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WILEY  WORLD ENGLISHES**PAPER**

Multilingualism and theories of second language acquisition in Africa

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This article analyzes Multiple Language Acquisition (MLA) and functioning in Africa as a case study of multilingualism. It interrogates central aspects of the dominant L2 acquisition (SLA) paradigm that is predicated primarily on mother tongue (L1) monolingualism, and presents data that document high levels of individual multilingualism (3–8 languages), and the achievement of native to near-native proficiency in three to five of them. The article draws upon these findings to critique key tenets of SLA theories, focusing on the ‘Critical Period Hypothesis’ (CPH) and its extension to the acquisition of additional languages beyond L1; its use as an explanatory tool for the development of the so-called ‘interlanguage’ grammars by learners; and their failure to achieve the ‘ultimate attainment’ in L2, L3, and Ln. It is argued that CPH is inapplicable to L2, L3, and Ln, because it fails to predict native-like proficiency beyond L1. It concludes by offering an explanation for the achievement of ‘native-like’ proficiency in several languages by post-pubescent Africans.

1 | INTRODUCTION

The emergence of the research on Third Language Acquisition (TLA/L3) and multilingualism, initiated by European-based scholars, since the late 1980s and early 1990s has been an exciting and invigorating development over the traditional second language acquisition (SLA) and bilingualism that have dominated the research on language acquisition since the late 1950s. Findings under this L3 research movement have illuminated facts that were hitherto common knowledge mainly to multilingual societies, but understudied by scholars who reside in monolingual-practicing nations in spite of the existence of internal multilingualism. As discussed in a number of recent studies, this line of research has not only crucially shed light on and expanded our knowledge of multilingualism and TLA, but also debunked common myths concerning aspects of the so-called SLA processes (Aronin & Hufeisen, 2009; Blackledge & Creese, 2010; Bokamba, 2014; Cenoz et al., 2008; Hammarberg, 2001; Marinova-Todd, Marshall, & Snow, 2000). These myths include, the extension of the critical period hypothesis (CPH), initial proposed for the mother tongue (L1) learning (Lenneberg, 1967; Penfield & Roberts, 1959), to the second language (L2) development as an explanatory tool for the so-called failure of L2 learners to attain native-like proficiency/the ultimate attainment; the positing of L1 as the primary source for L2 and L3 development; the directionality of the cross-linguistic influence (CLI) in the acquisition of additional languages beyond L1; and the non-achievement of near-native or native proficiency in L2, L3, and Ln (Bialystok &

Hakuta, 1999; Birdsong, 1992, 1999; Cenoz et al., 2008; De Angelis, 2007; Hammarberg, 2009; Marinova-Todd et al., 2000). Much of the research under the L3 paradigm, however, focuses on case studies that address essentially two major questions: (1) the process in L3 and/or L4 acquisition by one or a small group of learners (Aronin & Hufeisen, 2009; Cenoz et al., 2008; De Angelis, 2007; Hammarberg, 2009); and (2) the assessment of the proficiency of a group of L3 and/or L4 on specific aspect(s) of language structure (including phonology, lexicon, morphosyntax, or syntax) in order to ascertain the extent to which they attain native-like competence (Birdsong, 1999; Bongaerts, van Summeren, Planken, & Schils, 1997; Cenoz, 2003; Marinova-Todd et al., 2000; Tavakol & Jabbari, 2014; Tremblay, 2006). Missing in this research paradigm thus far, however, are studies on multiple language acquisition (MLA) by children and adults in stable multilingual societies. Such research would provide vital insights into processes in MLA, levels of proficiency attained in L3, L4, L5, and Ln, the directionality of CLI in sequential language acquisition under pervasive multilingual contexts, and the functioning of individual multilingualism in such societies where it is not an option, but a daily requirement (Aronin & Singleton, 2012; Auer & Li, 2007; Bokamba, 2014).

This study represents an initial attempt to address this area of research by examining what I have termed MLA with African data, and to consider the theoretical implications of this approach on the CPH and its corollaries in view of the achievement of multi-competence *à la* Cook's (2009, 2009, 2012) that has been acknowledged sporadically in the L3 research paradigm. In lieu of a longitudinal study at this juncture, the article samples and explores the acquisition trajectories of a selected group of adult African multilingual speakers' multi-competence in indigenous and non-indigenous African languages, such as English, French and Portuguese. Drawing on data gathered through an online pilot questionnaire and personal knowledge of the respondents, the study undertakes five major tasks: (1) It chronicles preliminarily and briefly these speakers' pathways in the acquisition of their respective linguistic repertoires; (2) describes their knowledge in terms of the scope of such repertoires; (3) determines which specific languages they speak and at what level of (subjective) proficiency; (4) examines with whom they use their languages in communication and how often; and (5) seeks to uncover how they acquired them and at what ages. The first set of objectives is to ascertain on empirical grounds individual multilinguality, functionality, the commonality of MLA in African societies, and the extent of such speakers' proficiency at all levels of the language's skills. The second set of objectives is to examine critically the theoretical implications that the sample African data would have on SLA theories, with a focus on the CPH, IL, and CLI. It is argued, for example, that the functional proficiency achieved by multilingual Africans throughout much of the continent demonstrates the fallacies of the bilingualism research (Clyne, 1997) and the on-going confusion regarding the characterizations of bi- and multilingual competence (Aronin & Singleton, 2012; Cabrelli Amaro et al., 2012; Li, 2007).

This article also suggests a redirection of L3 research from its current well-intentioned focus on L3 based on case studies of individual and small groups thereof, addressing discrete points of language structure and principles, to MLA (Falk & Bardel, 2011; Garcia Mayo & Rothman, 2012; Hammarberg, 2009; Hermas, 2010; Lindqvist, 2012; Tavakol & Jabbari, 2014). The concern here is not merely a matter of scope of research, but one of preventing the type of conceptual flaws in which SLA has been engaged for decades and are being correctly critiqued in the L3 research. For example, until now the term 'second language' (L2) in SLA is used as a cover term to reference the learning of any language beyond the mother tongue (L1). This lack of distinction, as two recent studies (De Angelis, 2007, pp. 5–6; Garcia Mayo & Rothman, 2012, p. 12) have pointed out, not only disregards scientific rigor, but also obfuscates analyses when learners' 'previous language knowledge' is referenced in comparing their acquisition development regarding already bi- or tri-lingual learners (such as African and South Asian students). The L3 paradigm, although still in its infancy, is falling in the same trap when it uses this label to reference any language learning beyond L3: L4, L5, Ln. This point will be taken up later in the theoretical implications section.

2 | MULTIPLE LANGUAGE ACQUISITION IN AFRICA

With its estimated 2,110 languages spoken within its boundaries, Africa is considered the second most multilingual continent in the world (Lewis, 2009). Practically all the countries in this vast continent, with an estimated population of 1,033 billion (World Population Statistics, 2016), are multilingual. This fact is documented in various sources

with respect to societal and individual multilingualism, including, especially, field-works conducted in West Africa (Anchimbe, 2013; Berry, 1971; Scotton, 1975; UNESCO, 1997) and South Africa (Broeder et al., 1998). Berry (1971) reports on a systematic investigation of individual multilingualism that he carried out in the city of Madina, Ghana, West Africa, in 1966. The research consisted of a two-part house-to-house completion of a written questionnaire by over 2,000 residents, followed by interviews. In the paper he presents six conclusions of which the following first three are most relevant here (Berry, 1971, pp. 324–325):

1. Over 80 different languages are spoken natively by the residents of Madina.
2. There are very few monolinguals in Madina (less than 4 per cent of all respondents admit to knowing only one language).
3. The majority (over 70 per cent) of the respondents claim competence in three language [i.e., Twi, English, Hausa] or more languages. Respondents' claims of competence in second and third languages seem *prima facie* reasonably conservative. This statement, though purely impressionistic, is based, *inter alia*, on the evidence of the frequency of responses indicating a desire to improve knowledge of some language; [...] reluctance to speak a language for fear of ridicule by [its] native speakers; and responses indicating awareness that the mother tongue is the only one properly understood.

When all the factors in (3) are taken into consideration, residents of Madina appear to know five languages in varying degrees of proficiency in communication. Similarly, Scotton (1975), in a study conducted in Lagos, Nigeria – Africa's most populous city – obtained similar results. She found that out of 187 respondents to her questionnaire only 5% spoke one language, that is, their mother tongue; of the remaining, 45% claimed to speak two languages, 29% three, and 4% four languages. Similar findings were presented in two recent surveys: Broeder et al. (1998); UNESCO (1997, cited in Wolff, 2000, p. 316).

Broeder et al. (1998) survey conducted in 1996 and 1998 in the city of Durban (that had over 2.5 million then) focused on languages used in school and at home. The collection was conducted in 96 schools comprising a total of 10,584 pupils of whom 5,211 were boys and 5,274 girls mainly in grades 1 and 7, the last being the terminal year for the cycle. This appears to be one of the last survey samples, especially at the primary school level. The survey asked the following seven key questions (Broeder et al., 1998, p. 41):

- a. Language repertoire: What languages are used in your home? (multiple options)
- b. Language proficiency: For each language, can you understand/speak/read/ write this language?
- c. Language choice: For each language, do you speak this language with your mother/father/older brother(s) or sister(s)/younger brother(s) or sister(s)/ other people?
- d. Language dominance: What language do you speak best?
- e. Language preference: What language do you like to speak most?
- f. Language exposure: In what language(s) does your teacher speak to you? In what language(s) would you like your teacher to speak to you?
- g. Language instruction: What language(s) do you learn at school? What language(s) would you like to learn at school?
- h. (Broeder, 1998, p. 41, original emphasis)

The author determined that there was a total of 28 languages (African, Asian, and European) and spoken in Durban, with 33% of the children living in a monolingual home; 35% in bilingual homes; and the rest (32%) in multilingual homes where three and more languages were used in various combinations (Broeder et al., 1998, pp. 46–47).

In the UNESCO's (1997, cited in Wolff, 2001, p. 316) report, the following similar facts were mentioned without specification of the age group of the speaker:

In a survey related to the case of Nigeria, the number of languages spoken by each of the subjects of the speech communities studied ranged from two to three as follows: 60 per cent of the subjects spoke two languages; 30 per cent three languages; and 10 per cent over four languages. A similar observation could be made regarding many if not all the African countries, where there is a widespread tradition of handling multilingualism. Often there is a complementary distribution of this multilingualism across languages by sectors of activities. The multilingualism is not only functional or commercial, it cuts across social fabric. It forms a socio-political and socio-linguistic characteristic of most speech communities. (UNESCO, 1997, cited in Wolff, 2001, p. 316, author's emphasis)¹

These are absolutely amazing statistics on individual multilingualism and what they imply regarding its learning and acquisition. While there exists a large body of published literature on various aspects of the sociolinguistics of multilingualism, albeit disembodied, there is none on the MLA facet that underpins societal multilingualism in any region of Africa. It is this gap that the present study attempts to fill as an initial inquiry for an in-depth book-in-progress by this author.²

3 | DATA COLLECTION METHODOLOGY

To carry out this study, I constructed a 'pilot questionnaire' in 2015 that sought to uncover two fundamental facets of linguistic cognition by African children, adolescents and adults (that is, pre-pubescent, pubescent and post-pubescent speakers) by surveying adult language acquisition trajectories from two different aspects: (1) MLA characterized by high functional fluency in at least three languages; and (2) the deployment of such multi-competence by the speakers. The first aspect was pursued through a comprehensive online pilot questionnaire that consisted of 110 inter-related questions that were e-mailed to 20 potential adult respondents in the US to determine their multilinguality and respective acquisition trajectories. Twelve of them completed the questionnaire, with several of them adding comments on how and why they learned so many languages spontaneously. The minimum level of education that the respondents had at the time of the survey was a Bachelor's Degree. Of these, two had only a BA; one was preparing to take her Qualifying Examination for admission into the doctoral program; two were doctoral candidates writing their dissertation (ABD); and seven had a Ph.D. from Research I universities in the US, and were serving as professors in US colleges and universities. Gender wise, there were five females (41.99%), and seven males (58.33%). Overall, this was admittedly a highly educated sample that did not represent 'the average multilingual speaker' in Africa; but this was a pilot study to inform the construction of a more detailed questionnaire that will target at least 100 individuals in Africa itself, Europe, and North America. In addition to the collection of ethnographic information, comprising twenty-six questions, the survey focused on four major aspects of their linguistic repertoires: (1) the number of languages that each of them know and speak; (2) how they learned them, where, how, and at what age(s); (3) what levels of subjective proficiency they believe that they have achieved; and (4) what they can do with their linguistic repertoire, with whom and for what purposes. Using the same tool, the second facet of the investigation sought to ascertain the respondents' multilingual practices, including the linguistic choices they make in particular contexts of situation, and how they exploit the various levels of their linguistic competence in communication. Subsequent to the collation of the survey responses, I carried out a qualitative and quantitative analysis. My findings, based on the pilot questionnaire responses from twelve respondents out of a total of 20 subjects who are graduate students and professionals from six different African countries residing in the US, revealed four major facts: (1) a high level of multilinguality; (2) similar trajectories of MLA from childhood to adulthood; (3) the complexity of the functioning of individual multilingualism; and (4) the achievement of high-levels of proficiency by multilingual learners. As seen above with respect to the previous surveys cited, none of these facts is surprising.

With regard to the first finding, the study showed that five respondents know eight different languages each (41.66%) with varying degrees of functional fluency; two have acquired six languages (16.66%); one, five languages (8.33%); two, four languages (16.66%); and two more, three languages (16.66%), as summarized in Table 1.

TABLE 1 Number of languages known & spoken by respondents

No. of speakers	No. of languages spoken	Percentage of total
5	8	41.66%
2	6	16.66%
1	5	8.33%
2	4	16.66%
2	3	16.66%
Total		99.97%

The number of languages reported to be spoken by the respondents totaled 33 different languages, ranging in subjective proficiency levels from 'native' to 'fair'. Knowledge of five additional languages was reported by three respondents to be at the 'reading only' level; these languages are not, therefore, included in any of the calculations here. The claims for individual multilinguality are consistent with the aforementioned research (Anchimbe, 2013; Berry, 1971; Broeder et al., 1998; Scotton, 1975). A further related finding to those in Table 1 is that the minimum number of languages known and spoken by each of the twelve subjects at the native and near native fluency level (ACTFL, L3-3.5) is three (100%), with ten (83.33%) of them claiming fluency (ACTFL, L2.0-2.5) in a fourth language, and two (16.66%) reporting a 'fair' (ACTFL, L1) proficiency in a fifth one. These evaluations must, of course, be taken at this juncture for what they are: subjective.³ While the pilot questionnaire was small compared to the previous surveys, these results are impressive as a sample, and cannot, therefore, be overlooked theoretically. The analysis will return to this issue in later in Section 5.

My second set of findings, that is, the trajectories of MLA, documents what has been hitherto anecdotal knowledge by Africans and Africanists: the multiple pathways through which Africans develop functional fluency in several languages throughout their lives. What the pilot questionnaire has established, at least in Sub-Saharan Africa since no resident of North Africa participated in the study, is that their verbal repertoires are acquired in four ways: (1) naturalistically, as pre-pubescent learners, post-pubescent and grown adults through language contact of one sort or another in their daily life; (2) formally as students in academic institutions or in informal settings with tutors; (3) inter-ethnolinguistic marriages; and (4) favorite music. Generally the first pathway includes the acquisition of the home language (HL), commonly termed 'the mother tongue' (L1), that of the community language (CL) in cases of semi- to major urban centers, and that of the regional language (RL) or lingua franca (LF) are typically learned naturalistically, with the latter but not the former being re-enforced in the school system, during the first 12 to 13 years of language learning under naturalistic conditions.⁴ Unless the child learner lives in a small rural community that is monolingual, he/she will often be exposed to and learn simultaneously the HL and CL. If the RL and LF are the same, then this adolescent speaker will achieve functional proficiency in three or four languages before reaching the age of twelve. This type of pathway for the acquisition of the first three or four languages (that is, HL, CL, RL & LF) is common to non-schooled children and adults in Sub-Saharan Africa where the knowledge of three languages is an average linguistic repertoire (Anchimbe, 2013; Berry, 1971; Bokamba, 2014; Scotton, 1975). As will be discussed later, many non-educated adults acquire and function easily in four to five languages that they learn in the course of their travels.

In contrast, the acquisition trajectory for primary (ages 6–12) and secondary (13–18) schooled children follows their educational ladder: they learn and acquire as many languages as dictated by their countries' language policies and academic programs. The number of languages that they learn and for which they achieve functional fluency or mastery, however, depends on their academic success in completing the different school cycles (primary, secondary, tertiary and post-tertiary). Table 2 illustrates these different trajectories based on multilingual Democratic Republic the Congo (DRC), and can be replicated most other Sub-Saharan African states with a similar language ecologies and policies. DRC is estimated to have a population of 73.5 million and 214 living languages, of which four serve as national languages (NL: Kikongo, Kiswahili, Lingála & Tshiluba), and French as the official language (OL) that dictates the following pathways to individual multilingualism through the school system:

TABLE 2 Illustration of a multilingual verbal repertoire: Democratic Republic of the Congo

Speaker		Types of Language ^a						
		HL	CL	RL	LF	NL	OL	FL
Rural	W/o PEduc	+	+	+	(±)	(±)	NA	NA ^a
	W/PEduc (± 5)	+	+	+	(±)	(±)	(±)	NA
	W/PEduc (6)	+	+	+	+	+	+	NA
Semi-urban	W/o PEduc	+	+	+	+	(+)	NA	NA
	W/PEduc (± 5)	+	+	+	+	+	+	NA
	W/PEduc (6)	+	+	+	+	+	+	NA
	W/SEduc (± 2)	+	+	+	+	+	+	(±)
	W/SEduc (6)	+	+	+	+	+	+	(±)
Urban (major)	W/o PEduc	(±)	(±)	+	+	+	NA	NA
	W/PEduc (± 5)	(±)	(±)	+	+	+	+	NA
	W/PEduc (6)	(±)	(±)	+	+	+	+	NA
	W/SEduc (± 2)	(±)	(±)	+	+	+	+	NA
	W/SEduc (6)	(±)	(±)	+	+	+	+	(±)
	W/ColEduc (± 3)	(±)	(±)	+	+	+	+	+
	W/ColEduc (5)	(±)	(±)	+	+	+	+	+
W/GradEduc (2)	(±)	(±)	+	+	+	+	+	

^aHL = Home Lge; CL = Community Lge; RL = Regional Lge; LF = Lingua Franca; NL = National Lge; OL = Official Lge; FL = Foreign Lge;
 **NA = option not available

That is, if 'the average speaker' resides in either a rural or semi-urban community and completes five years of primary education, he/she will have acquired at least a spoken repertoire of three languages: HL, CL, and RL, plus some reading knowledge of the LF if it is different from the RL.⁵ In contrast, if that speaker completes six years of primary school, he/she will definitely achieve a working knowledge of the LF, NL, and some basic reading knowledge of the OL to which he/she will have been exposed as a subject and medium of instruction from the 4th grade. This is a total of at least five languages, assuming that the LF and NL are the same language; otherwise it will be six. By the time this learner graduates from high school (2 + 4 years) in a non-rural community, his/her knowledge in the first four languages (that is, HL, CL, RL & RL) should be at the advanced plus level of fluency (ACTFL/ILR: L2.5); and that in the last two at advanced (ACTFL/ILR: L2). These levels of achievement are possible in a semi-urban center for three main reasons: (1) the embedding of the learner in a community where the HL, CL, RL/LF are the media of daily communication in each domain; (2) he/she would study the LF as a subject of instruction until the 12 grade; and (3) he/she will have used the OL as the medium of instruction from the 7th grade while studying it also as a required and tested subject that he/she must pass at each grade. The learner also will likely be introduced to a FL in the 10th or 11th grade.

Depending on the population of an urban center, that is, 'large city' vs. 'mega-city', children who are born in such environments in Africa as similar ones elsewhere, often experience what is misleadingly termed 'mother tongue' or simply 'language loss': They do not learn their parents' language(s). Instead, they learn the RL or LF, if the two are different. Thus, our average non-schooled child will learn only three languages: RL, LF, and NL, with the former (RL) serving as the HL and CL, and the latter as the language of wider communication (LWC) (Simpson, 2008; Vigouroux & Mufwene, 2008). When he/she becomes an adult, this will likely be his/her total repertoire, possibly with some limited incipient knowledge of the OL's common vocabulary. In contrast, the 5th or 6th grade graduate, as indicated in Table 2, will acquire four languages: RL spontaneously on the street, LF spontaneously on the street and formally at school as a subject of instruction; the NL, if different from the LF, in the same fashion; and the OL as the medium of instruction from the 1st grade. Upon graduation from high school, this student will have acquired a total of four languages (RL, LF, NL, OL), with at least an advanced proficiency level (ACTFL/ILR: L2) in each of them. Because the OL serves as a required

subject and the exclusive medium of instruction throughout the educational system, high school graduates develop a very good mastery of it in order not only to graduate, but also pass the university admission examination. They also get introduced to the study of at least one FL in their last two years. If the student does not pursue university education for one reason or another, he/she will end up with total repertoire of four or five languages. If he/she continues and graduates from any of the university's cycles (3 years for an Associate Degree or 5 years for a Bachelor's), he/she will definitely have accumulated a total repertoire of five languages which will enable him/her to apply for scholarships/fellowships offered by nations in which his/her country's OL is spoken. This trajectory culminates in a linguistic repertoire of six languages or more, as illustrated in Table 2.

From a societal multilingualism perspective, what the trajectories in Table 2 suggests is a differential allocation of the multilingual speaker's competence in communication: deployment of the HL in the family domain with relatives and other interlocutors of the same language; the CL at the market places, stores, and mass public transportation in interacting with non-speakers of his/her HL; the RL in public places (such as schools, post offices, clinics/hospitals, and public media), and with speakers from other communities of practice during travels away from home but within the individual's (sub-) region; the LF during travels away from one's immediate (sub-)region or across another where this LF is spoken; the NL, if different from the LF, for inter-regional/provincial or national communication; and the OL for communication in higher public domains (for example, post-primary and governmental institutions in urban centers, foreign nationals, and embassies) where such a language is expected. Undoubtedly, this speaker will also be multi-dialectal in all these languages that he/she speaks fluently; thus adding to the complexity of his/her linguistic repertoire (Bokamba, 2014). This is not an imaginary description, but that of a daily reality that demands a high level of communicative competence à la Gumperz (1982) in negotiating one's linguistic choices in any communication. For example, speaking an LF, instead of a CL in a community marketplace is regarded as pedantic. Similarly, communicating in a NL or OL where a RL is expected is treated as pedantic or arrogance. How do these language acquisition trajectories represent the reality on the ground in so many African nations that have different language in-education policies determined largely by colonial historiography? The results of my pilot questionnaire provide an answer to this question.

4 | ANALYSIS OF THE PILOT QUESTIONNAIRE

According to my research, none of the respondents to the pilot questionnaire grew up in a monolingual community where he/she was exposed only to one language irrespective of their birthplace. Instead, all of them spent their pre-adolescent years in bi- and multilingual communities (that is, semi-urban to urban centers) where they acquired their first three languages (HL, CL & RL) simultaneously and/or sequentially at home and in elementary school.⁶ For most of them, their acquisition of the RL/LF and additional languages occurred in a variety of ways: attending upper primary and secondary education in a boarding school away from home or living with a relative during this pursuit away from one's immediate community or sub-region; in-city migration from rural or semi-urban centers; relocation to different districts or provinces as a civil servant (for instance, teacher, nurse, doctor, military personnel, bureaucrat); migrant worker in manufacturing and mining companies; search for post-primary education; marriage outside of one's speech community; and inter-regional/provincial travel for business. All my respondents, including this writer, took this type of training route. As a result, after completing their education in their respective countries, they obtained financial support to pursue tertiary/post-tertiary education overseas, with some coming directly to the US, others going to Britain, France or Germany before ending up here (in the US) where ten of them earned the degrees specified in the methodology section above, and are currently employed at different universities.

Inter-ethnolinguistic marriages, in which the spouses come from different speech communities, represent the third MLA trajectory. This is a growing pathway, especially due to in-city migration within Africa itself, job mobility for single employees, and self-exiles of unmarried individuals to flee political oppression or economic hardships. In these cases of intra-Africa movements, the young couples often share a third language (which may be a NL/OL) that they use to communicate with each other, while maintaining their L1 or possibly L2s. Depending on the practice they establish and maintain after the birth of their children (while the family is residing in a multilingual city), the children will grow up

learning two languages before attending primary: possibly the mother (L1), but not the father tongue (L1a), and the LF or NL (if there is one); then he/she will pick up the OL at school (Anchimbe, 2013; Broeder et al., 1998). Alternatively, he/she will learn simultaneously the mother tongue, father tongue at home, the LF/NL in the neighborhood, and the OL at school. One of my respondents, who is not unique in this regard, experienced this trajectory. She was exposed to the parents' languages at home, and Kiswahili (a NL in her country) at home and the community, and became a trilingual before she started school. Thereafter she learned English at school, Kiswahili and English were re-enforced by the language policy in primary school. A second respondent grew up as a bilingual by learning the parents' shared ethnolinguistic language, the default/dominant LF of the country's capital city to he was exposed before learning French (OL) at school. As seen earlier in this article, growing up bilingual or multilingual (three languages) as a pre-school child is a very common occurrence.

The fourth and final pathway, learning an additional language via one's favorite popular music, appears to be restricted to devotees of certain types of music and musicians. One of my respondents reported that she initially learned Lingála, by memorizing the lyrics of some of the songs. She then befriended a Congolese tutor in her capital city where lived.⁷ Apart from these types of music devotee learners, this approach is very common to established and aspiring musicians of popular music in Africa who are typically migrant performers in search of income voluntarily, or forced political refugees. The best examples of this approach involves the learning of Spanish by major Congolese artists who teamed up with artists from certain Latin America musicians from the late 1950s, the use of certain West and East African languages by some Congolese artists in the 1980s following their exiles there during President Mobutu's oppressive regime, and the use of Lingála by local African artists of Congolese music in East and West Africa (for example, Kenya, Tanzania, Cameroon, Burkina Faso, and Ivory Coast).

5 | THEORETICAL IMPLICATIONS

The findings from the pilot questionnaire with respect to the high level of multilinguality of the respondents, their acquisition trajectories that confirm common anecdotal knowledge in Africa, and their language choices in communication shed light on pervasive societal and individual multilingualism. These findings complement previous research on Africa referenced earlier in this article (Anchimbe, 2013; Berry, 1971; Broeder et al., 1998; Scotton, 1975) by providing current data in an independently motivated research. The most fascinating finding from the questionnaire, however, is the participants' high proficiency achievements in their respective additional languages (that is, L3, L4, L5 & Ln). The fundamental question that arises here is this: 'How would SLA and/or TLA account for these achievements resulting from post-pubescent spontaneous and formal learning of three to six languages beyond the HL, CL and RL/LF?' This is particularly crucial for at least L3, L4, and L5 when the former was not learned simultaneously with the commonly assumed, in Africa, HL and CL/RL bilingualism. The article now turns to the examination of this question and its theoretical implications on both SLA and TLA.

First and foremost, consider the facts in Table 3 that summarizes the foreign language chronology of the two most shared languages reported in the questionnaire: English and French. As can be seen here, the vast majority of the respondents learned English ($n = 4$; 33.33%) as an L3; whereas a higher number ($N = 5$; 55.55%) of them learned French also as an L3. The next sizeable groups are two ($n = 2$; 16.66%) for English as an L2, L4, L6, and L7, each at 16.66%; compared to French two ($n = 2$; 22.22%) as an L4, and one each ($n = 1$; 11.11%) as an L2 and L5, respectively. Table 3 confirms, independently, the trajectories illustrated in Table 1, and the proficiency levels ascribed to the average schooled learner of foreign languages used as OLs in Africa. From an explanatory adequacy perspective (Adger, 2003; Chomsky, 1965), the high levels of proficiency outcomes are theoretically intriguing and pregnant with enormous possibilities and challenges. As will be recalled from the description above, 100% of the twelve respondents reported a minimum functional knowledge of three languages for which they claimed to have achieved native fluency (ACTFL, L3.0-3+) before puberty (ages 2–12), and an advanced level proficiency (ACTFL, L2-2+) in a fourth language thereafter. For most of them, the 3rd and 4th language were learned formally in secondary school (Table 3), that is, after puberty when the

TABLE 3 Chronology & number of learners of English and French

As	Learner of			
	English		French	
	Number	Percentage	Number	Percentage
L1	0	—	0	—
L2	2	16.66%	1	11.11%
L3	4	33.33%	5	55.55%
L4	2	16.66%	2	22.22%
L5	0	—	1	11.11%
L6	2	16.66%	0	—
L7	2	16.66%	0	—
L8	0	N.A.	0	—
Total no. of learners	12		9	

achievement of native or near-native proficiency in any language is deemed practically impossible and fraught with difficulties (Johnson & Newport, 1989; Lenneberg, 1967, 1969).

According to Lenneberg (1967) who popularized the CPH, the explanation for language learners' inability to achieve the so-called 'ultimate attainment' in a non-L1 language is due to the loss of brain plasticity. Specifically, building on Penfield and Roberts' (1959) neurological study of speech processing, Lenneberg (1967) proposes and persuasively argues not only for the biological foundations for child/first language acquisition (L1A), but also for a very lime time span (2–12 years) during which spontaneous language acquisition can occur. His central proposal include the following three components: (1) The existence of a species-specific genetic endowment or imprinting of the capacity for L1A; (2) the postulation of language knowledge being species specific and uniform, environmentally determined, and maturationally defined; and (3) the existence of 'a critical period' during which language can be acquired spontaneously, that is, without instruction (Lenneberg, 1967, pp. 374–376). Lenneberg (1967) substantiates the first hypothesis in two ways. First, he shows that there is a close correlation between motor and language development in children. The argument here is that since motor development is clearly a demonstrable and long established biological phenomenon, its correlation with language development cannot be coincidental; therefore, language development in babies must be genetically endowed also. Lenneberg (1973a, pp. 83–84) expands this argument by presenting the following six factors that characterize genetic predispositions:

- a. It is a form of behavior present in all cultures of the world.
- b. In all cultures its onset is age correlated.
- c. There is only one acquisition strategy [spontaneous learning] – it is the same for all babies everywhere in the world.
- d. It is based intrinsically upon the same formal operating characteristics whatever its outward form.
- e. Throughout man's recorded history these operating these operating characteristics have been constant.
- f. It is a form of behavior that may be impaired specifically by circumscribed brain lesions which may leave other mental and motor skills relatively unaffected.

Further, Lenneberg (1967, 1973) maintains that children without congenital defects as well as those with them end up universally learning the language spoken around them in the same fashion (that is, spontaneously), and according to a similar schedule. With regard to the second proposition, Lenneberg argues that children with or without speech pathologies or encumbering factors learn language sooner or later. The author's third hypothesis, which has been popularized as 'the Critical Period Hypothesis' (CPH) and continues to be generally accepted, states the following:

*This basic capacity [in postulations 1 and 2] develops ontogenetically in the course of physical maturation; however, certain environmental conditions also must be present to make it possible for language to unfold. Maturation brings cognitive processes to a state that we may call **language readiness**. ... language-readiness is of limited duration. It begins around two and declines with cerebral maturation in the early teens. At this time, apparently a steady state is reached and the cognitive processes are firmly structured, the capacity for primary language [i.e., L1] synthesis is lost, and cerebral reorganization of functions is no longer possible. (Lenneberg, 1967, pp. 375–377, author's non-bold italics)*

As Herschensohn (2007) points out, if this statement is construed as an actual 'critical,' instead of 'a sensitive' period, language acquisition, domestic or foreign, would not be possible. Discussion elsewhere in Lenneberg (1967, p. 181) and a subsequent paper by the author (Lenneberg, 1973b), however, indicate that it is not a complete cut off or impossibility, but rather a 'sensitive' period during which spontaneous language acquisition can be optimized. In fact, Lenneberg (1967, p. 181) points out that language acquisition after puberty is still possible, but often results in the emergence of foreign accents when the learning occurs between the ages of eleven and fourteen.⁸ Lenneberg's conclusion regarding the emergence of a foreign accent in the speech of post-pubertal learners of foreign languages is common knowledge in the field, especially for learners with a monolingual background. As it has been pointed out in recent studies, this fact is potentially explainable by the loss or reduction of brain plasticity in phonology for which there appears to be strong evidence (Bongaerts, 1999; Hammarberg & Hammarberg, 2009; Herschensohn, 2007; Singleton, 1989), and does not in of itself contradict the CPH in its entirety. This finding, however, is countered by numerous recent case studies that have shown that adolescents and adults from diverse linguistic backgrounds are capable of achieving native and near-native pronunciation in L2 and L3 (Bongaerts, 1999; Hammarberg, 2009; Ioup et al., 1994; Marina-Todd, 2003; Moyer, 2004; Nikolov, 2000; Urponen, 2004). These studies prove that even on the 'accent' aspect firmly stated by Lenneberg (1967, 1973), the CPH cannot be maintained. While my online pilot questionnaire could not access information on the participants' pronunciation, I know personally that five (33.33%) out of the twelve have at least near-native accent in English. Similarly, five (55.55%) out of the nine speakers of French in the respondents group have achieved native accent.⁹ The remainders of either of the language groups have a very good accent.

The overall validity of the CPH in the acquisition of additional languages (that is, L2, L3, L4 & Ln) has also been rejected on methodological and empirical grounds based on numerous studies carried out since the early 1990s. Marina-Todd et al. (2000), for example, argue that the correlation of ultimate attainment and age in additional language acquisition is flawed on three accounts. First, there are misinterpretations of data analyzed in certain key studies (Johnson & Newport, 1989; Long, 1990) where the pre-pubescent learners reportedly out-performed the post-pubescent counterparts, thus confirming the 'age' effect advantage for children. Marina-Todd et al. state that subsequent re-analyses of the same data and similar research by other scholars have shown that the age effect occurs mainly at the initial stages of the learning, and that thereafter adults perform as well as children, and that in the long-run they out-perform the latter (Bialystok & Hakuta, 1994; Marina-Todd et al., 2000, pp. 12–13; and studies cited therein). Second, there is misattribution of high language proficiency to brain plasticity in pre-pubescent and lack thereof in adult learners. Marina-Todd et al. (2000, p. 14) indicates that the lack of 'a uniformly accepted theory of how L2 are acquired' in SLA has led researchers to turn to 'neuroscience in the hope of finding new and more conclusive evidence based [sic] on which they could create more coherent theories of SLA'. They maintain that this attempt has not been successful, because the analytical procedures of 'localization of language learned at different ages', speed of processing stimuli, and brain activation patterns in language processing utilized in measuring differences between early and late learners do not 'incontrovertibly demonstrate age effects on brain reorganization' and the attainment of proficiency in L2s learning (Marina-Todd et al., 2000, pp. 16–18).

Third, Marina-Todd et al. (2000) point out that there has been a wide-spread 'misemphasis' on the so-called inferior performance of adult L2 *vis-à-vis* children learners. They consider this fallacy as the most egregious of the three:

Perhaps the most common error that has led to the widespread belief in a critical period in L2 learning is that of placing an enormous emphasis on unsuccessful adult L2 learners and ignoring the older learners who achieve nativelike L2 proficiency. (Marina-Todd et al., 2000, p. 18)

The authors maintain that while numerous studies and anecdotal evidence, correctly or erroneously, have shown that adult learners encounter challenges in learning additional languages, it is erroneous to conclude that they 'are incapable of mastering an L2' (Marinova-Todd et al., 2000, p. 18). Clearly, adults are not 'a homogenous group of incompetent' L2 learners, nor are they all incompetent in this regard. The authors point out that 'whereas younger learners tend to perform fairly similarly to one another, learners show great variation in their proficiency' (Marinova-Todd et al., 2000, p. 19). They cite several studies that document this fact, while acknowledging that '[u]nfortunately, only very few studies [then] (Birdsong, 1992; Coppieters, 1987; Seliger, Krashen, & Ladefoged, 1982; Shim, 1993) have reported details on the individual performances of their older subjects' (Marinova-Todd et al., 2000, p. 19). Since then there have been numerous studies on such successes involving L3 case studies. They include two case studies reported in detail in Hammarberg (2009), several others in Leung (2009), and Cabrelli et al. (2012). This article represents an additional report of successful post-pubescent (14–20) and adult (21+) learners who have achieved mastery in L3, L4 and higher, as described earlier. If the CPH were truly a critical instead of a potentially sensitive period, the respondents to this study's questionnaire and millions of their counterparts in Africa and elsewhere would not become proficient multilingual speakers by learning additional older languages formally in post-primary institutions, spontaneously on the street and in their travels outside of their provinces/states or countries. The grammars achieved by the respondents, contrary to SLA theories, cannot be characterized as 'interlanguages' in the traditional sense of L1+L2 grammars for two reasons. First, these individuals have demonstrated their high proficiency by completing degree programs at BA, MA and Ph.D. levels at US/British/French universities, obtained employment competitively at US universities. Second, their grammars cannot be described as interlanguages, because to do so implies that they are combinations of several languages: L1+L2+L3+L4+Ln. This would be absurd for the obvious reason: communication with speakers of English or French would be impossible. It is worthwhile to point out here that while most of the case studies reported in the language acquisition literature involve grammatical judgments, discernment of syntactic-semantic principles, and some aspects of morphosyntax, instead of an overall mastery of the target languages (as in Hammarberg, 2009) and the present study, the conclusion concerning the ultimate attainment in a targeted additional language remains the same: the CPH in its strongest form is invalid. This conclusion in part begs the question of why it is that many adults cannot learn successfully an additional language (for example, L2, L3, or L4) while others can? The answer to this question is very complex, as it requires neurological investigations of successful and unsuccessful learners on the one hand, and on the other, careful cross-linguistic research on language ecological factors that facilitate or impede success.

From the perspective of stable or pervasive multilingualism such as the case of Africa, there is an apparent tentative answer to the question above. Sociolinguistically, as stated previously, Africans learn several languages because they are necessitated by daily communication between individuals and groups. A ten-year old Cameroonian boy (named Tanyi) cited by Anchimbe (2013, p. 82) aptly captured simply and elegantly the spirit of African multilingualism:

I talk country with my mother. I talk Pidgin and country with my sister and brothers. I talk French when I play with my friends. I talk English and Pidgin at school.¹⁰

Tanyi's statement reflects not only the reality of multilingual communication realities in Sub-Saharan Africa for children and adults, but also the multilingual acquisition that this article portrayed earlier. Individual multilingualism is not a luxury or an option, but a requirement. Given this environment in which speakers are embedded daily, one cannot avoid learning and becoming a multilingual. If the CP is a sensitive window of opportunity during which a person optimize his/her acquisition of a language before the aperture narrows, then clearly children, but not adults, in Africa and elsewhere would be advantaged in becoming multilingual speakers. Then as they grow older they can maintain their repertoires as dictated by their countries' language ecologies. The sensitive period could still hold true to account for the results of the pilot questionnaire under discussion here. But as discussed much earlier, however, African adults acquire and achieve functional proficiency in their target languages via relocation for academic pursuits, job opportunities, business, and intermarriages. How do they do this?

As argued in several studies (de Boysson-Bardies, 1999; Herschensohn, 2007; Marinova-Todd et al., 2000), contrary to the Lenneberg's (1967) strong version of the CPH, plasticity or flexibility of the brain is long lasting and selective with respect to certain aptitudes involving language acquisition. Apparently, malleability for the phonetic/phonology

interface dwindles around the age of 14 or 15, but it continues for other areas of the grammar: morphology, syntax and semantics continues presumably throughout life. If this is correct, the multilingual proficiency achievements described in this article can be explained in this manner straightforwardly. But this explanation leaves unanswered the question of those adult speakers who achieve the ultimate attainment in *all* areas of the grammar, as discussed previously. I believe the second part of the answer, and possibly the optimal explanation, is that the brain, with its billions of cells, develops new pathways or synaptic connections to accommodate new language learning experiences, just as it does for solving other problems. What apparently occurs in the case of bi- and multilingual adult learners in Africa is that the brain computes all the necessary factors, including the target languages shared grammar *à la* UG (Universal Grammar) that includes language typology, the multilingual environment and requirements, and the cost-effectiveness of the effort, to facilitate a successful output. I contend that adults who encounter difficulties in learning additional languages do so, because they lack exposure to stable multilingualism. They are conditioned to monolingual practices, depriving their brains of the multilingual daily stimuli. Whether this explanation will eventually pan out, is an empirical question that will require interdisciplinary research. For now, it is very plausible in view of the millennia of multiple language acquisition (MLA) by illiterate and literate Africans and their counterparts elsewhere.

6 | CONCLUSION

This article sought to achieve two main objectives: (1) provide an analysis of MLA acquisition in Africa as a case study based at this moment on an online pilot questionnaire as a preliminary undertaking for a major part of a book on multilingualism in the continent; and (2) to discuss the theoretical implications of the pilot questionnaire *vis-à-vis* research on SLA and TLA, with an emphasis on the CPH and some of its corollaries. I would have liked to discuss CLI under MLA contexts, but the data collected did not and could not access this information. This aspect of the analysis will have to wait for results of the expanded questionnaire that will include face-to-face interviews and examination of written samples from a selection of the respondents. The current data have amply demonstrated four conclusions. First, MLA is a common occurrence in Africa, and by implications in other stable multilingual societies such as India (Bhatia & Ritchie, 2014; Edwards, 2009; Mohanty, 1994), Pakistan, Indonesia, and selected countries in Europe. Second, African children and adults learn and acquire multiple languages, at least three and up to eight, through different pathways: spontaneously and informally in their respective communities of practices, travels for a variety of reasons, inter-ethnic marriages, music; and formally throughout the educational experiences. Third, adolescent and adults, that is, post-pubescent learners, do achieve a range of proficiency in their numerous languages, ranging from functional fluency to the ultimate attainment: near-native to native, as defined by ACTFL. Fourth, the achievement of these high proficiency levels in so many languages, which are not predicted by the CPH, is possible because multilingualism in Africa is a daily requirement in communication; and because speakers are embedded in daily multilingual practices at all levels of their societies. As argued in the immediately preceding section, what these findings show that the CPH cannot be maintained in any of its form, otherwise the proficiency achievements documented in this article would not be explained. In this regard, the article offers support to the recent research on SLA, and especially on TLA that is urged to move from its current focus that represents SLA, at least by paradigmatic terminology, to MLA in which the full range of human capacity for language acquisition can be exploited.

NOTES

¹ See also Eric Anchimbe (2013) in which he reports that the average Cameroonian speaks at least five languages that include a home language (HL), community language (CL), Cameroonian Pidgin English (a popular lingua franca - LF), and up to five languages (French and English, the two official languages) if the individual has had secondary education. For the youths, there is a 6th language: Camfranglais, which is a mixed French-English youth-speak.

² The book is currently titled: *Multilingualism in Africa: Sociolinguistic and cognitive dimensions*.

³ I should point out here that I have known each of the respondents for a long time as colleagues and former teaching assistants of mine, and much of what they claim is consistent with what I knew about their linguistic repertoires before they were surveyed for this research.

⁴ This is true if the RL is not the same as the LF. If the two are the same, the pre-pubescent speaker learns the LF simultaneously with the CL. It is to be pointed out here that HL, which are generally local languages, are not used or taught in school.

⁵ The HL and CL are often acquired simultaneously in many, if not most, Sub-Saharan African countries where this type of distinction exists. See, for example, Anchimbe (2013, pp. 82–83) with regard to the Cameroon.

⁶ In some sub-regions or states in many African countries the RL may be the same as the LF. This is the case of Lingála in north-west Equateur Province in DR Congo, and Tshiluba in the two Kasai Provinces also in DR Congo. Other examples include Nigerian Pidgin English in Eastern Nigeria, and Cameroon Pidgin English in English-speaking Cameroon.

⁷ Lingála is one of the national languages of the DR Congo and the Republic of the Congo, and the most popular language used in approximately 70% of the popular Congolese music (Bwantsa-Kafungu, 1970; Stewart, 2000) that is adored throughout Africa and beyond.

⁸ See last two rows of Table 4.8 in the book.

⁹ This author was recently mistaken by a French visitor to have a Northern France accent. The visitor, a woman, asked me if I ever studied there. I was flattered by the compliment, but the response was a categorical no. He heard a similar remark about his Kiswahili pronunciation back in 1989 while was directing a Fulbright-Hays Group Project Abroad in Malindi, Kenya. He was mistaken by a native speaker of this language to be a Tanzanian. This is significant considering that the author learned Swahili in graduate school in the US from a Zanzibari Lecturer while he was twenty-three years old; whereas he began to learn French in grade 1.

¹⁰ Cameroon, in West Africa, has a bilingual official language policy in English and French inherited from its colonial past. A similar and lengthy citation is given in Edwards (2009, p. 447) concerning the reality of multilingualism in India.

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