UNLOCKING THE POWER OF SIGN LANGUAGE: MASTERING ALPHABETS AND MULTIMODAL COMPONENTS

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ABSTRACT

Teaching sign language to beginners (hearing students) in the department of linguistics is a daunting task which requires more understanding of the various levels of representation from 10 gestures to motion characterized by four multimodal components. This study highlights the connection existing between signs and multimodal components: handshape, signing area, hand movement and palm position as proposed by Stokoe. These components act independently to convey meaning. Hence, any incorrect gesture alters the semantic content of the word or sentence. We place this study in the framework of a theoretical and practical model that posits 15 illustrative intent "tell and show" by the signer as the organising principle of sign language. A descriptive survey research was employed with the help of observation as instrument for data collection. Motion captured data was collected through 30 minutes of observation as the signer is perceived performing signs. Data evaluation and analysis is done on the quality of the gestures performed. Findings indicate that: 1. There are 26 alphabets in sign language which stands as the 20 base for students to learn and master for effective teaching and learning of sign language. 2. These alphabets have fundamental multimodal components that make up the sounds which students must learn. 3. There are three aspects students must possess to become skilled signers. It was recommended that the University of Bamenda intensifies monitoring and supervision to help students acquire proficient signing skills while lobbying for donor funding to provide resources 25 necessary to teach the course.

Keywords: Sign language, manual alphabet, sign representations, fingerspelling, multimodal components.

1. INTRODUCTION

The Department of Linguistics and African Languages seeks to provide theoretical and practical training in sign language to its students to solve practical problems in the language industry especially the deaf community. Their reasons for learning sign language as students may be professional (interpreters, researchers, sign language teachers and therapists). Sign language is a visual-gestural language, employed by a large percentage of the Deaf and hearing population around the world. It has alphabets, manual numbers, an extensive vocabulary, its own grammatical patterns, rules of usage and syntax. This article sets goals of teaching the basics of SL to students. It also strives for an enjoyable and enlightening journey toward these goals. The language is gaining the respect and attention of people from all walks of life. Sign language classes are popping up in schools, universities, in churches, halls, and conferences. Regardless of the reason why someone chooses to learn the language, this article will put us on the road to signing. Its visual appeal also makes it attractive to hearing people who may not even be communicating with someone who is Deaf. SL is complex in its intricate use of body language and facial expression,

yet provides opportunity for simple self-expression and individuality. Little has been published on the teaching of sign language in Cameroon. Sharing this information is a form of research requiring systematic presentation and dissemination. Inclusivity is one of

10 the biggest themes in the world. Organizations understand that their policies, frameworks and protocols have to be more accessible to all sections of society. This calls for a bigger focus on sign language teaching and learning.

This study highlights teaching and mastering the letters of the alphabet to beginning signers (hearing students) and understanding the basic fundamentals of SL. Students benefit from positive cognitive impacts when learning sign language, and also prosper from becoming multilinguals. It gives us hope that this article will have an impact on the well-being of linguistics students and the whole education system in the University of Bamenda in particular and Cameroon in general. The study was conducted with the following objectives.

1.1 Objectives of the Study
The study has the following objectives:

➢To introduce sign language alphabets to undergraduate hearing students in the Department of Linguistics and African languages, The University of Bamenda

➢Identify the various multimodal components that make a sign

➢To propose ways of improving students signing skills

These objectives led to the following research questions.

1.2 Research Questions
The following research questions served as guidelines to the study: RQ1 How many symbols are represented on the manual alphabet chart?

RQ2 What are the fundamental components that make a complete sign?
RQ3 How can students improve their skills in learning sign language?

1.3 Justification of the Study
Several reasons motivated and encouraged the researcher to undertake this study. The crave for learning sign language has become a driving force in developing countries and the world at large, to train students to become experts in sign language either as teachers, language therapists or interpreters as well as expose students to sign language alphabets, numbers, vocabulary and signing gestures. This study is therefore, expected to make valuable contribution in the research of knowledge to fill the existing gap in the literature and serve as a future reference to many similar studies. The study will provide latest information to education policy makers and other stakeholders to develop appropriate actions to address the challenges students encounter in learning Sign Language. It is therefore, worthy to be conducted.

1.4 Literature Review
Review of literature consists of conceptual, theoretical and empirical framework. Concepts related to the study are examined. The theoretical frame focused on Motor theory of sign

15 language perception. The empirical frame reviewed previous studies on similar topics and their weaknesses.

1.4.1 Conceptual Framework
The conceptual frame focused on concepts closely related to the topic such as: basic multimodal components and fingerspelling.

1.4.1.1 The use of sign representation and multimodal components.
Sign language has four components that together characterize a sign. Any change applied to any one of the components, results into something completely different. According to Stokoe (1983), the four parts of a sign are:
• Handshape
• Signing area
• Hand movement
• Position of the palm

1.4.1.2 The use of fingerspelling
Fingerspelling, which is a system of spelling out words using the alphabet, is a manual form of signing. If you form the shape of the alphabet letter "D" and combine it with the correct palm position, hand movement and signing area, you'll be making a sign. The manual alphabet is
5 extremely useful. It is used for finger spelling as well as handshapes. When we start learning various vocabulary signs, it will be very important to make sure we are using the proper handshape. The teacher will tell you what handshape is used in each sign, and you'll probably need to check it to make sure you've got it right. It is good to study the handshapes illustrated on the manual alphabet chart on fig. 1, p. 8.
10 Fingerspelling is a laborious process of spelling out words by forming letters of the alphabet by various hand shapes and positions. Fingerspelling is used in conjunction with SL, primarily to identify proper nouns, brand names, etc. It is not an ideal means of communication on its own, however, because it is very slow. Even people who are very experienced in using fingerspelling tend to be slow in the process.

1.4.2 Theoretical framework
We adopt the motor theory of sign language perception which is the movement of body articulators, and that the encoding and decoding of linguistic information should be addressed at motor program level characterizing the movement. We assume that the motor theory of sign language perception is based on two mechanisms, one for sign language production, and the
20 other one for sign language perception. Production: encoding from motor program and linguistic information positioned in the signing space (spatial targets); perceptive (perception of muscles and articulations), from body movements. These sensory cues provide motor commands that modify the current action applied to the muscular-skeleton system. When producing sign language gestures, the linguistic information is also exploited to generate a sign language
25 utterance which is then translated into a motor program. In the context of sign language synthesis, the motor programs represent a sequence of goals, as for example key postures of the hand, hand movements, signing area and palm position. This theory is relevant to this work because

its application gives better understanding to the learners relating to the idea that there is a strong connection existing between signs and multimodal components.

1.4.3 Empirical framework

William Stokoe (1960, revised 1978) in his work, "Sign Language Structure", presented the first linguistic description of American Sign Language. Since that publication, the number of linguists studying sign languages has increased dramatically, and the analysis of sign language, particularly American Sign Language, has become more sophisticated. Despite the growing amount of evidence that points to a definition of American Sign Language as a language (Klima and Bellugi 1979; Liddell 1980; Siple 1978; Wilbur 1980), there are still linguists who assert that sign languages are more properly labelled as "systems" which do not exhibit the characteristics and properties of language (Crystal and Craig 1978). This paper examines current linguistic analyses of Sign Language alphabets and components that make a complete sign and the relationship between parameters in an attempt to refute the notion that it is more properly labelled a system.

According to Meier (2006), children's earliest signing often involves movement. This can be directly related to repeated movements in motoric development such as the stereotypes of repeated kicking or arm waving. Meier (2006) also argues that children's early non-target forms in two-handed signs may be explainable by reference to a phenomenon known as 'sympathy', whereby children have difficulty inhibiting the action of one hand when the other is active.

Conlin et al. (2000), Marentette & Mayberry (2000) suggest that some place errors are not consistent with a motoric explanation, but rather indicate that the child has misrepresented the place value of certain signs. This suggestion reinforces Meier's comment that understanding articulatory factors helps to identify those aspects of development which require alternative explanations.

The above empirical studies are relevant to this work because their results indicate the existence of close relations between parameters.

3. METHODOLOGY

A descriptive survey research was employed with the help of observation as instrument for data collection. Motion captured data was collected through 30 minutes of observation as the signer is perceived performing signs. Data evaluation and analysis is done on the quality of the gestures performed. During data collection process an alphabet chart consisting of 26 sign language symbols arranged accordingly was shown to the participants who are expected to acquaint themselves and master the various symbols. These symbols are presented on a chart with a white background colour. The symbols are black in colour to give a better view. The reason for such an extensive demonstration is that in order to develop appropriate signing skills, one must begin by mastering these alphabets for fingerspelling and vocabulary learning. Individual signs are learned based on four phonemic parameters (handshape, movement, location, and orientation of the palm), following McKee et al.'s (2000) guidelines. For McKee et al., signs share at least three out of four parameters. This design was selected because participants gain an in-depthunderstanding of underlying factors. It provided details as far as the problem was concerned.

4. FINDINGS

Findings reveal that:

1). How many letters are represented on the manual alphabet chart?

The Manual Alphabet contains 26 handshapes that correspond to the letters of the English alphabet. Some of the handshapes are the exact shapes of the printed block letter they represent and are easy to remember. Some are a bit trickier. You've already learned that a handshape is not a sign, but a tool invented for use in communication. Manual alphabets are not natural languages, but useful additions to those languages. The handshapes are relatively easy and can be learned in few hours.

2).What are the four multimodal components in sign language?

Sign language has complex symbols containing different and distinct parts that characterize a sign. Any change applied to any one of the components result to something different.

The four parts of a sign are:

• Handshape
• Signing area
• Hand movement
• Position of the palm

3). How can students improve their skills in learning sign language?

In order to teach and learn sign language effectively:

- A conducive learning environment equipped with adequate teaching and learning resources would enhance effective teaching.
- Active commitment and effective participation of the students will boost instruction.
- Regular class attendance while practicing the language all the time will foster learning.
- Students should visit areas where the language is used often.

5. DISCUSSION OF FINDINGS

Discussion of findings comprised mastery of the 26 sign language alphabets and explaining the four components that make a complete sign.

5.1 Research question 1: To identify and master the 26 symbols represented on the manual alphabet

Fig 1 below presents the 26 letters of the manual alphabet.

Fig 1: The manual alphabet

We are going to learn to recognize the letters of the Manual Alphabet and to form those letterswith our hands. It will take some practice but once you've memorized the manual alphabet, which also serves as many of the SL handshapes, you will start to sign.

Let's get started.
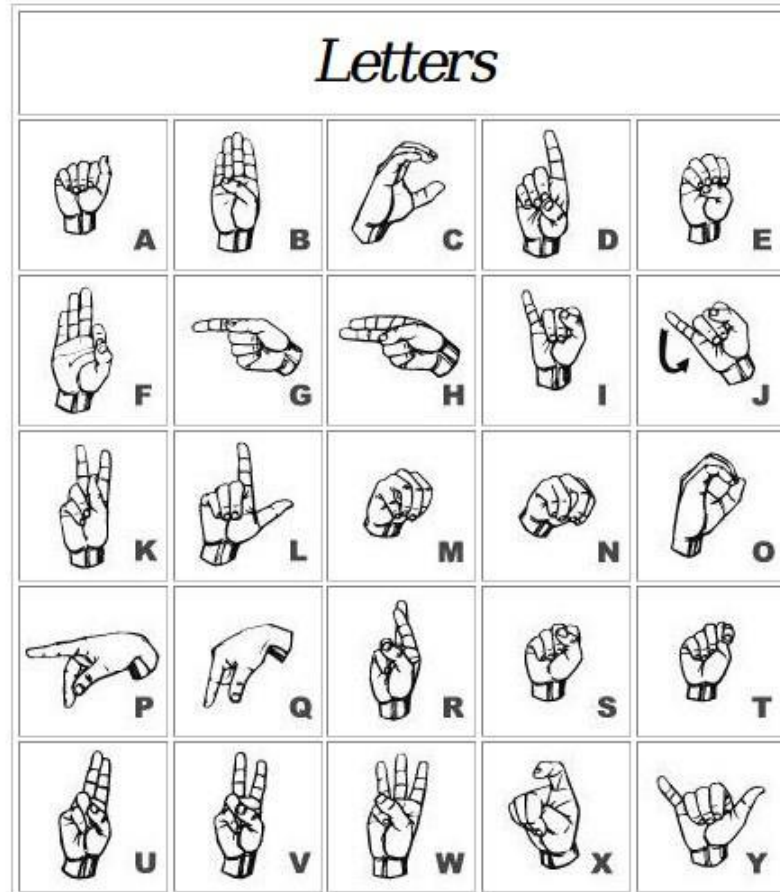
Fig 1 indicates a total number of 26 letters of sign language alphabet.

Answering RQ1 the Manual Alphabet contains 26 handshapes that correspond to the letters of the English alphabet. It is used for finger spelling, a system of communication that involves spelling out words in an alphabetical language. Fingerspelling can be used by itself, but it's most often used in conjunction with sign language to spell out proper names and technical words. It is cumbersome and time consuming to use as a means of communication by itself. The average finger spelling rate is about 60 words per minute, which is only about 40 percent as fast as the normal rate of speaking. Some of the handshapes are the exact shapes of the printed block letter they represent and are easy to remember. Some are a bit trickier. You've already learned that a handshape is not a sign, but a tool invented for use in communication. Manual alphabets are not

natural languages, but useful additions to those languages. The handshapes are relatively easy and can be learned in just a few hours.

5.2 Research question 2: To find out various fundamental components that makes a complete sign

Sign language has four components that characterize a sign. Any change applied to any one of the components, will result to something different.

The four parts of a sign are:
• Handshape
• Signing area
• Hand movement
• Position of the palm

Sign language is a complex system of symbols, containing different and distinct parts. Let's look at each of these components how they make up signs.

5.2.1 Handshape

Handshape is integral to sign language. Each sign is formed with the hands in a particular position and handshape. Handshapes correspond to the letters of the manual alphabet. They also correspond to number shapes, which we'll learn also. Many handshapes are alphabet or number shapes. Some, however, are neither. The sign for "airplane," or "to fly in an airplane," for instance, uses the "I Love You" or ILY handshape. That handshape is palm out, thumb, little, and index fingers up, with the middle fingers bent. To sign "airplane," you turn your palm down and move your hand up, out, and slightly away from you two times. The hand moves away from you further, but only once, when signing "to fly in an airplane."

5.2.2 Signing area

The signing area is generally thought of as an imaginary rectangle. The area is shoulder, extending from the top of the head to the waist. Nearly all signs are formed within the area, and

for a logical reason. It's easier to see signs when they're near the head or neck, as opposed to other areas of the body. Signs used to be formed outside this imaginary rectangle more frequently than they are today. They've gradually moved into the signing area, making them easier to read. You may have the same handshape, palm position, and movement, but completelychange the meaning of a sign by where you are holding your hands.

The sign for "stomach," you start with your right hand in a "bent B" handshape and tap above your waist. Get it? You tap on your stomach! Now, if you were to tap on your forehead with the same handshape, it wouldn't mean stomach.

5.2.3 Hand movement

If we observe two people conversing using sign language, one will discover that conversational exchange consist of movements. Their bodies bend, facial expressions change constantly, and their hands seem to be constantly in motion. Hand movement is not only an integral part of the energy and beauty of sign language, it can change the meaning of a sign. Direction, speed, and the intensity of hand movement are all important factors in signing. Some signs require no hand movement. These are called stationary signs. Most signs require movement by only one hand, while the other

remains stationary. When movement is required, however, it is an integral part of a sign. An example of a sign in which one hand is stationary while the other moves is "banana." The left index finger is pointed up while the right hand makes the motion of peeling a banana.
The meanings of some words change depending on the direction in which the hands are moved.

5.3.3 Position of the palm
The position of the palm is the last of the four basic parts of a sign. You might get everything else right, but if you turn your palm down when it should be up, you won't be signing what youwant to. Palm position can completely change the meaning of a sign.

5.3 Research question 3: To outline ways of improving students signing skills
Sign language and deaf culture are complex topics that require extensive study. A sign language course or two does not make someone an expert. How you sign something, using a facial expression and body language, is as important as the signs you use. The following points can help you learn sign language more quickly:

- Sign language is a complete and complex language which is not mastered easily beyond a basic level. Mastery requires extensive exposure, commitment and practice for someone to become a fluent signer. To become a skillful signer, you'll have to go to where Deaf people are. A good place to start might be an organisation in your area that provides services for Deaf people. Other places where you could observe and perhaps participate in signed conversations are churches where sign language is used during the service, schools for Deaf children, theaters and concerts for the Deaf, and sporting events with Deaf participants.
- Regular class attendance and practicing the language frequently will boost learning. The point is, you can learn signs from a book, but you can't learn sign language from a book. Sign language is a whole package, delivered best by the people to whom it belongs.

6.CONCLUSION
Based on the research findings, the following conclusions were made: Sign language is lively, fun, and expressive. It is a complete and complex language with all the nuances and subtleties any language can possess. It is not mastered easily beyond a basic level. Mastery requiresextensive exposure, commitment and practice. This language can take from three months to three years of regular study for someone to become a fluent signer yet, the language is incredibly useful. Sign language has four distinct components that make up each sign: handshape, signing area, hand movement, and position of the palm.
1.Most but not all handshapes are the shapes for the manual alphabets or numbers.
2. Nearly all signs are formed in the signing area which is an imaginary rectangle extending shoulder width, from the waist to the top of the head.
3.Hand movement can mean different things when signed in different locations. The speed, direction, and intensity of hand movement can change the tone and meaning of the sign.
4.Palm position is very important when signing. Palm position takes the form of Up-Down or Left- Right movements.

6. RECOMMENDATIONS
Based on the study results and conclusions, the following recommendations were made:

1. Sign Language courses for undergraduate students should be practical to equip them with signing skills. Sign Language training should improve the education status of hearing learners in Cameroon.

2. School administration should give the programme enough publicity to increase the level of awareness and create links with organizations to give openings to the students.

REFERENCES

Bellugi, Ursula 1980 How Signs Express Complex Meaning. In Sign Language and the Deaf Community. Charlotte Baker and Robbin Battison, eds., pp. 53-74. Maryland: National Association of the Deaf.

Conlin , D., & Paivio, A. (2000). The associative learning of the deaf: The effects of word imagery and signalbility. Memory and cognition,3 (3),335-340. doi: 10.3758/BF03212921

Crystal, David and Elma Craig 1978 contrive Sign Language. In Sign Language of the Deaf. L.M. Schlesinger and Lila Namir, eds., pp. 141-168. New York: Academic Press.

Ingram, Robert 1978 Theme, Rheme, American Sign 193-218. Topic, and Comment in the Syntax of Language. Sign Language Studies 20:

Klima, Edward and Ursula Bellugi. (1979). The Signs of Language. Cambridge: Harvard University Press.

Liddell, Scott K. 2003. Grammar, gesture and meaning in American Sign Language. Cambridge UK and New York NY: Cambridge University Press.

Liddell, Scott K. 2000. Indicating verbs and pronouns: pointing away from agreement. In The Signs of Language Revisited: An Anthology to Honor Ursula Bellugi and Edward Klima, eds Karen Emmorey and Harlan Lane, 303-320. Mahwah, NJ: Lawrence Erlbaum Associates.

Marentette, P. F., & Mayberry, R. I. (2000). Principles for an emerging phonological system: A case study of acquisition of American Sign Language. In C. Chamberlain, J. P. Morford, & R. I. Mayberry (Eds.), Language acquisition by eye (pp. 71-90). Mahwah, NJ: Erlbaum.

McKee, D. & Kennedy, G. (2000). Lexical comparisons of signs from American, Australian, British and New Zealand Sign Languages. In K. Emmorey and H.

Meier, R. P. (2006). The form of early signs: Explaining signing children's articulatory development. In B. Schick, M. Marschark, & P. E. Spencer (Eds.), Advances in sign language development by deaf children (pp. 202-230). Oxford: Oxford University Press.

Meier, R. P., Mauk, C. E., Cheek, A., & Moreland, C. J. (2008). The form of children's early signs: Iconic or motoric determinants? Language Learning and Development, 4, 63-98. Siple, Patricia, S. Fischer, and U. Bellugi. (1982). Memory for Nonsemantic Attributes, Language Signs and English Words. Learning and Verbal Behaviour 16: American Sign language Journal, P. 561-574.

Stokoe, William. (1983). Sign Language, Linguistics, and Related Arts and Sciences. In Language in Sign. Jim Kyle and Bencie Wall, eds., pp. 263-268. London: Croom Helm. Wilbur, R. B. (1979). American Sign Language and sign systems: Research and applications. Baltimore: University Park Press.

Wilbur, R. B. (1980). The Linguistic Description of American Sign Language. In Recent Perspectives on American Sign Language. Lane and Grosjean, eds., pp. 7-31. New Jersey: Lawrence Erlbaum Associates.