that only about ten percent of the deaf community learn ASL at home as their first language. These are the deaf children of deaf ASL-signing parents. Studies of the deaf who have acquired ASL only after entering school, at the age 5 or slightly older, have found that these individuals never attain native competence in ASL (Newport, 1990). This seemingly earlier critical or sensitive period for the acquisition of ASL, I believe, can be attributed to a lack of exposure to any language during the years prior to entering school and learning ASL.

These points are raised because there are few, if any, language communities in which the majority of its members are non-native speakers, by virtue of not acquiring their first language from birth. This factor might be worth considering when looking at the ultimate attainment of hearing adult L2 learners of ASL. It could be argued though that the lack of availability of native-speakers of a target language is similar to that found in the many schools and colleges in the United States where foreign languages are taught by non-native speakers. It would seem then that for most instructional goals, high proficiency, but not necessarily native, input is adequate in the formal classroom setting.

Comments that were interpreted following a taped lecture, *Factors to Successful ASL Acquisition*, by Dr. Mike Kemp, Chairman of the Sign Communication Department at Gallaudet, left the impression that many deaf students are impatient with beginning learners

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of ASL and switch into Signed English when conversing with them. This, I believe, may also affect the ultimate attainment of hearing learners of ASL as a second language. Instead of the foreigner talk that learners of spoken languages receive, it may be the case that learners of ASL do not get much ASL input outside the classroom, even in a reduced register.

Oliver Sacks in his book on the deaf, *Seeing Voices* (1989), quotes Barbara Kannapell on the protectiveness that many deaf feel about ASL:

> ASL has a unifying function, since deaf people are unified by their common language. But the use of ASL simultaneously separates deaf people from the hearing world. ... This separatist function is a protection for deaf people. For example, we can talk about anything we want, right in the middle of a crowd of hearing people. They are not supposed to understand us. It is important to understand that ASL is the only thing we have that belongs to deaf people completely. It is the only thing that has grown out of the deaf group. Maybe we are afraid to share our language with hearing people. Maybe our group identity will disappear once hearing people know ASL. (cited in Sacks, 1989:129)

One area in which L2 learners may be found to diverge significantly from L1 acquirers of ASL is in the use of the iconicity of signs. Young children do not or perhaps cannot, because of lack of world knowledge, make use of iconicity as a learning strategy, even though they do invent mimetic signs. Adult L2 learners of ASL, because of their broader world knowledge and need for a mnemonic device to store and recall visual language, may reinvest signs with iconicity. Remembering in a different modality, especially spatial relations, may prove to be one of the major hurdles an adult ASL learner faces.

While spatial relations are processed by the right hemisphere of the brain in hearing people, the deaf may store spatial relations differentially in the brain's two hemispheres: linguistic spatial relations are left hemisphere functions, while non-linguistic spatial relations are right hemisphere functions. Bellugi, Klima and Poizner (1988) in a study of ASL aphasics report of a woman with right hemispheric damage, who had no difficulty using all the linguistic aspects of spatial relations in either a left or right direction from her body. But when asked to describe the layout and contents of her room, she was not able to make sense of the non-linguistic spatial relations involving areas to her left. "Apparently, it is not the physical nature of the stimuli but their functional interpretation that determines which hemisphere will process them" (Fromkin, 1988:5).

Part IV: Evidence from second language acquisition of ASL

In order to gather evidence on second language acquisition and ASL, two hearing learners of ASL were interviewed.[2] Both women were highly motivated and had positive feelings about the deaf community because of experiences they had as children with deaf classmates. They also had studied Signed English prior to learning ASL at Gallaudet University.

While self-reporting is always a questionable source of empirical data, it may not be beyond the bounds of reasonable research practices to report on impressions drawn from casual interviews, keeping in mind that these are just impressions, not facts. Impressions

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[2]The two hearing learners of ASL included a current graduate student in the Sign Communication Department at Gallaudet and someone who studied and worked at Gallaudet a number of years ago.

from these two interviews contributed to the belief that ASL is perceived as different because of its modality and the pervasiveness of English language surrounding it.

Using one's body to express oneself, though perhaps daunting for someone shy or self-conscious, certainly is not foreign to most people. People use body language throughout the day to enliven our words or clarify them. Of course, this kind of body language has no linguistic content, but there appears to be some positive transfer or association here which is modality-specific. Both interviewees reported having far more difficulty with learning a spoken foreign language than with ASL. Naturally, there are many other factors to be considered, but the perception that ASL is not really a foreign language may have a positive effect on L2 acquisition.

Dr. Kemp's taped lecture mentioned earlier focused on social and affective variables in the acquisition of ASL. He specifically mentioned learner's problems with facial expressions and tied these to language shock, the fear of looking foolish and making mistakes in the target language. He felt that the learners's attitude toward the deaf community, integrative motivation, length and depth of acquaintance with the deaf community or culture, and lots of language practice in social settings were key to acquiring ASL. The chairman of any language department would, to be sure, have very similar observations on learning a spoken language.

Finally, examining the findings by Irene Koshik (1982) attempts to add to the data of ASL as a second language. Koshik studied the interlanguage of three English-speaking graduate students, including herself, who were studying ASL. She video-taped two conversations, the first after five days of class instruction and the second after five weeks of instruction. Classroom methodology employed Direct Method (British Audio-Visual adapted to visual-visual requirements), with some Grammar-Translation and some Total Physical Response. Spoken English was used on the board or in handouts. Students were taught to mouth English while signing ASL.

The conversation that Koshik taped of herself and two friends after five days of instruction in ASL had "very little content and little sustained discourse" (1982:19), which is hardly surprising, although all three women had studied several other foreign languages and taught ESL. Each of the participants tried to introduce chunks of dialogue learned in class, but when questioned about these, none of them was able to keep the conversation going. Topics shifted abruptly and finally the conversation completely broke down.

By contrast, after five weeks of instruction, these three women were able to hold a fairly elaborate conversation on a wide range of topics. Although their grammar was still limited at this stage, they had acquired a large vocabulary which they were able to use imaginatively to sustain conversation. (Whether the same level of conversational success would have been possible with a stranger who spoke only ASL was not tested.) The pattern of both these conversations was largely narrative, story-telling. This is far different from the typical pattern found in native/non-native conversations, but it was the format typically used in these students' ASL classes.

Transfer errors were seen in the transfer of English syntax, lexical items and discourse pragmatics. Koshik notes that "discourse features such as segmentation of utterances and pause time between utterances can subtly influence attitude toward the conversation partner.... When English rules (of permissible length of eye contact) are transferred into ASL, deaf persons perceive hearing addressees to be inattentive and uninterested in what is being said. (H)earing people who do not make full use of ASL facial expression may be perceived as being boring monotones while signing, and uninterested in conversational partners when another is signing (1982:39).

The most common lexical errors Koshik found were those involving spatialization and classifier usage, "two grammatical categories absent from English" (1982:106) and late learned by first language ASL acquirers. Prepositions, for example, are expressed by spatialization in ASL, but learners tended to lexicalize these function words.

The conversational strategies found by Koshik in this study were similar to those common to learners of spoken languages: paraphrase, conscious transfer from L1, mime, appeals for assistance, comprehension checks and requests for clarification (Koshik 1982). However, as we noted above, these strategies do not appear to characterize native/non-native conversations in ASL, where switching from ASL to Signed English appears to be the preferred conversational strategy.

Koshik concludes by stating that the origin of errors and conversational strategy types were similar to those occurring in the acquisition of spoken languages, though evidenced in slightly different ways due to the difference in modality.

Part V: Conclusions

It appears that phonology, in whatever modality, will be difficult for adult learners to acquire, and that mastery of the syntax of ASL will make special demands on the learner's visual acuity, sensitivity to timing and manual dexterity in much the same way that spoken language does on the auditory and vocal faculties. The adult learner's ability to note the iconicity of signs and to use pantomime may be helpful as mnemonic devices, but are not of long term value in learning ASL. However, if it is true that learners of ASL perceive it as less foreign than a spoken language, this may have an effect on the rate, but not the route, of acquisition.

As research on the structure of languages continues, we may begin to find that the two modalities, visual-gestural and auditory-vocal, are really not as different as they seem on the surface. One can already point to parallels between autosegmental phonology's description of spoken language and the simultaneity of ASL's phonology.

More research is needed to verify the similarities between first and second language acquisition of ASL. What has been reported in this paper suggests that it is likely that some similar acquisition orders will be found.

For too long ASL went unnoticed and unappreciated and the term *language* was reserved only for auditory-vocal modalities. The last thirty years have seen welcomed changes in this view. No one any longer doubts that American Sign Language is language--rich in wit, plays on signs, poetry, drama, and even songs without sound. Unlike spoken language, we can choose not to attend to the visual-gestural language modality, but, as this paper has hopefully illustrated, not to pay attention would mean ignoring a fruitful line of research which promises to shed new light on language structure and language learning.

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