



THE CHANGES OF MANUAL ALPHABETS IN THE WORLD

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Received: 03/01/2018; Revised: 22/01/2018; Accepted: 21/5/2018

ABSTRACT

Manual Alphabet (MA) is a integral part of sign language used by Deaf people in social and academic contexts. It is considered as a bridge between sign language and script which effectively contributes to Deaf education. Examine the variations of the MA across countries compared to the first MA (published by Juan Pablo Bonet in Spain, 1620) to determine the degree of the change, development and interference of sign language (SL) systems in the world.

Keywords: manual alphabet, fingerspelling, sign language, Deaf community, sign language research.

TÓM TẮT

Những biến đổi của các Bảng Chữ cái ngón tay trên thế giới

Chữ cái ngón tay (CCNT) là phần không thể thiếu trong quá trình sử dụng ngôn ngữ kí hiệu (NNKH) của người Điếc cả trong giao tiếp và học tập. Nó được xem là cầu nối giữa NKKH và chữ viết, giúp việc giáo dục trẻ điếc hiệu quả. Bài viết nêu lên những kết quả nghiên cứu, tìm hiểu những biến đổi của các bảng CCNT hiện nay của các quốc gia trên thế giới so với bảng CCNT đầu tiên (của Tây Ban Nha, được Juan Pablo Bonet công bố năm 1620). Qua đó, thấy được sự thay đổi, phát triển cũng như sự giao thoa của các hệ thống kí hiệu CCNT trong các bảng CCNT trên thế giới.

Từ khóa: Bảng Chữ cái ngón tay, đánh vần ngón tay, ngôn ngữ kí hiệu, cộng đồng người Điếc, nghiên cứu ngôn ngữ kí hiệu.

1. Introduction

The alphabet is a set of phonetic symbols (phonemes) of some writing systems arranged in a conventional order of each writing system. In a certain verbal language system - an auditory channel - there are forms of visual channels, such as written scripts, combinations of singular characters following specified rules, which create words, sentences, meaningful content or conveying messages. SL is showed through handshapes, body movements, gestures and facial expressions to exchange thoughts, needs, experiences

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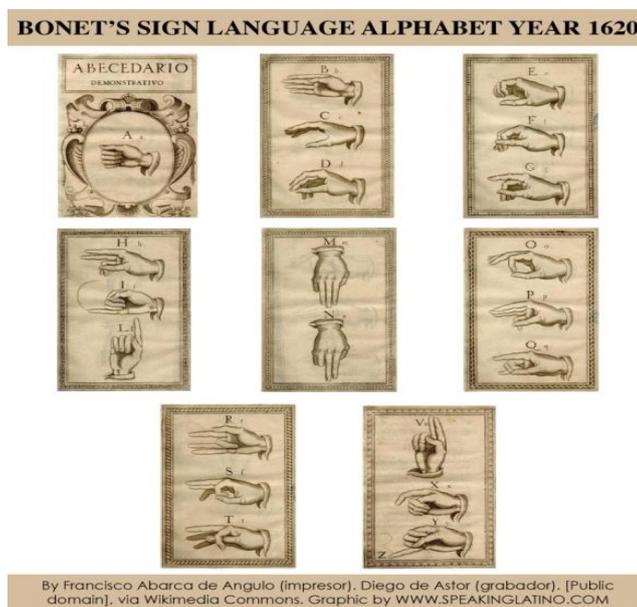
and emotions. Similar to any other spoken language, SL is a true language with distinct grammar and structure rules [Sandy Niemann, Devorah Greenstein, Darlena David (2006), *Helping Deaf Children*, Labor-Social Publisher]. But SL is a non-script language, hence in order to transfer messages from a three-dimensional space onto a paper plane, i.e. from SL to written language, the Deaf community in different nations has to rely on each national alphabet table. Therefore, the history of the MA began, became a part of SL.

The Manual Alphabet (MA) is a set of finger configurations corresponding to the letters of the alphabet used by the Deaf. In SL, this fingerspelling method can be used to spell out names of people, places and things that do not have an established sign. Furthermore, the MA is a major factor in the process of establishing new signs, a trend that has been seen recently in developed countries, such as the USA, the UK and Australia. In essence, MA is an indispensable component of the developmental SL systems. As a result, this paper is dedicated to learning about the development of the MA systems in different countries in order to partly understand the diffusion and interference of this dynamic language system. It is hoped that this paper will become a launchpad for more relevant research studies in the future aimed to support the development and evolution of the Vietnamese SL.

2. Approaches

This paper examines articles on the topic of social sciences found in literature reviews (archives), published on websites and searches via various social media tools, as well as direct interviews with Deaf people. The result is a panel of seventy-five (75) different MA's which became the analysis data for this study.

The majority of results for the first MA in the world is the one created by Juan Pable Bonet published in his 1620 book *Preduction de las letras y Arte para enseñar á ablar los Mudos*. Ed. Abarca de Angulo, Madrid, *ejemplar facsímil accesible en la*, online resource, available from the University of Sevilla, Spain. This is considered the first MA developed based on the writing system, which improved communication for the Deaf. Thus, this book is used throughout this research paper as a reference (from this point is referred as **the original**) and basis for analysis and comparison to changes of other types of MA.



Picture 1. *The first manual alphabet*

MAs will be divided into groups based on the following criteria:

- MA's based on *Latin* alphabet and *non-Latin* MA's. Cause of the limit, this article only focuses on the Latin Mas;
- Amongst the first group of Latin-based MA's, there are two sub-groups: *one-handed* MA's and *two-handed* MA's.

To enrich the evidence, the analysis portion includes considering some of the most prominent and influential MA's from France, the USA and the UK, which were known long time ago, in the process of change and development of MAs, in comparison with the original for in-depth analysis and multidimensional interpretation.

Do a consultation with some highly educated Deaf people.

3. Results

3.1. *The popularity of the Latin MA*

25/75 surveyed countries are not Latin-writing nations. (Russia, Japan, Korea, China, Thailand, Ethiopia, Mongolia...). However, almost of 25 in the above countries still has Latin-based MA or coexist 2 kinds of MA, one in Latin MA and one in their national language, such as: China, Japan, Russia, Slovenia, Slovakia... These are the bilingual countries, English and national language or English is used frequently there or in spite of easy in communication with the Deaf by international way.

The results from the survey of 75 international MA's show that there are 50/75 items followed Latin alphabet, in which:

- **9/50** used two hands to express;
- **41/50** used one hand to express.

These numbers indicate the prevalence of the Latin alphabet in the Deaf language systems despite the influence of the original. Establishing Latin-based SL is also to communicate with other deaf people from other countries and to be able to transliterate country-specific characters.

3.2. *The two-handed MA*

In 1684, John Bulwer, the first person in the UK to offer education to the Deaf, told about “Master Babington,” a deaf person who used the MA fluently, stated that his wife was able to communicate with him easily by using tactile signing.



Picture 2. *Locations of letters on the palm*

In the book named *Didascalocophus, or, The deaf and dumb mans tutor* (1680), George Dalgarno represented his own education approach for the Deaf including an MA (or arthrological alphabet) that was expressed using the index finger of one hand to point to the joints of the fingers and palms of the other hand. His work can be considered the first version of a two-handed MA. The vowels, a, e, i, o, u, in Dalgarno’s MA, are respectively denoted by pointing to the thumb, index finger, middle finger, ring finger and pinky/baby finger. These vowels are currently being used in MA’s in countries like the UK, Australia and New Zealand.

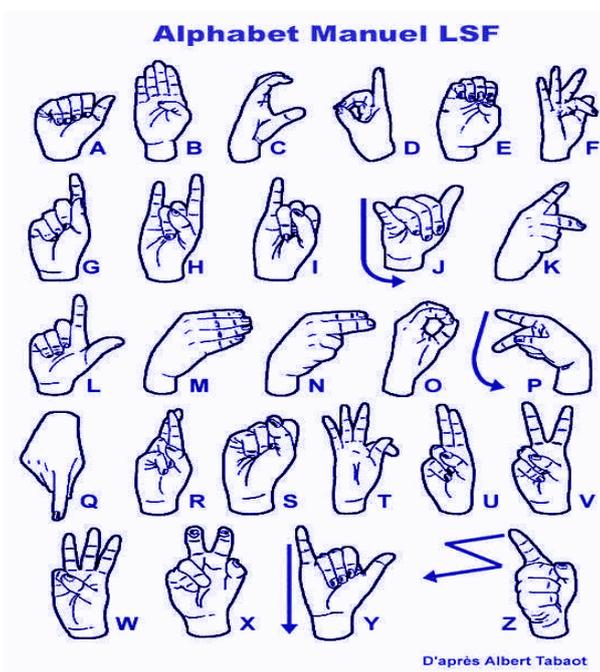
The survey results also indicate that the following countries and regions use two-handed MA: India, the United Kingdom, Boutvet Island, Norway, New Zealand, Sri Lanka (Latin alphabet), Turkey, Australia, Croatia. Especially Boutvet Island is a dependent territory of Norway and uses an identical MA to that of the Norwegian hoch is distinctively different from the rest of the countries listed above.

The MA's of the UK, Australia, New Zealand and Sri Lanka are largely similar to one another.

The Croatian and Turkish MA's are similar to the British MA in expressing letter B, C and D. Letter K, M, N and P in the Croatian MA are also expressed in a similar manner to the British.

As such, up to 7/9 countries have two-handed MAs, completely or mostly identical to the British MA. These countries are mainly British colonies or neighboring countries. The two-handed MA, however, is less common than the single-handed version

3.3. *The one-handed MA*

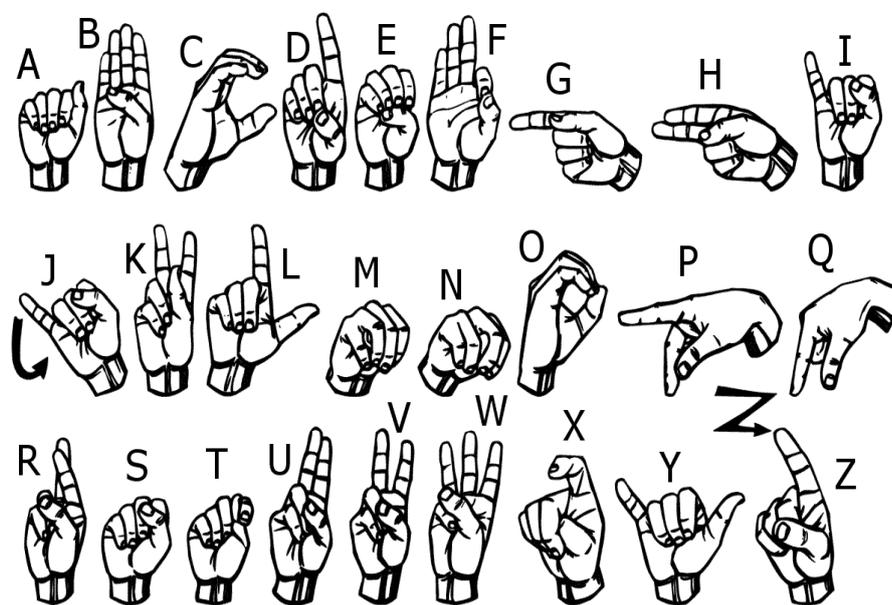


Picture 3. French Manual Alphabet

In France, in 1755, Abbé Charles Michel de L'Épée founded the first free school for the Deaf - *the Nationale des Sourds-Muets à Paris*. By observing the Deaf sign in the streets of Paris plus a process of grammatical analysis of the French language, he and his colleagues created the French SL system consisting of a sign system and a one-handed MA. His work has a great influence on the Deaf community until now. This MA includes multipoint identical to the original.

In the end of the 18th century, Thomas Hopkins Gallaudet of Philadelphia (USA) joined Mason Cogswell (a doctor with a daughter who was deaf) to study deafness. They came to Scotland, then to England, where they met Abbé Sicard, the head of the Nationale des Sourds-Muets à Paris and two Deaf instructors, Laurent Clerc and Jean Massieu. Thomas H. Gallaudet was invited to Paris to learn about the Academy's operating model.

He was impressed with the teaching method being applied here, and he decided to study the sciences from Clerc and Massieu, two post-graduate students [Rob D. Butterworth, Mikey Flodin (1989), *Signing Made Easy*, Published by TarcherPerigee]. Afterwards, T.H.Gallaudet convinced Laurent Clerc to come to the United States to assist him in establishing a Deaf School in the United States. Upon returning home, Gallaudet and L.Clerc mobilized various funds to open the first Public Deaf School in Hartford, Connecticut in 1817. From then on, the American SL with a French original began to blossom and mature including the MA. Since its first appearance, the American MA has created strong impact, even more so than the French version.



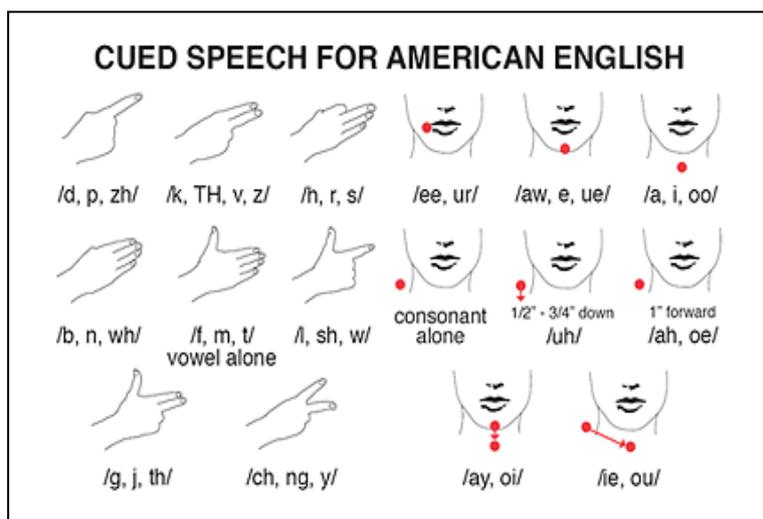
Picture 4. American Manual Alphabet

Table 1. The survey results of the number of MA of each country identical to that of the original

Order number	Number of hand shapes (n=26)	Number of MA (n=41)	Name of country(ies)
1	0	1	Hungary
2	6 - 11	29	Argentina, Hong Kong, Ma Cau, China, Austria, Estonia, Lithuania, Sweden, Poland, Algeria, Chile, France, Ireland, Vietnam, Italy, Canada, Colombia, Netherlands, Iceland, Malaysia, Mexico, USA,

			South Africa, Peru, Phillipines, Romania, Singapore, Slovakia, Slovenia.
3	12 - 16	11	Bolivia, Brazil, Cuba, Germany, Kenya, Paraguay, Finland, Belgium, Spain, Uruguay.
4	17 - 26	0	--

The Hungarian MA is unique because it is completely different from the original and all other MA's in this survey. This is the only MA in the survey sample where the signs representing the letters are composed of mouth shapes, hand shapes and the location of the hand relative to the face and neck. This MA is similar to a system also very popular in the US - called Cued Speech - used in support of the Deaf or Hard of Hearing in the process of acquaintance to English through spoken and written language. Cued Speech uses hand shapes to distinguish between different consonants and various hand positions on the face to distinguish vowels.



Picture 5. Cued Speech for American English

In addition to Hungarians, most of the surveyed MAs have identical handshapes to the original in the number of 6-16 handshapes. The MA's in the group of 6 - 11 identical handshapes to the original occupy the majority, 29/41. Next, 11/41 MA's are identical to the original in about 12 - 16 handshapes. Carefully analyzing the results of the survey, we found that most of the MA's in these groups has the identical handshapes to those in French and American MA's.

Remaining, there is no MA resembles the original more than 16 handshapes.

Table 2. Analysis results of the number of alphabets from each country's MA that is *identical* to those of the original

Order number	Alphabet	Number of MA (n = 41)	Order number	Alphabet	Number of MA (n = 41)
1	A	39	14	N	39
2	B	39	15	O	8
3	C	34	16	P	1
4	D	0	17	Q	0
5	E	32	18	R	0
6	F	0	19	S	4
7	G	13	20	T	13
8	H	28	21	U	29
9	I	36	22	V	1
10	J	0	23	W	0
11	K	0	24	X	24
12	L	1	25	Y	3
13	M	34	26	Z	35

The survey results also demonstrate that, to this day, lots of handshapes of the original are still in use in several different MA's. Some of the handshapes appear in almost all single-handed MA's, such as A, B, C, E, H, I, M, N, U, X, Z. Besides those MA's that are unique, distinctively specific or have no common features to others, like those from Austria, Argentina, Poland, Hungary, the rest of the MA's in this survey express the alphabet in similar ways to X.

On the other hand, some of the original handshapes from X, such as D, F, L, P, Q, R, S, V, Y. Signs for J, K and W did not include these letters although they are used in all current MA's.

3.3.1. The comparison between the signs for vowels with the signs for consonants

In comparison with the original, all five vowels in the other MA's have very high similarity ratios, 71% to 95% of the following handshapes express vowels a, e, i, o, u, change insignificantly.

A/a	E/e	I/i	O/o	U/u
				
identical to X	identical to X	identical to X	identical to French and American MA's	identical to X

Picture 6. Signs for vowels

3.3.2. The basis of change

✓ *Change for creating a similarity handshapes to appearance of letters.*

Due to the basic physiology of the Deaf, the Deaf uses the ability to visualize in almost absolute terms throughout his or her life. Language is a powerful tool in the thinking process and is different from recording in spoken language to create scripts. In recording new symbol for an object, a Deaf person usually records, analyzes images relating to the object to form shapes, positions and motions of the hand, the corresponding facial expressions to express the most obvious meaning for the object. The MA does not stand outside the above rules.

Follow the same approach to record or create symbols for letter, it is easy to observe the correlation between the alphabet and the handshapes in the table below:

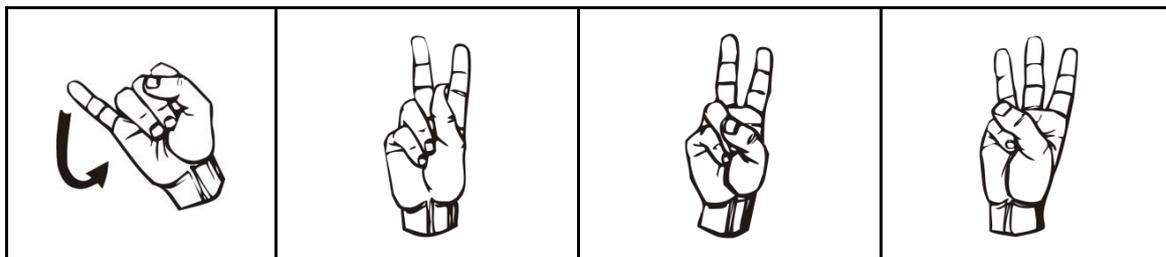
C/c	I/i	M/m	N/n	U/u	Z/z
					
A/a	B/b	E/e	H/h		X/x
					

Picture 7. Signs change insignificantly or no change

These signs are all in the original and they intuitively exist among various MA's across the world in spite of their extremely standard handshapes.

As a rule of necessity, in regards to those MA's that are not competent with specific intelligent characteristics and culture, the Deaf community modifies them to create variations. That is the reason why in analyzing these variations, they have a high prevalence in which among 24-38/41 of the MA's: D, F, J, K, L, O, P, Q, R, S, V, W, Y. This shows the great impact that French MA and American MA have on other SL system. Noteworthy, the main driving force for these two systems' popularity and widespread is their appropriate adjustment and reasonable modifications to the intelligent characteristics. Sequentially, these MAs are acceptable by Deaf communities in many places.

D/d	L/l	O/o	Y/y
			
J/j	K/k	V/v	W/w



Picture 8. Signs change significantly

These letters have been modified, making them compatible to the writing scripts that is helpful and easy for Deaf people to link sign with the meaning of word, to write down dictation words and to minimize communication difficulties.

✓ *Change to avoid confusion:*

The remaining of the alphabets have been modified to avoid confusion because there are similar letters within the original: D - F, I - Y, M - P, T - S, U - V. Hence, F, Y, P, S, V have been expressed using completely different handshapes. Other letters with handshapes that are unsuitable or unnatural for movements of the joints and hands have also been replaced with modifications.

✓ *The factors that change tends to form:*

- + Influence from the French, American and British MA's.
- + Changes in handshapes.
- + Changes in directions of fingers.
- + Additional factors of location relative to the face (cued speech) and chest.
- + Element of movements.

In summary, handshapes in MA's that do not compatible with intelligent perspectives, do not meet communication's requirements for the Deaf, difficult to express or easily confusing eventually evolve into different forms of modifications in different Deaf communities around the world. The transforms are created to adapt to intelligent characteristics and communication needs of the Deaf as well as to prevent miscommunications and confusions between similar handshapes in the same MA.

4. Conclusions and Recommendations

After more than 400 years, SL across the world, especially the MA, has seen lots of changes. Despite being considered the oldest and the first MA, more than half of the signs from Bonet's MA published since 1620 are still applicable and being utilized in modern day MA's, including those from developed and sustainable countries such as France and USA. The changes mainly to achieve the purpose of making signs more visible and similar with the morphology of the letters. Since then, the close correlation between SL and written language is more evidently that is easily for the Deaf to be received an intergration education.

Since its inception, Bonet's MA has truly widespread to Deaf communities in all continents. The widespread presence of MA's in Latin indicates the desire to intergrate of Deaf people around the world. Noteworthy, SL systems of the world have certain levels of interference because any Deaf communities from any culture share some common characteristics despite differences in geographic. Therefore, when researching any particular SL, researchers should also consider studying the development of different SL systems in order to understand the original and the relationship between them.

As the results of research, in countries with developed SL systems, the intelligent ability of Deaf people is more advanced. The Deaf can study to achieve high levels such as university, graduate school, even doctorates or professors in their field. And the development of the MA's also contributes a considerable part in it.

❖ **Conflict of Interest:** Authors have no conflict of interest to declare.

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