AN ANALYSIS OF NUMERALS IN IGBO AND GERMAN FOR SECOND LANGUAGE TEACHING AND LEARNING

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Abstract
Numbering as an ancient and very important aspect of expression is manifest in different languages, reflecting the culture and environmental experiences in communicating quantity and positioning, in activities of humans within a given speech environment. This paper is a descriptive study of numbers in German and Igbo languages with the aim of bringing out the conceptual peculiarities, universal experiences and linguistic behaviours in their cardinal and ordinal numbers. Data are collected from primary and secondary sources. Findings show that both languages manipulate basic numbers to account for higher numbers using the arithmetic operations of addition and multiplication. Conversely, the languages differ largely in their formations as they employ different linguistic processes, word order, use of conjuncts and specific syntactic constructs. These features give clues to the conceptual differences in the languages. These observations are harnessed in this paper for effective second language teaching, learning and research. The study concludes that numbering supports the view that language is people and culture specific as it is characterized by the features the users conceive. Common human make-up and experiences, however, give room for a handful of similarities. The paper recommends that teaching L2 from the consciousness of the similarities and differences in L1 will give the learner more room to create a common underlying conceptual base for the two languages, avoiding loss of the uniqueness of less economically relevant languages.

Keywords: numbers, conceptual base, second language learning, German and Igbo languages

Introduction

One can imagine that right from the beginning, there has been the need to express quantity. Morale and Lippman(2017) attest that archeological studies prove that large range of identifying quantity was used by early humans. Even the animals have been proven to identify increased or decreased number in any given item. This range of identifying quantity was and is still helpful but may fail to account for situations that call for precision to properly and efficiently fulfill certain purposes of man. Howard (1969) gives examples of such situations: (1) knowing the exact number of sheep in the fold is necessary to enable the shepherd know when one is missing, number of deaths and number of births making room for assessment in business; (2) knowing the number of warriors in the enemy's camp as against the number in one's camp will help assess whether one should attack or retreat. Knowing the number of dead and injured will also help in telling the success of the war and the robust of the army. In the Igbo language some words have attempted to solve the problem of communicating quantity. Examples are constructions such as h*íńne* 'plenty', *híkází* – 'very plenty', *óbére* – 'small', *m̀pé* – 'small', *pékází* – 'very small', *háncha*/*níile* – 'all of them', *ụ̀fọ́dụ́* – 'some'. Extremes such as *ńnụ̀ kwùrùńnụ̀* (40 upon 40),

ágụta ọ́nụ, *ágụtaagụta,ájá dị n'àlà*, all expressing uncountable (Ahamefula,2016; Onukawa, in print) belong in this category. These quantity markers only express a generalized range of quantity. There are situations, as earlier mentioned, hat need precision in counting failing which, there will be dreadful consequences. I think this and many others prompted the move towards basic counting. The progress of accounting for quantity then moved gradually, probably from finger counting to tallies, marks and linguistic symbols and other complex word formation patterns.These linguistic formats or patterns in number building for the German and Igbo languages are what this study is investigates. The German language is a West Germanic language of the Indo-European phylum, while Igbo is a Benue Congo language of the Niger Congo phylum. According to *Expanded Graded Intergenerational Disruption Scale 0-4* (EGIDS), the German and Igbo languages have been developed to the point that they are used and sustained by institutions beyond the home and community (Eberhard et al, 2021). Given the EGIDS, this study assumes that the two languages have the same development status. Again this research is relevant for students and teachers of the German and Igbo languages for easy and strategic teaching and learning.

Evolution of Number Concepts

Number concepts are believed to have developed from signs to icons, indexes and symbols. The earliest record may be the using of pair or multiple parts of the body like eyes for identifying two, arms and limbs for four, fingers for 1-10, fingers and toes for 1-20, to show quantity. Other items include stones, sticks, , knotted strings, dry bones used to indicate how many items one would like to pay for, the number of steps to get to a certain hunting trap or the days between a woman's monthly cycle etc. (Smith et al, 1937; Feigenson et al, 2004 and Coolidge and Overmann, 2012). Other artefacts, Blanchards and Lartets (about 10 or 11 centimetre palm-fitted, flat surfaced bones with unarranged indentation) unearthed around Gorge d'Enfer, Vézèrè Valley, Southern France in 1865 but not until 1962 that Alexander Marshack, a journalist discovered that the lunar patterns on the bones are not mere decorations but notational (Rosenberg, 2008). It is claimed that number concept predates language. This is evidenced in studies where human infants and some other animals demonstrate the knowledge of non-symbolic quantity. These studies have shown that infants, birds, apes, dogs etc, have the ability to recognize or evaluate quantity. This ability is innate enough to be found active and predates the influence of language and culture in the sense that animals don't use language yet can identify decrease or increase; and babies in their early months of 0-6 recognize limited quantity. This knowledge of quantity is also evidenced in the human ability to link perceptions to concepts and concepts to expressions and other extensional meanings (Coolidge and Overmann, 2012)

The concept of counting

Counting is primarily a product of number sequencing. In early development of counting, not every number concept had linguistic expressions. The different parts of the body became

primarily the basic units for counting, in cardinal manner, 1,2,3… or in twos, fives etc. Smith et al (1937) record that the Oceanic tribe of the Andamas in Australia, have only the linguistic codes *ubatue* (one) and *ikpor* (two) for counting 1 to 10 with the help of the demonstrative pronoun '*anka'* –this, alongside tapping gesture and the quantitative adjective '*audura'* – all, used after the counting. People counted using different parts of the body. It is possible that the eyes were used to represent two, knuckles in a finger for three, limbs for four, fingers on one hand for five, both hands for ten, knuckles in the four fingers of a hand for twelve, fingers and toes for twenty. Apart from body parts, belief systems were also used in counting. A good example, the twelve scale pattern evidenced in 12 inches – one foot or a dozen count, was adopted also from the Egyptian lunar cycle belief (Smith et al, 1937). Counting in larger numbers developed by manipulation of the smaller numbers as the need arises. This smaller and larger scale form the basics of Numerosity (Feigenson et al, 2004). The smaller scale stems from the ability of babies to quickly and precisely recognize quantity of about three to four. This sudden recognition, Feigenson et al. (2004) called subitization and the second scale, magnitude appreciation. The later allows for the recognition of limited large numbers. In the Igbo early counting, counting in twenties was used to realize higher numbers and symbolic counting e.g. 20: *ọ́gụ́* – twenty, 40: *ọ́gụ́ nábò* – two twenties, 60: *ọ́gụ́atọ* – three twenties, 80: *ọ́gụ́ anọ* – four twenties, 100: *ogu ise* – five twenties. Other counting patterns include addition of smaller units to higher ones to form a greater one. In the German language, 1 is *eins* and 20 is *zwanzig* while 21 is *ein und zwanzig*, 'one and twenty'. Conventionally, symbolic counting developed across languages. This development is dated back to the period before the disintegration of languages. In any language phylum, number seems to be cognate across the group. Considering the basic numbers 1 to 5 in Igboid languages, Table 1 displays such striking homogeneity.

Table 1: Numbers in Igboid language phylum

s/no	Standard Igbo	Etche	Ikwerre	Ukwuani	Ezaa	Ekpeye	Gloss
1	Ótù	Ótù	Ótù	Òfú	nánʊ	ŋ̀nɛ́	one
2	àbʊ́ɔ́	àbʊ̀ɔ́-mbʊ̀ɔ̀-nàm	ɛ̀bɔ̀	ɛ̀bʊɔ́	ɛ̀bɔ́	ɓíɓɔ́	two
3	àtɔ́	tɔ-àtɔ́	ɛ̀tɔ́	ɛ̀tɔ́	ɛ̀tɔ́	ɓɪ́tɔ́	three
4	ànɔ́	(ǹ)nɔ ~ ànɔ	ɛ̀nɔ	ɛ̀nɔ́	ɛ̀nɔ́	ɓɪ́nɔ̂	four
5	Ìsé	se~ ìse	ise	Ìsé	ìsé	ɓísê	five
6	Ìsiì	ʃìì ~ ìʃìì	Ìsínù	ìʃí	ìʃìì	ɓísê	six
7	Àsáà	saà ~ àsaà	ɛ̀sâ	ɛ̀sá	ɛ̀sáà	ɓísê	seven
8	àsátɔ́	satɔ̄ ~ àsatɔ̄	ɛ̀sátɔ	ɛ̀sátɔ̂	ɛ̀sátɔ	ɓɪ́sábɔ̀	eight
9	Ìtólú/ìtéɣété	totū ~ ìtolū	tólú	ìtènɛ́nì	tètέ	ɓɪ́sánɔ̂/nàzáma/nàzáma dî	nine
10	Ìri	Ìri	Ǹri	Ìlí	ìrí	dî	ten

(Adapted from Numeral Systems of the World: last update, 2023)

Additionally, Musa and Oyebade (2018) investigated genetically and contact based relationship among the Nupe, Gbagyi and Egbira languages belonging to the Nupoid language phylum, using the morphology of their numeral systems. It was a descriptive study and their findings show that Nupe and Egbira, using the quinary and vigesimal systems, are closer to the Proto form of the Nupoid family than Gbagyi which uses a decimal system. The study concludes that such disperse from the original counting pattern is a threat to the traditional counting system within the Nupoid phylum and thus, the need for documentation of the traditional numerical system. Obikudo (2013) noted that the loss of the traditional counting system of the Nkoroo, an East Ijo language, is already facilitated by the teaching of the decimal system of counting in schools, while the traditional system employs the vigesimal system. Alerechi and Weje (2016) attest the same in Ikwere, an Igboid language where traditional vigesimal system is being replaced with the decimal system given the limitation of the earlier system in accounting for numbers from 400 and below; and also the irregularity of the traditional counting system.

The common denominator in these researches is the evidence of some basic patterns that show some conceptualization and certain degrees of gradual buildup of varying manifestations using arithmetic operations. These patterns are seen in the conceptualization of basic units and in the combination of lower and higher units to form larger numbers (Obikudo, 2013; Iloene, 2016; Musa and Oyebade, 2018). These are clues to the ability in man to be innovative to meet needs through conceptualizing. The different body parts employed (e.g. toes, fingers, limbs), cosmos (lunar system), human activities (market days), system (vigesimal, decimal etc), show the different orientations in usage. Oyebade (2016) views this process from a cognitive perspective in number computation and expresses the need for such uniqueness to be preserved given the domineering number systems of some other more developed languages. This paper analyses numbers in Igbo and German languages, bringing out their peculiarities such that the second language learner will be conscious of the two different worlds and gradually make room for a common base where the concepts from the two languages can be accommodated (Kecskes and Papp, 2003).

Methodology

This paper adopts a descriptive design using the conceptual analytic tool, drawing out comparative and contrastive relationship in the number system of the Igbo and German languages. Data were collected from secondary sources and researcher's intuition. The cardinal numbers 0 to 100 and ordinal numbering, first to twentieth, from both languages are used in this research. Transcription of the German numbers was adapted from https://lingweb.eva.mpg.de/channumerals/German.htm and corresponded with what is obtainable with the speakers of the language.

Data Presentation and Analysis

There are factors, observed from the data analysis, that can be used as yardsticks in comparing or contrasting the conceptualization of numbers in the Igbo and German languages. These factors include basic numbers, integration, word order, conjuncts, manipulation technique, arithmetic determinants and linguistic features**.** These will be discussed sequentially in this section using tables.

Basic Numbers

Basic numbers are unit numbers not derived from other numbers, rather employed in building up higher number , either by adding or multiplying them with some numbers. From table 2 below, it is observed that the basic units in Igbo and German are numbers 1 to 10. These numbers as we will see later in this paper, are used to generate other numbers in these two languages.

Table 2:Basic numbers in Igbo and German languages

Numbers	IGBO	GERMAN
0	Éfù	Null
1	Ótù	Eins
2	Àbụ̀ọ́ (á)	Zwei
3	Àtọ́	Drei
4	Ànọ́	Vier
5	Ìsé	Fünf
6	Ìsíì	Sechs
7	Àsáà	Sieben
8	Àsátọ̄	Acht
9	Ìtéghété	Neun
10	Ìrí	Zehn

The number zero ‘0’ added to these basic numbers is regarded as a digit especially with recourse to our background knowledge of mathematics and the use in pragmatics; but from the perspective of building other numbers, the number zero is naturally irrelevant.

Integration

From the discussion in Table 2, basic numbers are independent of other numbers with regard to their makeup. Surprisingly, this unique feature is also observed in numbers 11 and 12 of the German language. Does it mean numbers 11 and 12 in German are basic numbers? Arithemetically, it is not possible, but given their morphology, one will conclude that there are

no visible breakdowns unless there has been earlier evidence which has been overrun by language metamorphosis. The breakdown on Table 3 gives more insight to this.

Table 3: Analysis of Numbers 11 and 12 in Igbo and German

Numbers	Igbo	Breakdown	German	Breakdown
11	Ìrí nà ótù	10 and 1	Elf	X
12	Ìrí nà àbụ̀ọ́ (á)	10 and 2	Zwölf	X

Analysis of Table 3 shows that numbers 11 and 12 in the German language are not generated using the basic numbers. They are unique numbers with respect to symbolic and conceptual characteristics. They are not basic numbers in that they are not used to build any number but they cannot be disintegrated like their Igbo counterparts, where the 11 can be broken down to 10 and 1; and 12, to 10 and 2.

Word Order

Linguistically, word order is the sequence in which syntactic constituents occur in a language. In a simple sentence construction, some languages have the subject-verb-object (SVO) order while others like the Korean, Tibetan and Turkish languages operate subject-object-verb (SOV) order. In the same vein, during the formation of numbers higher than the basic numbers, the basic numbers are integrated amongst themselves; and in the arrangement of this new formation, linear ordering of the basic number combinations differ in Igbo and German languages. Igbo language adopts a bigger-smaller number sequence , while the German language adopts a smaller-bigger number sequence, showing exact oppositeness. See Table 4

Table 4: Number Sequence and Use of Conjunction in Number build-up in Igbo and German Languages

Number	Igbo	High-Low Order	German	Low-High Order
13	Iri na ato	ten and three	dreizehn	Three, ten
14	Iri na ano	Ten and four	vierzehn	Four, ten
15	Iri na ise	Ten and five	fünfzehn	Five, ten
16	Iri na isii	Ten and six	sechzehn	Six, ten
17	Iri na asaa	Ten and seven	siebzehn	Seven, ten
18	Iri na asato	Ten and eight	achtzehn	Eight, ten
19	Iri na iteghete	Ten and nine	neunzehn	Nine, ten

Conjuncts

We see also from Table 4 that while the Igbo language employs an overt conjunction 'na' in its number formation, the German language uses summation remains covert for some numbers, here 13 to 19. There is seemingly no explanation for this because the word 'und – and' is used in other levels of number formation in the German language. See example 1.

Example 1

ein **und** zwanzig –twenty one (21)
fünf **und** fünfzig – fifty five (55)

Manipulation technique

The Igbo and German languages operate numerosity of larger numbers by means of some arithmetic operations like addition and multiplication. Using addition, basic numbers 1-9 are needed to make larger numbers; and multiplication, used to make typical tens, hundreds and thousands. The unit numbers 1-9 are added to whole tens to produce sequences of numbering e.g. 20 –zwanzig will have 1-9 added to it to produce 21 -29. This is the same with the Igbo language. Other numbers that fall under tens with no unit attached to them are realized by multiplying the particular tens with particular units to get a desired number. An example from Igbo is 10 used to produce 20-90 by multiplying 10 x 2: iri abuo, 10 x 3: iri ato, 10 x 4: iri ano etc. in that sequence. Division was employed in the counting of money in the old Igbo numeric system but died out in the Igbo language modern counting methods. *Akpa ego*'bag of money' represents two hundred naira in the old system while N100 is referred to as *Okara akpa ego* 'half of N200 : half a bag of money.

The German language functions just like the Igbo language in its formation of numbers and the usage of arithmetic operations. However division was not traced to German numbering history.

Arithmetic determinants

In the German language, the order used for summation is the same employed when the multiplication operation is engaged. For 13 we have 3, 10, that is 3 added to 10; while for multiplication we have for the number 30: 3, 10 meaning 3 multiplied by 10. The Igbo language uses a conjunction 'na' to symbolize addition while multiplication in Igbo is covertly employed. See Table 5

Table 5: Illustration of arithmetic operation and order in the German and Igbo languages

Number	Igbo	Arithmetic operation/order	German	Arithmetic operation/order
13	Iri na ato	10 and (+) 3	dreizehn	3,10 (3 + 10)
30	Iri ato	10 threes (10 x 3)	dreiβig	3,10 (3 in 10 places)
18	Iri na asato	Ten and (+) 8	Achtzehn	8, 10
80	Iri asato	10 eights	achtzig	8,10 (8 in 10 places)

Observing the operations on Table 4, it can be seen that the Igbo language uses the conjunction *na* – 'and' to distinguish addition from multiplication operations. In Igbo, the presence or absence of a conjunction determines the arithmetic operation at work. However, in German, it will be difficult to differentiate between the conceptualization of 13, that is, 3,10 (dreizehn) and that of 30, with similar 3,10 (dreiβig). One would therefore rely on the phonetic features of the words, the morphological structure of the basic numbers or the context to explain the difference. Kluge (1891) classifies –zig suffix as suffix for forming the tens and has undergone processes from Middle High German –zic (g) and Old High German -zug

Linguistic Features

The Igbo and German numbers have some phonological and morphological features and processes that uniquely characterize them. Vowel assimilation is the main phonological feature evident in Igbo cardinal numbers with regard to their speech production, while in German, there are quite a number of phonological operations in both their formation and their production. This section discusses these features and their possible descriptions or explanations.

German number formation passes through certain processes such as contraction, elision, lenition and fortition . Lenition is the weakening of a consonant to become softer or more sonorous in production. In the fusion of the basic forms of three(3) and ten (10) in German, the voiceless alveolar affricate [ts] that begins the second word is neutralized to a voiceless alveolar fricative. See example (2)

Example 2

drei [ˈdʁaɪ] - 3

dreizehn [ˈdʁaɪt͡s eːn] – 13

drei # -zig [t͡sɪç] ⟶ Dreiβig [ˈdɾaɪsɪç] - 30

The sound [ts], double articulated sound is realised as [s], a softer single articulation. Phonologically, one may identify the environment of the vowels as the cause of this change such that the free flow of air without obstruction during the production of vowels influences the loosening of any total obstruction, thus producing a full blown fricative [s]. However, the same environment is seen in the word for thirteen (13) but the affricate sound is maintained. The only

difference is the height of the vowels following the consonant sound in the different words. However a good number of data in the language, apart from numbers are required to ascertain such a claim.

Deletion is another phonological process operational in number formation in the German language. Deletion occurs when a segment is lost. In example 3, the final consonant of the first word is deleted. This may be as a result of double coda consonants of the first word and the onset of the second word. Apparently, this may have to do with the phonotactics of the German language.

Example 3
sechs [zeks] – 6
Sechs # **z**ehn ⟶ sechzehn [ˈzeçt͡seːn] = 16

is deleted
Ø

Devoicing, defined as when a sound loses its voicing. Deletion and devoicing work in a feeding order in German, such that, deletion process is what enables the environment for devoicing. See illustration in example 4.

Example 4
Stage 1: deletion
sieb**en** [ˈziːbn̩] - 7
Sieb**en** # zehn⟶ siebzehn

Ø

-en is deleted in seven and the remaining form ‘sieb-’ used in the formation of seventeen in German.

Stage 2: Devoicing
[b] is realised as [p] when adjacent to a voiceless sound.

Sieb	#	zehn		siebzehn
[ziːb]		[t͡seːn]	⟶	[ˈziːpt͡seːn]

Voiced Voiceless

In stage 2, it is observed that after the deletion of *–en*, the voiced bilabial plosive assumed the word final position adjacent to the onset of the second word, the voiceless alveolar affricate. The voiceless feature is what is interpreted in this study to have spread to the coda of the first word. The bilabial plosive takes on the voiceless feature while preserving its other features. This phenomenon is common in world’s languages.

The Igbo assimilation process is not complicated and does not interfere with the structure of the words. It is a mere speech factor that is seen in rapid or continuous speech. Its usage is optional and does not in any way interrupt pronunciation or grammaticality. However, tones of the basic numbers are modified in some number interactions. See Table 6.

Table 6: Number and tone interaction in Igbo

Number	Tone	Number	Tone	Number interaction	Tone interaction
(3) atọ	L H	(10) iri	LH	(30) iri atọ	LHMM
(4) anọ	LH	(10) iri	LH	(40) iri anọ	LHMM
(3) atọ	L H	(10) iri	LH	(13) iri na atọ	LH L LH
(4) anọ	LH	(10) iri	LH	(14) iri na anọ	LH L LH
(3) atọ / (4) anọ	L H / LH	(10) iri	LH	(34) iri atọ na anọ	LHMM L LH
(3) atọ	L H	(100) narị	LL	(300) narị atọ	LLLH
(8) asatọ	LHM	(10) iri	LH	(80) narị asatọ	LHHHM
(8) asatọ	LHM	(10) iri	LH	(18) iri na asatọ	LH L LHM
(8) asatọ	LHM	(100) narị	LL	(800) narị asatọ	LLLHM

From Table 6, it is observed that tonal change follow some patterns in number interaction in Igbo. Interactions that require addition retain their tones while number interactions that engender multiplication have the tones of the right boundary numbers modified. This modification may be triggered by Obligatory Contour Principle (OCP) or other tonal constrains. It is also observed to occur only before LH tone interactions of the first word; but when the first word is LL the initial tone of the following tone is retained.

2. Word formation

The formation of ordinal numbers are conceived differently in the German and Igbo languages. In Igbo, the modifier 'nke' is used alongside the cardinal numbers except in the number 1; '*ugboro'*is used as a multiplicative marker andin reduplication for distributive numbering. Conversely, the German language is inflectional.

Table 7: formation of ordinal, multiplicative and distributive numbers in Igbo and German languages

English	Igbo	Markers	German	Markers

1st	Nke mbu	'Nke' Ordinal marker, mbu = ordinal form of one	erste	-te. Ordinal marker, ordinal form 'inflectional suffix'
3rd	Nke ato	nke ato	dritte	-te ordinal marker/form inflectional suffix
0nce	otu ugboro	Multiplicative numbering Ugboro + cardinal number	einmal	-mal. frequency marker inflectional suffix
One by one	otu otu	Distributive numbering Reduplication of cardinal numbers	eins nach dam anderen	
Two by two	abuo abuo	Reduplication	zu zweit	

Implications for second language teaching, learning and research

This study has a lot to contribute to second language teaching, learning and research. Right from the basics, previous knowledge, procedures in teaching, to determining the speed in conceptualization in the second language,and forming a control for research purposes.

Basic knowledge in this study refers to relevant information necessary for learning and manipulation of numbers in any given language. This study shows that regardless of the language, knowledge of some basic mathematical operations are needed to foster learning and understanding of numbers. Learners who are conversant with the number concepts of their L_1 are likely to find it easier to learn the number concepts existing in the L2. The operations found in L1 may be similar to that of L2 which will serve as a knowledge base for easy learning, while the differences serve as polar knowledge for point of divergence

Teachers and learners of a second language will also find it more comfortable to start with similarities shared between the languages, before digging into the differences. This is also a strategy that can be used to psychologically reduce phobia, anxiety from nervous learners and first time teachers. The similarities (e.g. use of mathematical operations) and differences (ordinal markers in Igbo Vs inflectional ordinal marking system in German) in Igbo and German languages are discussed in this paper with the intent that the learners and teachers will be well armed with where and how to start learning especially with the numerals.

- Language specifics are bound to occur even in numeracy. On Table 8 we see that the German language operates a case system not evident in Igbo. This information is vital to teachers of L1 Igbo students learning the German language, because more basic representation and explanation with adequate examples are needed in this 'strange' phenomenon (being a new concept not existing in their L1) to make learning more successful.

Table 8: Morphological Case Marking in Igbo and German

English	Other languages	Nomiative Case	Accusative	Dative	Plural form
One man	German	Ein Mann	Einen Mann	einem Mann	Zwei Männer
One man	Igbo	Otu nwoke	Otu nwoke		nwoke abuo

On Table 8, it is observed that the German language operates a case system that is not obtainable in Igbo. Such new concepts will be approached slowly and clearly with enough examples to make make for easier and faster assimilation. Kecskes and Papp (2003) ascertain that an intensive learning of L2 can increase fluency thresholds such that the L2 will no longer be dependent on L1 conceptual base for equivalence of L2 words; but that L2 will attain a common knowledge base with the L1 known as the common underlying conceptual base (CUCB). This is a much higher proficiency level in bilingualism which every teacher would want for the learner. This paper suggests procedures like sharing similar concepts in both languages, stating the differences, going from known to the unknown, and concentrating on specifics using ample examples, as ways that will help intensify learning and facilitate L2 proficiency for faster CUCB.

Pavlenko (2000) attests that L2 can influence and overtake the grammar of L1 in adult L2 learning. Such studies are often carried out by eliciting data from bilinguals and on the other hand, monolinguals of the languages of study. The data from monolinguals are later compared to that of the bilinguals of the same language, differences are observed and conclusions drawn (Harada, 2003; Cenoz,2003). This paper has presented the basis of number build-ups in both the Igbo and German languages, similar to what is expected from a monolingual speaker of the varieties represented here. This means that the information in this paper can be used to affirm or cross check data from monolinguals or in the absence of available speakers, can be used as a control in any study of the influence of Igbo and German on the speakerof these languages in their learning a second language.

Conclusion

This paper has examined the basic conceptual techniques that exist in the cardinal and ordinal number building in Igbo and German. The techniques were discussed under basic numbering, integration, word order, arithmetic determinants and linguistic features with the purpose of bringing out the features necessary for effective teaching, learning and research in both languages as L2. While the German and Igbo languages are similar in having the 1-10 as basics and using the same arithmetic manipulative techniques (addition and multiplication), the German language differs to the extent of having its 11 and 12 integrated. It is also observed in this paper that both languages operate opposite word order sequencing in number and the Igbo language does not operate the case system found in the German language. The use of conjuncts is partially operational such that it is used in some number formation and covert in others with no defined operative boundary; but conjuncts are in full operation when adding unit numbers to make higher ones, and absent when multiplying unit numbers. Linguistic processes involved in both languages differ. The suggestions for teaching procedure such as drawing out the similarities and the difference and going from the known to the unknown and deliberately mastering the specifics can also be generalized across other languages learnt or taught as L2. Adherence to these teaching techniques can serve as the basis to trigger faster learning and quicker conceptualization using L2.

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