Error Analysis of Persian Learners of Hausa Language: Cognitive Approach to Errors

Rajdeep Singh

Payame Noor University, Department of linguistics, Tehran, Iran

Abstract

Error analysis is the tool to discover the cognitive processing every learner goes through in order to learn the second language. In our study, we examine the situation for Persian learners of Hausa. The results showed both transfer and inter-lingual errors. After analyzing the inter-lingual errors, we encountered with a distinct type of error, tense compounding error. Therefore, we could build up further the cognitive processing to see where and how this error occurs. From the teaching perspective, we analyzed the areas where errors occur more frequently and we introduced some teaching strategies to facilitate students learning. Furthermore, we contrasted the phonological system between Persian and Hausa to interpret the phonological errors and to find ways to deal with these errors.

Keywords: cognitive processing, teaching, inter-lingual errors, error analysis, phonology, Persian, Hausa, Afro-Asiatic language

Cognitive processing approach to errors

African languages are the cultural heritage of African peoples and tribes. Therefore, many scholars have worked on the description and explanation of special features found in these languages. Green (2007) investigates the syntactic structure of Hausa, from a generative perspective, analyzing the underlying structures in Hausa. Block and Cameron (2002) investigate the concept of globalization and the way it influences the teaching. They propose a novel idea of transformationalism as a response to hyper-globalization, facilitating teaching by putting forward a more conciliatory and localized concept of teaching. This is important as we will show in this paper that focusing on the local level, while having the bigger picture in mind, can work best for language teaching and in our case, teaching of Hausa.

Wiley (1980) enquires into teaching of African languages in the USA. He carries out an investigation as to how the African language teaching should be and which languages are better to choose to receive the funding, taking into consideration of the diversity of African languages across the continent. We choose Hausa as it is such a powerful and widely-spoken language in the northern Nigeria and throughout Niger, having many more speakers in the neighboring countries. Furthermore, Asian and Middle-Eastern countries are developing ties with Nigeria, the future economic powerhouse of Africa, making urgent the need to study the language in order to better understand the cultural aspect, and form stronger economic ties with the Africa on the whole. Mugane (2010) discusses the difficulty and differences of teaching an African language compared to the well-studied and well-described languages, presenting facts that help understand the reasons behind less enrollments in the African studies in universities and some solutions to such problems. While Mugane shows the problematic parts of teaching African languages, Swahili in particular, the situation is more dire in our case as Hausa has a complete different syntactic structure and it is a Chadic language. Mori and Sanuth (2018) investigate the situation when American learners of Yoruba, in study abroad program in Nigeria, were confronted with the reality of outside classroom everyday language use. They discuss the significance of taking into consideration of geopolitical and socio-historical contexts surrounding the target language. Yoruba is another widely spoken language in Nigeria, besides Hausa. However, Hausa has the prominent status of lingua franca in the countries across much of the Western Africa. Therefore, by choosing Hausa, we aim to facilitate a better future interaction between our students and the communities in Western Africa for different purposes. Hawkins and Mori (2018) investigate the significance of the properties associated with the prefix 'trans' and carries out an enquiry about the nature of language in the framework of movement, being partly invented and reconstituted again. McIntyre (2006) investigates the Hausa verbal compounds, where he analyzes four types of verbal compound, modeling the Hausa verbal system, while taking into consideration the semantics related to the verbal compounds.

Gauthier, Besacier, and Voisin (2016) present a model for automatic speech recognition based on the vowel duration for Hausa and Wolof. Despite facing limited resources and Hausa specific features, the model works well, looking at the vowel length contrasts. Keshavarz and Abubakar (2017) investigate the pronunciation problems encountered by Hausa speakers of English, showing where a tonal language speaker faces problems, trying to learn English. Jaggar (2007) investigates the indefinite NP-marking in Hausa, especially under the scope of negation, which is different from other languages. Součková (2011) carries out an investigation about the pluractionality in hausa, which is an inflectional component showing that the verb contains the semantics of diverse and repeated actions.

Methodology and experiments

Hausa is a Chadic language, belonging to Afro-asiatic language family. In this paper, we conducted an experiment using 2 groups of students, overall 40 students, who were interested to learn Hausa for the usage later in Northern Nigeria and Niger. Every group has 20 students and the female/male ratio is the same. We first conducted the pretest in order to select the students that were homogenous enough to put in the groups for the experiment. Though, some of the students from the pool of 60 candidates were already familiar with some aspects of Hausa language and African languages in general, and we excluded them in order to have the students for whom it was their first attempt to learn Hausa. So our experiments began with forty students in 2 groups of the same male/female ratio.

The experiment lasted one year, and we began analyzing the data we got from the students' errors and problematic areas. It was predictable that one of the difficulty areas was the phonology, which indeed is very different compared to Persian language and any other Indo-European language on the whole. The other area difficulty was the conjugation pattern in the syntax. The results of this study can help future learners of Hausa a better understanding of the difficulty areas that may encounter and help teachers design a better, more diagnostic design of their materials, so that their students end up learning Hausa in an easier way.

Phonology

Hausa and Persian have different contrastive phonological aspects that cause students problems when they begin to learn the alphabet and the pronunciation. From the error analysis we conducted, we found the sounds that caused the major difficulty for learners of Hausa. In table 1, we show the different sounds in IPA (International phonetic alphabet) in Hausa which caused problems for Persian learners of Hausa.

Table 1

Problematic Hausa sounds for Persian learners

Distinct Hausa sounds	May be pronounced
ɓ	b
ɸ	f
(t)s'	ts
ɗ	d
tʃˤ	t͡ʃ
ɽ	ɾ
ɟ	j
c'	k
gʷ	g
kʷ'	k
w	v

From the table 1, these errors were expected, knowing how much the sound system between the two languages is different. From the interview conducted with students, at the end of their first year study of Hausa, 80 percent of students pointed out that the most difficult part of learning Hausa for them was the ejective sounds found in Hausa. Surprisingly, 10 percent pointed out that they could deal with sound system differences, actually by using the strategy of transferring their similar Persian sounds to Hausa, but the grammar was difficult for them and made it hard for them to do the communicative part. If we go through the errors committed by students and the qualitative interviews we conducted, we can divide the difficulty part of sound system differences in four major parts, based on their own respective share of difficulty for students. Figure 1 shows such an in depth analysis from the errors we analyzed.
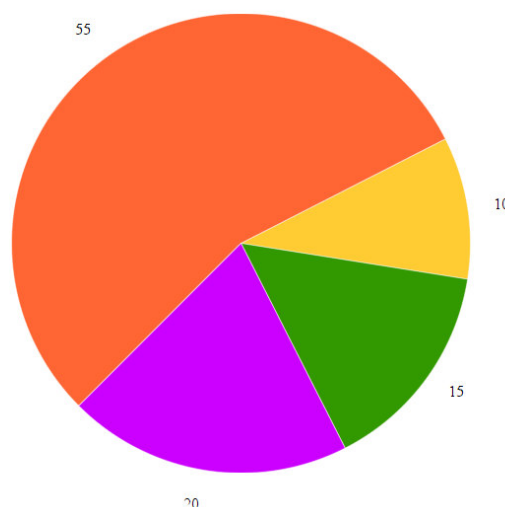
Figure1. Percentages of major sound difficulty areas

From the analysis we made, the major problem was the ejective sounds that are totally absent in Persian phonology. 55 percent of errors were related to ejective sounds in the phonological error section, which shows a problem area where enough care should be taken as to deal with this issue.

Syntax and Learning of Hausa language

Regarding syntax, situation turns out to be better for Persian learners of Hausa. The most difficult parts of Hausa language for students are the verb conjugation and article usage. Even though we have the verb conjugation in Persian, it is still a different system, and usage of modal verbs in Persian is a norm, while in Hausa the modal verb is expressed in a systematic different way: in Persian, modal verb is disjoint from the main verb and can be moved freely away from it. While in Hausa, modal verb is banned from moving out of the verbal phrase, which is a problematic area for Persian students. We show these differences in table 2. Persian free movement of the modal verb and the restricted attached type of modal verb in Hausa was one of the most difficult one to master for Persian learners.

Table 2

Hausa and Persian verb form main differences

Hausa verb form	Example	Persian verb	Example	Meaning
Initial inflected	Nina yi	Ending inflected	Kar kardam	I work
Inner modal verb	Nina iya aiki	Separate modal verb	Mitavanam bekonam	I can work
Inner build tense	Zan yi	Auxiliary verb usage	Kar khaham kard	I will work
Two negative words	Ban yi ba	One negative word	Kar nemikonam	I don't work

In table 3, some of the errors caused by the negative transfer from Persian to Hausa are illustrated. However, the issue is not that simple. Some errors are just the product of students' inter-lingual system, and we analyzed some of the major ones, which can be very insightful in order to understand the inter-lingual system better.

Table 3

Negative transfer errors from Persian to Hausa

Errors	Meaning	Corrected form
Zan nina yi	I will work	Zan yi
Ni yini	I am working	Nina yi
Zan ni yi	I will work	Zan yi
Ban nina yi	I don't work	Ban yi ba
Tana murmushi	He is smiling	Yana murmushi
Suka shwarta shi	They advised him	Suka shwarta ta

We have another type of errors that students committed while trying to learn Hausa, originating from the developing inter-lingual system. The errors originated from the inter-lingual system are presented in the table 4.

Table 4

Errors originated in the inter-lingual system

Errors	Meaning	Corrected form
Zan ina yi	I will work	Zan yi
Ban ina yi ba	I don't work	Ban yi ba
Iya ni gudu	I can run	Ina yi gudu
Ta ina murmushi	He is smiling	Yana murmushi

Error Analysis

When we look at the table 3, the errors are explainable by referring to Persian language. One of the typical errors are concerned the gender in Hausa. Persian does not distinguish based on the gender, while Hausa do consider the gender in conjugation as well as morphology. This confuses students, while they produce verbs, and even in the morphological forms. Furthermore, students move the auxiliary verb in Hausa, just as this happens in Persian. While it seems very natural in Persian to do so, in Hausa, such a movement makes sentences and conversation unintelligible and hard to understand. Even though some students used the avoidance strategy, still when it comes to auxiliary verbs, they committed the same error, showing that the movement restriction in Hausa is hard for students as it requires a lot of cognitive processing. The other error type is related to the negative clitic ba, at the end of the negative verbs in Hausa. In Persian, we do not have such a concept as clitic negative word, and students had trouble to grasp it. Furthermore, they had problems to deal with the main negative word since it joins the verb and needs to be conjugated. Many errors happen here, when students want to produce negative sentence.

Errors were also related to the inter-lingual system. This type of errors was harder to analyze as they were different from one student to the other. Despite this, there are some common types which should be investigated. Many students build a rather simple structure, and they simplify the verb conjugation. Even though, we have a verb conjugation system in Persian, still students like to simplify the verbs, cutting the inflections out. The other error is using auxiliary verb without conjugating it. It is definitely related to the inter-lingual system because auxiliary verbs get conjugated in Persian. Here, simplifying the target language is the best explanation for not conjugating the auxiliary verbs.

Compounding tense error

The other interesting source of errors is the mixing of prefixes in order to form the final verb. We had interesting mixtures, where the present tense and future tense were mixed together to form the future tense. This is a very interesting error as many students committed it. Moreover, this error makes the sentence way more complicated, and one doesn't expect it to happen. I would call this, "compounding tense error". The reason is that apparently learners process information in a way that they form two systems for the tense. Sometimes, these two systems interact and even get mixed, forming compounding tense error. If inter-lingual system were supposed to simplify the structures, we would have not encountered the compounding tense error. Therefore, in order to get a better idea of the cognitive processing behind tense compounding, we did a think aloud experiment with students. 15 students had developed the tense compounding error and we asked them to participate in the think aloud experiment. 10 out of 15 had the same reason to compound tenses. They were pointing out to the fact that they began with the future tense and then they build the so-called "normal verb". Normal-verb is actually the present tense for them, and that's why they were thinking in the two tense while building future or past tense. This phenomenon can be related to the fact that students unconsciously consider an intermediary tense, which is neutral, and they build up other tenses from this neutral tense. In fact, we have similar situation when it comes to making compound tense in English or Persian. However, because Hausa is a discrete language, adding block by block the elements, the tense compounding error happens more often. Figure 2 shows the tense compounding error schemata.
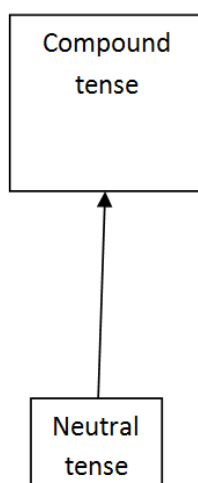
Figure 2. Tense compounding error

From the figure 2, mind first processes the tense from the elementary and neutral tense. Now this neutral tense can be the past or present. Past is the dominant neutral tense since other compound tenses are built up on it. However, when it comes to learn the second language, the neutral tense can be present. That's what exactly happens when learners begin learning their second language. In our study, we observed the wrong choice of neutral tense which causes students to commit errors.

Tonal aspect of Hausa

One aspect of Hausa that is particularly problematic for Persian students is the supra-segmental features in Hausa, i.e., the tonal system. We can categorize the Hausa tonal system into two major groups, i.e., falling tone and low tone. Let's consider the table 5 to have a better idea of the Hausa tonal system.

Table 5

Hausa Tonal System

Low tone	Falling tone
à è ì ò ù	â ê î ô û
è	ê
ì	î
ò	ô
ù	û

Hausa tonal system is particularly hard to master for Iranian students. We introduced the tonal system from get going but still only 20 percent of students were successful in acquiring the tonal system and the majority avoided using it wholly. From the interview we conducted with that minority of 20 percent, we found out the following important points on what made these students using the tonal system appropriately:

1) Simulating the tonal system by the similarity to yes/no question type in Persian.
2) Listening to the Hausa songs more often.
3) Wanting to be integrated faster in the Hausa community.

From what we listed above, the affecting and integrating factor was the most important one, that is, they wanted to be integrated into the community.

Conclusion and Discussion

Learning any new language requires efforts and dedication. However, knowing the possible error areas for students help teachers to deal with them beforehand. When it comes to teaching Hausa, a compact lesson on the phonetics is useful. Students have harder time to deal with phonetics than the syntax on their own. When we had students to choose where they wanted to improve further, the phonetics was the primary part they felt less secured and wanted to get better consequently. Compounding tense error is a new sign of the cognitive processing when it comes to work on a language which has discrete tense formation. Students need to be informed about this error and given enough time to deal with. Cognitive processing behind tense compounding error is also interesting. It shows how mind processes information when it wants to build future or past. Indeed, the tense compounding error shows that we have a cognitive process, in which one tense is taken as the neutral tense, and other tenses are dependent on the neutral tense to be built up. One of the implications of this is to reconsider the introduction of tense based on the target language. In Hausa language, where we do not have a

rich compounding tense system, it would be better to present the present tense and past tense with the appropriate time delay. Instructing the two tense together would accelerate the compounding processing and it would make the cognitive load too strong for students to follow. Another implication of this study is to design a syllabus which takes into account the different syntactic systems between Hausa and Persian. When we analyzed the best way to teach Hausa, we discover that for a language such as Hausa, the phonological aspect and verb conjugation should be prioritized before jumping to the conversational communication. Since Hausa is a language which employs discrete prefixes in a one-to-one function, building the infrastructure is necessary. Having the grammatical competence at the backdoor will lead students to discouragement later when they want to talk more freely and fluently. Also this study reveals another important fact about learning Hausa for learners with a native language which do not have the gender distinction. These students need time to get used to this distinction, which they consider to be an idiosyncratic feature. Accepting this contrast involves some further processing in mind as learners do not see any necessity to distinguish the gender. The last important point is the tonal system and how the affective and integration factors played positively for the students. Therefore, presenting the students with opportunity to get connected to the Hausa culture can prove to be significant to master the tonal system.

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