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PREVIEW

Morariu, Janis Ann

**COGNITIVE PROCESSING IN THE PRE-LINGUALLY DEAF AS A
FUNCTION OF THE CONTEXT OF LANGUAGE ENCOUNTERS: A
CONTEXTUALIST PERSPECTIVE**

The University of Nebraska - Lincoln

Ph.D. 1982

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PREVIEW

COGNITIVE PROCESSING IN THE PRE-LINGUALLY DEAF AS A FUNCTION OF THE
CONTEXT OF LANGUAGE ENCOUNTERS: A CONTEXTUALIST PERSPECTIVE

by

Janis Morariu

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Philosophy

Major: Interdepartmental Area of Psychological and
Cultural Studies

Under the Supervision of Professor Roger Bruning

Lincoln, Nebraska

August, 1982

TITLE

COGNITIVE PROCESSING IN THE PRE-LINGUALLY DEAF AS A FUNCTION OF THE
CONTEXT OF LANGUAGE ENCOUNTERS: A CONTEXTUALIST PERSPECTIVE

BY

Janis Morariu

APPROVED

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SUPERVISORY COMMITTEE

GRADUATE COLLEGE

UNIVERSITY OF NEBRASKA

YOU HAVE TO BE DEAF TO UNDERSTAND

by

Willard J. Madsen

What is it like to "hear" a hand?
You have to be deaf to understand!
What is it like to be a small child
In a school, in a room void of sound --
With a teacher who talks and talks and talks;
And then when she does come around to you,
She expects you to know what she's said?
You have to be deaf to understand.
Or the teacher who thinks that to make you smart,
You must first learn how to talk with your voice,
So mumbo-jumbo with hands on your face
For hours and hours without patience or end,
Until out comes a faint resembling sound?
You have to be deaf to understand.
What is it like to be curious,
To thirst for knowledge you can call your own,
With an inner desire that's set on fire--
And you ask a brother, sister, or friend
Who looks in answer and says, "Never mind!"?
You have to be deaf to understand.
What is it like in a corner to stand,
Though there's nothing you've done really wrong,
Other than try to make use of your hands
To a silent peer to communicate
A thought that comes to your mind all at once?
You have to be deaf to understand.
What is it like to be shouted at
When one thinks that will help you to hear;
Or misunderstands the words of a friend
Who is trying to make a joke clear,
And you don't get the point because he's failed?
You have to be deaf to understand.
What is it like to be laughed in the face
When you try to repeat what is said;
Just to make sure that you've understood,
And you find that the words were misread --
And you want to cry out, "Please help me, friend!"?
You have to be deaf to understand.
What is it like to have to depend
Upon one who can hear to phone a friend;
Or place a call to a business firm
And be forced to share what's personal, and
Then find that your message wasn't made clear?
You have to be deaf to understand.

*What is it like to be deaf and alone
In the company of those who can hear
And you only guess as you go along,
For no one's there with a helping hand,
As you try to keep up with words and song?
You have to be deaf to understand.
What is it like on the road of life
To meet with a stranger who opens his mouth --
And speaks out a line at a rapid pace;
And you can't understand the look in his face
Because it is new and you're lost in the race?
You have to be deaf to understand.
What it is like to comprehend
Some nimble fingers that paint the scene,
And make you smile and feel serene
With the "spoken word" of the moving hand
That makes you part of the world at large?
You have to be deaf to understand.
What is it like to "hear" a hand?
Yes, you have to be deaf to understand.*

PREVIEW

ACKNOWLEDGMENTS

Many people have offered me their support and expertise toward the completion of this study. I would especially like to thank Dr. Roger Bruning, my advisor, for his willingness to work closely with me and guide me very capably through this process. Dr. Robert Stepp, Jr. has not only served on my committee, but has created a working environment at the Educational Media Production Project for the Hearing Impaired that encourages continued professional growth. The other members of my committee deserve my heartfelt thanks for providing me with their valuable comments and challenges throughout my coursework and research: Dr. Barbara Plake, Dr. Royce Ronning, and Dr. Lee Witters. I also wish to express my gratitude for the initial motivational influence of Dr. Ronald Kelly, my former advisor and a present member of the faculty at Gonzaga University.

A number of people on staff at EMPPHI have openly offered their technical assistance. Lois Dam spent a number of lunch-hours proofreading, offering constructive criticisms, and patiently computing reading levels for the passages used in this study. Casey Stone served as a supportive friend and the sign language interpreter for the videotape segments. Dick Young assisted in videotaping the signed stories and in providing me with beautifully edited copies. Dr. Jill Stoefen, a former member of our project who is presently coordinating the Hearing and Impaired Program at UNL, shared much of her humor, enthusiasm, and warmth with me throughout my studies. I

would like to especially thank Dr. Richard Harding for his expert statistical advice and encouragement.

Suzie Sybouts not only typed my comps and dissertation, but provided me with her experience and helpful suggestions on technical procedures for completing this process.

This study is dedicated to the efforts of a number of hearing impaired individuals. Elly Propp, Paul Kelly, Lillian Gross, and Norman Weverka served as consultants and reviewers for the signed portion of the study. The students and staff from the Nebraska, Iowa, Missouri, and North Dakota Schools for the Deaf contributed a great deal to this effort--without their cooperation this study would not have been possible. I would especially like to acknowledge and thank my parents, Shirley and Eli Morariu, who raised me within the closely-knit circle of their deaf community, and who allowed me the freedom and gave me the responsibility to explore and expand my visions from very early in life.

My sincerest appreciation goes out to Kathryn Christiansen, my closest friend, companion, and supporter. Without K's encouragement and unselfish caring this would have been a long and lonely process.

J.A.M.

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PREVIEW

CHAPTER I

INTRODUCTION

In his book, Thinking Without Language: Psychological Implications of Deafness, Furth (1966) identifies a major problem in the education of deaf learners when he states, "The fact is that under our present educational system the vast majority of persons, born deaf, do not acquire functional language competence, even after undergoing many years of intensive training" (p. 13). Although Furth's assertion was made over 15 years ago, the problem of English language competence among the deaf remains a timely issue.

Trybus and Karchmer (1977) conducted an evaluation of reading achievement among deaf children using the Special Edition for Hearing Impaired Students of the 1973 Stanford Achievement Test. Results from a stratified random sample of 6,871 hearing impaired children from various educational programs indicated that half of the students at age 20 and younger read at less than a 4.5 grade equivalent level, barely the literacy needed to read a daily newspaper. Nationally, only about 10 percent of the deaf 18-year-olds could read at or about the average eighth grade equivalent. The overall bleak reading achievement picture is drawn by Trybus and Karchmer (1977) in the following summary:

At no age does even the 90th percentile line for hearing-impaired children approach the mean line for hearing children. The difference between the mean line for hearing-impaired children increases from about a grade and a half at age 9 to more than 5 grades by age 14. (p. 64)

Furth (1966) has attributed such reading problems to the deaf student's inability to handle English language ordering and structure. A 14-year-old deaf student with a grade three reading comprehension level, Furth noted, may be quite different than a hearing peer of the same age who is also reading at a grade three level. Where the hearing student may still have a reasonable mastery of the language despite the reading difficulty, the deaf student's measured grade three reading level is probably the ceiling of his or her English language competence. Average six-year-old children with normal hearing have usually spoken and understood 80 to 90 percent of the basic sentence patterns that they will encounter as adults (Pearson & Johnson, 1978). Because average pre-lingual deaf children lack exposure to the dominant spoken language of the culture, the teaching of language and reading is usually done in a repetitive and stepwise manner that focuses on grammar, syntax, and often phonics (Kretschmer & Kretschmer, 1978). For deaf children who have a limited concept of the language being taught, such an instructional approach is unlikely to develop language processing beyond the syntactic level.

Pearson and Johnson (1978) distinguish between the role of syntax and semantics in reading comprehension by asserting:

. . . [L]inguistic competence is an absolute prerequisite for reading comprehension. Such an assertion is almost tautological, since language is the medium of comprehension [W]e will take our stand firmly on the side of semantics rather than syntax as the more potent of these linguistic variables in explaining comprehension. (pp. 19-20)

Although the decoding skills necessary for reading comprehension exist at both the syntactic and semantic levels, LaBerge and Samuels (1976) contend that readers can attend to only one of these tasks at a time. They also claim that readers functioning at the word identification level, for example, have little attention available for processing the meaning of messages. Successful readers, however, possess word identification and syntactic decoding skills that operate automatically so that they can direct most of their attention to processing the meaning of messages. The problem of teaching reading comprehension to pre-lingual deaf children rests in deciding how to best establish an effective method of meaningful processing within deaf children's developing information processing systems.

The deaf individual's sensory world is predominantly visual and tactile. Such an individual, if he or she is congenitally deaf, has lacked most experiences attributable to auditory sensing. A deaf infant, for example, does not experience the approach of parents auditorially and then visually as normal functioning infants could. The deaf infant operates in the immediate experiential confines of an environment sensed only through touch and sight. The development of a visual language encoding system in such an environment is just as logical as the development of an auditory encoding system among hearing infants (Bloom, 1973; Kretschmer & Kretschmer, 1978; Nelson, 1973). The deaf child's lack of auditory input, then, may lead to the development of information processing capabilities vastly different

from those used by auditorially intact individuals (Conlin & Paivio, 1975; Conrad, 1972; Kretschmer & Kretschmer, 1978; Wallis & Corballis, 1973).

Differences in information encoding as determined from previous research indicate that deaf individuals who use sign language actually process print information visually, while hearing individuals process such material auditorially (Conrad, 1972; Frumkin & Anisfeld, 1977; Locke & Locke, 1971; Wallis & Corballis, 1973). Deaf individuals experience more confusion in recognition, for example, between printed letters in which the signed equivalents are visually similar, while hearing individuals experience more errors in recognition between letters that are acoustically similar (Locke & Locke, 1971). Similarly, Frumkin and Anisfeld (1977) have concluded that items presented in a non-speech medium (i.e., print) are encoded into speech by hearing subjects and into a sign language system by deaf subjects. For pre-lingual deaf individuals, then, the encoding and retrieval of information received from a print medium may actually be a multiple-step process in which, first, they must transform a verbal code into a visual mode for processing, and second, they must transform the stored visual code back into a verbal code in order to communicate with hearing individuals.

In an attempt to utilize the visual processing orientation of deaf children to facilitate English language acquisition, many educational programs for deaf learners adopt a system of signed English in which the syntax of English is held intact (Fant, 1972; Kretschmer

& Kretschmer, 1978). Also, studies of language acquisition among deaf children show that they informally develop a visual/gestural form of communication in stages similar to hearing children's acquisition of spoken language, irrespective of whether the deaf children's parents are able to use sign language or not (Kretschmer & Kretschmer, 1978). Kretschmer and Kretschmer (1978), however, note that the gesture systems of developing deaf children can be best analyzed as developmental steps toward their acquisition of American Sign Language (ASL), the sign language used by the majority of deaf adults.

ASL is a visual/conceptual language system, whereas English is based on an auditory/temporal orientation (Bellugi & Klima, 1975; Kretschmer & Kretschmer, 1978). Although signed English appears to be similar to ASL in that they share much of their sign-vocabulary, they are actually two distinct language systems. Where signed English adheres to the grammar and syntax of spoken and printed English, ASL is a "spatial language in motion" (Hoemann, 1975, p. viii) in which variations in movement, position, handshape, and facial expression indicate grammatical relationships (Fant, 1972; Hoemann, 1975). ASL, then, portrays more of a gesture-concept relationship to English whereas signed English portrays a gesture-word relationship to English (Fant, 1972; Hoemann, 1975; Kretschmer & Kretschmer, 1978).

In spite of the fact that most deaf children are exclusively taught English in school, most are likely to use a form of signed ASL as adults (Fant, 1972; Hoemann, 1975; Kretschmer & Kretschmer, 1978). The acquisition of signed ASL for many deaf individuals occurs

through an informal, and often sporadic, exposure to other deaf youngsters and/or adults using ASL (Fant, 1972; Kretschmer & Kretschmer, 1978). One may question at this point why almost all pre-lingual deaf individuals who have been formally taught in a system of proper signed and written English would adopt as their primary language, a signed language so radically different from English through informal exposure. Perhaps ASL is better suited than English to deaf individuals' information processing capabilities.

Although ASL is typically not a language communicated through print, much of the grammar and syntax of ASL can be conveyed through print using English words (Fant, 1972; Hoemann, 1975). Hoemann (1975), for example, presents printed English passages with ASL translations in print as part of the lexical and grammatical exercises used to teach ASL to hearing individuals. Through the use of printed English passages and their ASL print equivalents, a study by Morariu and Bruning (1982) examined the possibility that ASL encountered in a print format might help deaf readers bypass the extra encoding and retrieval steps, thereby allowing them to focus more easily on processing the meaning of passages.

The favored prediction of the study, that for deaf subjects ASL syntax in print would facilitate the cognitive processing of print language, was not supported by Morariu and Bruning's data. For the deaf subjects it appeared that words in print, regardless of whether they were presented in ASL or English syntax, actuated the

application of a sequence of memorized English language rules of grammar and syntax that require a tremendous amount of cognitive processing effort. Since ASL is a language of signs and English is a language of print for deaf individuals, the deaf subjects' greater recall of propositions from the English rather than the ASL versions of passages in print may be more directly linked to the context of the language encounter, rather than the syntactic structure of the language in print.

The question of whether the language context encountered (print versus signed versions of ASL and English syntax) produces significant differences in the recall of information from passages presented to pre-lingual deaf individuals is the focus of the present study. If encountering a print story triggers the application of English language rules and previous English language experiences as part of an attempt at comprehension, as implied by Morariu and Bruning (1982), it may be the case that, for pre-lingual deaf learners, a signed story would trigger the global application of ASL-related rules and previous experiences with ASL. The more familiar and stable context should enhance comprehension.

A contextualist interpretation of the Morariu and Bruning (1982) findings as well as language comprehension and information encoding studies with pre-lingual deaf subjects leads to the prediction that the present study would yield significant differences in recall as a function of the language mode (print or sign) encountered and the language form (ASL or English) encountered.