

Alphabetic System to Write in Quechua and Aimara

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Abstract

Quechua and Aymara are the two main native languages of South America and in some of its countries they are official languages; however, UNESCO considers them as vulnerable and, in some areas, in the process of extinction. One of the greatest difficulties that these languages have been facing for their validity, in addition to the economic, political and cultural marginalization of their speakers, is the lack of their own alphabetic system for their development and presence as cultural elements. During the last centuries, strenuous efforts have been made to produce some written texts in these two languages using the Spanish alphabet, but until now the intellectual production written in these native languages is very limited and the reason for this situation is that the application of the indicated alphabet to write Quechua and Aymara voices, weighs a series of limitations and some erosive effects. The objective of this work was to develop an alphabetic system to write in Quechua and Aymara. As materials, all the phonemes of these two languages were used, some nouns and adjectives common to both languages, the table of articulatory features of the consonant sounds of the Quechua and Aymara languages and the symbology of the phonemes of the International Phonetic Alphabet that fit the phonemes of these languages. The methods consisted of the following: a) to design the spellings, objects whose name is common to both languages were selected b) the spellings were designed based on the outline of the silhouette of the selected object, c) the name of each vowel was determined based on the first phoneme of the selected Quechua-Aymara noun and d) the name of each of the consonants was determined based on the first syllable of the selected Quechua-Aymara noun. The result of the work is an alphabetic system based on Andean cultural elements, unprecedented and practical for writing in the Quechua and Aymara languages and, implicitly, useful for revitalizing these languages.

Key words: alphabet, Andean culture, native language, revitalization, linguistic syncretism.

Introduction

Quechua, the language of the Incas, is spoken in Peru, Bolivia, Ecuador, Argentina, and Brazil (Hornberger 2004); which are countries whose current territories include areas that belonged to the Tahuantinsuyo (Manley 2008); in these countries, with the exception of Argentina and Brazil, it is an official language in addition to Spanish (Babel 2005). On the other hand, Aymara, after Quechua, is the second most widely spoken native language in South America (UNICEFF and FUNPROEIB Andes, 2009). From a historical perspective, the Quechua and Aymara languages are contemporary to each other (Layme 2012), constitute the cultural identity of their speakers and it is estimated that they are spoken by approximately thirteen million people (Babel 2005). In Peru and Bolivia, Quechua and Aymara are not only officially recognized languages, but bilingual education programs have also been implemented that include these two languages in addition to Spanish (Cerrón-

Palomino and Carvajal 2006), and academic interest in these languages has notably increased (Wamalwa and Oluoch 2013). However, UNESCO has declared Quechua and Aymara as vulnerable languages and, in some areas, at risk of extinction (Fumi, 2015) and one of the reasons for this situation is the absence of their own alphabetic system and writing.

Cultural diversity is a fundamental attribute of humanity and linguistic variety is one of its pillars (Chapela and Ahuja 2006). Languages, with their complex implications for communication, social integration, education and development, are of strategic importance for the survival of human populations (Sallabank 2010). A language is not only an indispensable resource for communication but it is also a receptacle of history, it is the most important marker of identity (Guorón 2018) since language and cultural identity are intrinsically linked (Galley et al. 2016; Sallabank 2010; Lemus 2012). A language contains deep knowledge and a particular way of seeing the world that enriches the intelligentsia (Walsh 2003). According to UNESCO, each language reflects a unique complex way of seeing the world and culture; it is the means to express the intangible cultural heritage of people; but with the death and disappearance of a language, an irreplaceable unity of thought and knowledge will have been lost (Wamalwa and Oluoch 2013; Walsh 2003). Since language is an indispensable tool for development, its appreciation and preservation by both the rulers and the population is essential (Olaifa 2014).

Some factors have been identified that endanger the validity of a language, these may be extrinsic forces such as those of a religious, educational or persecution nature; but they can also be intrinsic forces such as the negative attitude of the community against their own language (Manley 2008; Ioannis et al 2018). Other factors that threaten the permanence of a language are related to cultural, political and economic subjugation (Ascencio 2013; Sánchez 2015; Guzmán 2013). In the case of Quechua and Aymara, a variety of factors such as some prevailing negative attitude on the part of many Spanish speakers towards these languages (Branca, 2014) and the migration of the Quechua and Aymara speaking rural population to the predominantly Spanish-speaking urban areas, threaten their future as living languages, which despite their sociolinguistic and geographic diversity, are minimized and face discrimination against their language and culture (Manley 2008; Oyola-garcía and Quispe-ilanzo 2016). Although Quechua and Aymara are the most widely spoken native languages in the Americas, they are considered by many people to be relics of ancient cultures, for others they represent backwardness in less modern and “peasant” life (Iván, 2009; a style Chirinos, 2000) and many Quechua and Aymara speaking parents stop teaching their children the language to “improve” their chances of success (Oyola-garcía and Quispe-ilanzo 2016; Sallabank 2010; Lydersen et al 2009).

It is estimated that half of the languages spoken today, especially those that do not have their own writing, will become extinct by the end of this century (Lydersen et al 2009; Ascencio 2013) and one of the most important factors for such an event to occur is their inadequate documentation (Ioannis et al 2018). The creation of automatic processing mechanisms for the annotation, preservation and dissemination of records of an endangered language (Adda et al. 2016); as well as the development of bibliography and the creation of online written archives (Ioannis et al 2018) and their intellectualization (Batibo 2009), are useful mechanisms for their preservation and/or revitalization. If a threatened language does not have its own writing system, one must be developed (Lemus 2012); this assertion is crucial because writing is a formidable resource for saving memory (Montoya 2010). The most obvious importance of writing is that professional writers, journalists, teachers, poets, essayists, and ordinary people

communicate their thoughts through written documents that contribute significantly to social development, inspiring and entertaining readers, reporting and analyzing political and cultural events, criticizing government action, and educating youth and adults (Smith and Ph, 2003). Thus, the fact that a language has its own writing system currently has educational significance and confers social prestige (Klimova 2014; Andreani, 2018).

For centuries, to produce the meager amount of texts in Quechua and Aymara, due to the lack of their own writing system, the alphabet and graphemes of a foreign language such as Spanish have been used. Writing texts in these languages using Spanish graphemes, despite their undeniable contribution, has brought about a series of difficulties not only in the use of Spanish graphemes to write phonemes and expressions of these two native languages (Aldebrando Ungurean, 2019), but also in reading the Quechua or Aymara words written with Spanish graphemes. A Spanish-speaking reader who tries to read Quechua or Aymara words represented with Spanish graphemes pronounces them in the "Spanish style" or a native Quechua or Aymara speaker pronounces the voices written with these graphemes, in the style of the language to which these graphemes belong. The result of this linguistic syncretism between these two original languages and Spanish has been leading to the erosion and displacement of the first two in favor of Spanish, which is the language that enjoys the preference of use (Yana and Gutiérrez 2011) and an enormous limitation in the production of texts in these native languages. On the other hand, the ancient interaction between two linguistic families, Quechua and Aymara, had spectacular consequences such as the multiple structural and formal correspondences in the field of the linguistic system such as phonology, morphosyntax and in the lexicon (Adelaar 2010); as well as the extraordinary structural isomorphism, that is, morphological and syntactic-semantic, but above all, of a phonological nature that underlies the grammars of Quechua and Aymara (Cerrón, 2008) and the phonological appreciation regarding the similarity between Quechua and Aymara, pointed out by several authors, as well as the author of this proposal, make it feasible to propose a common alphabetic system for these two languages; a system based on indigenous cultural elements and voices, which allows the exact expression of Quechua and Aymara phonemes and consequently writing and reading of any text, not only without any difficulty, but also preserving the originality of these two languages.

In the aforementioned context and in accordance with the fifth article of the Universal Declaration of Cultural Diversity: "Everyone has the right to express themselves to create and disseminate their ideas in the language of their choice and particularly in their mother tongue" (Wamalwa and Oluoch, 2013), a useful and practical alphabetic system has been structured, based on elements of Andean culture, to write texts and whose final effect is the revitalization and preservation of the Quechua and Aymara languages.

Materials and Methods

Materials

- To develop the Quechua-Aymara alphabetic system, all the phonemes of these languages, as main materials, were considered; in the case of Quechua, those phonemes of the dialects spoken in the Peruvian departments of Apurímac, Cusco, Puno and Arequipa, as well as in Cochabamba, Bolivia; while the Aymara phonemes were the ones that predominated in the south of the department of Puno and areas of Bolivia.
- To design the spellings of the Quechua-Aymara alphabet, some nouns and adjectives common to Quechua and Aymara were used.
- Table of articulatory features of consonant sounds in the southern Quechua language (Cerrón Palomino, 1987) and table of articulatory features of consonant sounds in the Aymara language (Cerrón-Palomino, 2000) were used.
- The symbology of the phonemes of the International Phonetic Alphabet that fit the phonemes of the Quechua and Aymara languages, were used.

Methods

Selection of Quechua and Aymara words for the design of the graphs

Words (nouns or adjectives) common to these two native languages were selected whose first phoneme coincides with a Quechua and Aymara phoneme fully identified by several authors and is consistent with the International Phonetic Alphabet (IPA).

Design of Quechua-Aymara scripts

The Quechua-Aymara scripts, which are twenty-nine in total, were designed based on the contour of the slightly stylized silhouette of the selected object.

Determination of vowel names

The name of each of the Quechua-Aymara vowels, which are three, were determined based on the first phoneme of a selected Quechua-Aymara noun.

Determination of the name of the consonants

The name of each of the consonants, which are twenty-six, were assigned considering the sound of the first syllable (consonant and vowel) of the selected Quechua-Aymara noun or adjective.

Determination of some Quechua-Aymara punctuation marks

Three main punctuation marks are proposed for the Quechua-Aymara script and they are the following: a small hyphen, an oblique line and two parallel oblique lines. These signs are consistent with the proposed system.

Results and Discussion

Table 1. Quechua-Aymara vowels

Number	IPA phonemes applicable to Quechua-Aymara alphabetic system	Quechua-Aymara spelling
1	/a/	<i>a</i>
2	Intermediate between /i/ and /e/	<i>i</i>
3	Intermediate between /o/ and /u/	<i>u</i>

In Quechua and Aymara phonology, three vowels have been identified that play an optimal role for the construction of syllables and implicitly for the construction of the words of these two languages, these are: 1) the phoneme /a/, 2) a phoneme intermediate between the sounds /i/ and /e/ and 3) an intermediate phoneme between /o/ and /u/ (Benites, 2011; Minedu, 2013)) of the International Phonetic Alphabet; Thus, to include the spellings of these three vowels into the Quechua-Aymara alphabet, indicated criteria were used. Some writers on the subject suggest the use of "the 5 vowels" for the writing of these languages; however, in the everyday language of these two languages, the use of three vowels is not only practical but also plausible. On the other hand, the pronunciation of vowels with sounds similar to /i/, /e/, /o/ and /u / in these two native languages, are simply allophones of the aforementioned intermediate vowels (Cerrón-Palomino, 2003).

Table 2. Quechua-Aymara consonants

Number	Articulatory feature of Quechua-Aymara consonant sounds	IPA phonemes applicable to Quechua-Aymara consonants	Quechua-Aymara spelling	Name of the spelling	Syllables resulting from the combination of consonants with vowels
1	Palatal, simple stop, voiceless.	/č/	<i>c</i>	<i>ca</i>	<i>ca</i> <i>ci</i> <i>cu</i>
2	Palatal, aspirated stop, voiceless	/č ^h /	<i>C</i>	<i>Ci</i>	<i>Ca</i> <i>Ci</i> <i>Cu</i>
3	Palatal, glottalized stop, voiceless	/č' /	<i>D</i>	<i>Di</i>	<i>Da</i> <i>Di</i> <i>Du</i>
4	Glottal, fricative, voiced.	/j/	<i>j</i>	<i>ji</i>	<i>Ja</i> <i>Ji</i> <i>ju</i> <i>ka</i>

5	Velar, simple stop, voiceless.	/k/	<i>k</i>	<i>ku</i>	<i>ki</i> <i>ku</i>
6	Velar, aspirated stop, voiceless.	/kh/	<i>K</i>	<i>Ki</i>	<i>Ka</i> <i>Ki</i> <i>Ku</i>
7	Velar, glottalized stop, voiceless.	/k' /	<i>E</i>	<i>Eu</i>	<i>Ea</i> <i>Ei</i> <i>Eu</i>
8	Dento-alveolar, lateral, sonorous.	/l/	<i>l</i>	<i>lu</i>	<i>La</i> <i>Li</i> <i>lu</i>
9	Palatal, lateral, voiced.	/ɺ/	<i>o</i>	<i>oa</i>	<i>Oa</i> <i>Oi</i> <i>ou</i>
10	Bilabial, nasal, voiced.	/m/	<i>m</i>	<i>mi</i>	<i>Ma</i> <i>Mi</i> <i>mu</i>
11	Dentoalveolar, nasal, sonorous.	/n/	<i>n</i>	<i>ni</i>	<i>na</i> <i>ni</i> <i>nu</i>
12	Palatal, nasal, sonorous.	/ñ/	<i>N</i>	<i>Nu</i>	<i>Na</i> <i>Ni</i> <i>Nu</i>
13	Bilabial, simple stop, voiceless.	/p/	<i>p</i>	<i>pa</i>	<i>pa</i> <i>pi</i> <i>pu</i>
14	Bilabial, aspirated stop, voiceless.	/ph/	<i>P</i>	<i>Pi</i>	<i>Pa</i> <i>Pi</i> <i>Pu</i>
15	Bilabial, glottalized stop, voiceless.	/p'/	<i>F</i>	<i>Fu</i>	<i>Fa</i> <i>Fi</i>

					<i>Fu</i>
16	Post velar, simple stop, voiceless.	<i>/q/</i>	<i>q</i>	<i>qi</i>	<i>qa</i> <i>qi</i> <i>qu</i>
17	Postvelar, aspirated stop, voiceless.	<i>/qh/</i>	<i>Q</i>	<i>Qu</i>	<i>Qa</i> <i>Qi</i> <i>Qu</i>
18	Postvelar, glottalized stop, voiceless.	<i>/q'/</i>	<i>G</i>	<i>Gi</i>	<i>Ga</i> <i>Gi</i> <i>Gu</i>
19	Dentoalveolar, vibrating, sonorous.	<i>/r/</i>	<i>r</i>	<i>ra</i>	<i>ra</i> <i>ri</i> <i>ru</i>
20	Dentoalveolar, fricative, voiced.	<i>/s/</i>	<i>s</i>	<i>su</i>	<i>sa</i> <i>si</i> <i>su</i>
21	Dentoalveolar, simple stop, voiceless.	<i>/t/</i>	<i>t</i>	<i>tu</i>	<i>ta</i> <i>ti</i> <i>tu</i>
22	Dentoalveolar, aspirated occlusive, voiceless.	<i>/th/</i>	<i>T</i>	<i>Tu</i>	<i>Ta</i> <i>Ti</i> <i>Tu</i>
23	Dentoalveolar, glottalized stop, voiceless.	<i>/t'/</i>	<i>H</i>	<i>Hu</i>	<i>Ha</i> <i>Hi</i> <i>Hu</i>
24	Bilabial, semivowel or semi consonant, voiced.	<i>/w/</i>	<i>w</i>	<i>wi</i>	<i>wa</i> <i>wi</i> <i>wu</i>
25	Post velar, fricative, voiced.	<i>/x/</i>	<i>x</i>	<i>xa</i>	<i>xa</i> <i>xi</i> <i>xu</i>

26	Palatal, semi consonant or semivowel, voiced.	/y/	y	ya	ya yi yu
	<ul style="list-style-type: none"> • Small hyphen, denotes small pause. • Slash, denotes the completion of a complete idea. • Two parallel bars, denotes the end of a paragraph. 		-	\	//

Table 2 shows 26 consonants that make up the Quechua-Aymara alphabet. On the one hand, for the writing of Quechua, an alphabet with 25 consonants had been used, since the phoneme /x/ (Cerrón-Palomino 2008) of the International Phonetic Alphabet had not been taken into account; however, the aforementioned phoneme is not only present in the daily use of Quechua but is also an important element in Quechua phonetics, so that its absence would lead to a deficiency in the writing of this language and may constitute a reason for the deterioration from Quechua. On the other hand, the number of consonants that has been used for writing Aymara, which is 26, is fully consistent with what is proposed in this work.

In the Quechua-Aymara alphabet, each phoneme of the IPA applicable to these languages, unlike the current Quechua and Aymara alphabets in which many phonemes are represented by a combination of spellings of the Spanish alphabet that make their use difficult, are represented by a single spelling and this characteristic makes the Quechua-Aymara alphabet proposed in this work a simple, versatile and practical application system. Yana and Gutiérrez (2011) state that an alphabet must be as pedagogical as possible, economical, easy and simple, that it be logically articulated with the structure of the language and that it be socially functional.

All the spellings that make up the Quechua-Aymara alphabet are designed based on some word, whether noun or adjective, which at the same time belong to both native languages; which justifies the applicability of these spellings to write texts in any of these languages. Just as each of these spellings includes some sound, either consonant or vowel, characteristic of these two languages, facilitating the exact pronunciation of the Quechua-Aymara voices. In addition, for the Quechua-Aymara alphabet, another aspect to be highlighted is that, the spellings are based on the Andean culture; this fact not only confers originality to the alphabet but also a connotation of belonging to this culture.

The spellings of the Quechua-Aymara alphabet are easy to recognize during reading, they lead to the proper pronunciation of the voices of these languages, in addition to the ease of their application for the registration of Quechua and Aymara phonemes. These characteristics make this alphabet a useful instrument not only to write any text in these two languages, but also in education, since, according to the results of various investigations, education through a mother tongue provides the person with a better start to their education (Sallabank, 2010). Finally, this system will be beneficial to maintain the vitality and continuity of these ancestral

languages; In this regard, Llanto (2001) points out that writing allows history to be perpetuated, culture to be spread and for it to develop within the scope of its identity.

Conclusion

The Quechua-Aymara alphabetic system has been developed, whose spellings are based on the Andean culture and is exactly adjusted to collect the voices of these two languages and, therefore, is fully adapted to write any text in these two languages.

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ANNEXES

Below, as an example, two texts are presented using the Quechua Aymara alphabetic system:

- a) Text translated from Spanish to Quechua, which corresponds to the final fragment of José Domingo Choquehuanca's speech to Bolívar (1824):

*janaxpaca kawsayniykiqa, pacaj pacaj watakunamanta, wiNayoami
wiNarinqa, imaynacus jayEaynacus oanTuqa inti uraykuxtin wiNarin
jinata;*

- b) A popular Aymara song:

*uka jaDa uru jutaskiwa-
amuyusipxaNani- jutaskiwa.*

*tatanaka- mamanaka-
amuyusipxaNani- jutaskiwa;*