METALINGUISTIC TRANSFERABILITY AMONG SIMULTANEOUS AND SEQUENTIAL TRILINGUAL LITERATES: CASE OF BURUNDIAN YOUNG LEARNERS

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Abstract

Developing metalinguistic awareness (MLA) stands as a strong and undeniable argument for multilingual literacy advocacy but there is still limited evidence on MLA transferability across multiple language literacies. The present study aims to fill this gap through an investigation of the MLA transferability power among early simultaneous (ELLs) and late sequential trilingual literates(LSLLs) in Bujumbura basic schools. Using a sample of 80 Kirundi, French and English elementary learners in Bujumbura schools, this study draws inferences from a retrospective longitudinal approach. The baseline is the exposure to early multiple literacies either from home language practices or formal instruction as early as 2.5 to 3 years of age. In this quest, differences in metalinguistic awareness (phonological, morphological and syntactic) are test-measured between the two groups of informants and using Spearman's Moment correlations, MLA transferability is cross-examined. Results showed that MLA is homogeneously transferable among the two types of trilingual literates; independently of the exposure modes.Variability of correlation coefficients were also found to be language dependent, construct-based and skill-based.

Keywords: metalinguistic awareness, transferability, sequential, simultaneous bilingualism

1. Introduction

The paradigm of multilingualism is gaining momentum over monolingualism in most language contexts in our world today. Mastering multiple languages is becoming a commonplace educational milestone for most of the world's population. As Chomsky in Mukherji et al. (2000) notes, "In most of human history and in most parts of the world today, children grow up speaking a variety of languages…" (p.125). Learning and knowing many languages has become an imperative to fit in the globalised world.

Beyond the social benefits of multilingual proficiency, research has proven that learning another language has many cognitive and academic benefits (Weatherford, 1990). Cutting back on foreign language education would inevitably yield depriving students of a very valuable opportunity. It is in this perspective that multilingual education policies have been implemented in many countries, especially African nations to open up young learners' horizons to many linguistic potentialities.

To that end, countries like Burundi, have introduced more than two languages in the education system simultaneously (Mazunya&Habonimana, 2010) .In fact, the landmark of the language policy in Burundi has constantly shifted from the promotion of mother tongue education (1973-1980) to a French- based language policy where French was the language of instruction since P1(1981-2006) before moving to the multilingual language policy in which English and Swahili are added to the primary school curriculum (2007-2019). Under this policy, English is considered

the language of globalization and Kiswahili the language for regional integration and citizenry (Mazunya& Habonimana,2010). Today French literacy is taught since P1 and slowly replaces Kirundi as a language of instruction, starting from P5.

Moreover, in Burundi, pre-primary education (for ages 2-5) is the responsibility of parents and is not part of the formal education system. Education at this level is in the hands of private agencies and individuals. More so, most of the nursery schools are in urban areas and children in the rural areas enter primary school with little preparation for the required intellectual tasks. The age set by the government for children starting formal primary education is six years and above. It is at the primary level that the government's responsibility for the provision of formal education begins. Bujumbura, the capital city witnesses the proliferation of many private nursery schools that have continued to include primary and secondary sections.

Here, it is important to highlight that decisions to include a subject in the curriculum in both private and public schools are largely taken for political or utilitarian reasons and not educational purposes. One scientific argument for believing that younger children are better at learning languages and may need to start early to become truly proficient lies in the so called Critical Period Hypothesis (Ellis ,1994; Lightbown, 1999), which is still hotly disputed in Applied Linguistics research.

Alongside developing multiple literacies, ensuring the development of metalinguistic awareness (MLA) is also an important ingredient in learning to read, spell and understand words (Donaldson, 1978). MLA is the ability to view and analyse language as ‘’a thing’’, language as a ‘’process and language as a ‘’system’’. The term was first used by Courtney (1974) to demonstrate the shift of linguistic intelligence across languages. Roehr (2007) defines metalinguistic awareness as one's ability to consciously think about language and its nature by means of: ‘ (i) An awareness that a language is not just the symbols of that language, but it can go beyond the meaning; (ii)An awareness that the words and their referents are quite separate; (iii) an awareness that language is rule-based and its structure can be manipulated,i.e. you can write things in many different waysthe skills mentioned. At maximum potential, MLA includes increased awareness of phonemes and syllables, of meaning-bearing morphemes, words, and phrases, of syntax, word referents, and lexical ambiguities, of homonyms, synonyms, and antonyms, of slang, dialect, and jargon, of academic language and figurative devices like metaphor, imagery, personification, and more. Writ large, MLA envelops every atom of language.

As Zipke (2007) rightly puts it, boosting MLA has significant effects on reading comprehension. It therefore follows that the development of multilingual literacies should go hand in hand with the boosting of MLA in the languages in question.

Other studies have tended to focus either on how bilingualism relates to metalinguistic awareness (e.g. Ben-Zeev, 1977b; Bialystok, 1991; Ricciardelli, 1992a; Cromdal, 1999), or else on the literacy acquisition transferability of metalinguistic awareness to reading measures (Fodor, 1983; Koda, 2008; Schwartz et al., 2008). By combining the two issues in a single piece of research, not only is metalinguistic awareness systematically assessed in the two conditions, but we also have rich and detailed data on the young learners, including their multilingual learning experiences in

three languages as well as their cognitive abilities. By having different sorts of data, we can gain deeper insights into the predictive power of multiple language learning in the two modes on cognitive development in three languages; Kirundi, French, and English

This study set out to answer the following questions:

In which direction does MLA transfer happen in the two learning conditions; the simultaneous and sequential trilingual learning modes?

Which MLA skills are transferred across the three languages in the two conditions?

We hypothesize that:

- Metalinguistic awareness is learning mode-dependent; it is intralinguistically transferable for the ESLLs but typologically correlational for the LSLLs.

- Learners who have learned languages in sequence cross linguistically transfer more metalinguistic-level knowledge than those who learnt languages simultaneously.

2. Transferability theories

Around transfer of metalinguistic awareness, a number of studies have been conducted on diverse languages, contexts of learning, and groups of learners (Melby Lervåg&Lervåg, 2011). Many issues, however, still remain unclear, notably the developmental mechanism of transfer, or how transferred metalinguistic awareness becomes serviceable in another typologically related language.

To examine cross-linguistic transfer facilitation, cross-sectional studies that only provide concurrent cross-linguistic relationships are inadequate; longitudinal studies that can account for developmental change in reading are necessary (Cain, Oakhill, & Bryant, 2004; Swanson &Howell, 2001). To this end, the present researcher conducted this one-year cross-lagged panel (CLP) study that examined phonological, morphological and syntactic awareness in trilingual simultaneous and sequential triliterates, focusing on young Burundian children learning to become literate in Kirundi, French and English through formal instruction in Burundi.

Cross-linguistic Transfer Facilitation: A Developmental Perspective

Researchers have long been interested in cross-linguistic transfer in L2 reading or biliteracy development (Durgunoglu, 2002; Geva, 2014; Koda, 2005). Different frameworks have been proposed in the literature with varied levels of attempt to account for - and often with different views on - what transfer is, what transfers or is transferrable, when and how transfer happens, and how transferred competence becomes functional in a target language.

More recently, with metalinguistic awareness foregrounded as a transferrable skill, Koda (2008) proposed the Transfer Facilitation Model to account for the nature, mechanism, and conditions of crosslinguistic transfer in L2. A central tenet of the Transfer Facilitation Model is that metalinguistic awareness can be transferred from the source language as a resource to facilitate the development of reading and its related abilities in the target language. However, transfer

facilitation from the source language is not necessarily the only mechanism to account for any development in the target language, and it does not occur without conditions.

In addition, as languages can differ in linguistic and language-to-print mapping properties (Geva& Wang, 2001; Perfetti, 2003), cross-linguistic variations in metalinguistic awareness should be expected. Presumably, only "shared" facets or aspects of metalinguistic awareness in the three languages would and could be transferred and exert a facilitation effect. Finally, facilitation through transfer should also be conditioned upon the sophistication of learners' metalinguistic insights in the source language. In other words, source language proficiency and the relative proficiency in the source and the target languages could also have an impact on whether transfer happens and, if so, how it happens.

The Transfer Facilitation Model provides a conceptual framework that accommodates print/reading experience, linguistic distance, and language proficiency for examining cross linguistic transfer of metalinguistic awareness in L2 or bilingual reading. Some hypotheses inherent to the model have been tested in studies on diverse cases of biliteracy and groups of learners. Typically, in those studies, metalinguistic awareness in one language is used to predict corresponding metalinguistic awareness and/or reading in the other language (Hipfner-Boucher & Chen, 2016; Kuo& Anderson, 2008).

Generally, there has been consistent evidence that supports transfer of "shared" facets of metalinguistic awareness, such as phonological and derivational awareness in Spanish and English (Durgunoglu, Nagy, &Hancin-Bhatt, 1993; Ramirez, Chen, Geva, & Kiefer, 2010; Sun-Alperin& Wang, 2011); phonological and awareness of inflectional morphology in French and English (Deacon, Wade-Woolley, & Kirby, 2007; Jared, Cormier, Levy, & Wade-Woolley, 2011); and rime and compound awareness in Chinese and English (Gottardo, Yan, Siegel, &WadeWoolley, 2001; Wang, Cheng, & Chen, 2006; Zhang, 2013; Zhang &Koda, 2014). Some studies also explored the effects of linguistic distance (Wang et al., 2006; Zhang, 2013) and learners' proficiency repertoire (Ramirez et al., 2010) on patterns of transfer.

Despite the increasing interest in transfer of metalinguistic awareness, the developmental mechanism of transfer, as emphasized in the Transfer Facilitation Model (Koda, 2008), remains unclear. This seems to be attributable to the cross-sectional nature of existing research. Understanding transfer facilitation requires longitudinal research to examine how metalinguistic awareness in one language may explain change in the other language, over and beyond concurrent cross-linguistic relationships especially when the modes of exposure differ. In this study, we aimed to further examine such an issue with a focus on concurrent and sequential triliterate learners of Kirundi, French and English in Burundi.

3. Methods

3.1. Participants

The participants in this study were 80 young learners attending P5 classes who were recruited from urban private schools in Burundi. The early and simultaneous triliterates cohort comprised 40 P5 pupils from *Ecole Internationale de Bujumbura* (EIB), and *Ecole Les Cherubins*. On the other hand, the late and sequential cohort was 40 P5 young learners from *Ecole Michel Archange* of Bujumbura, and *Ecole Primaire SOS*.

Preliminary collected information revealed that the four schools enjoyed very high reputation and were considered as the four most competitive elementary schools in the area. They used an oral screening procedure to select their students out of bigger pools of candidates, while the rest of the elementary schools followed the general admission policy. Since family income could not be used as an indicator of social status at the time the data were collected, due to the disrupted economic system in Burundi, parent education level was considered as the best predictor of children's intellectual abilities. The findings on the parents' questionnaires and the school records revealed no real differences in parent education level for the two groups of subjects. All parents had received education above high school, or above 13th grade in Burundian education context. The curricula of the four schools were the same, based on state standards determined by the Burundi Ministry of Education. The only difference among them was in the pace of introducing the foreign languages.

In the LSLL group, no foreign language was taught until grade 2 as opposed to the ESLL cohort, where French and English, are taught starting from Kindergarten. English is taught two days a week in both categories of schools, 1 class period every three days, while French is taught on all days (or simply, *everyday*) and is the medium of instruction in the four schools.

Classroom observations revealed that there were differences in the methodology of teaching foreign languages in the bilingual and trilingual schools. However, holistically, classroom procedures were entirely teacher centered and involved traditional techniques of teaching target grammatical structures and new lexical items.

3.2. Research Instruments

The English metalinguistic tasks employed in this study were based on those used in Ricciardelli (1993) when she investigated metalinguistic awareness in monolingual English-speaking children aged between five and seven living in Australia.

The general testing procedure adopted for all the tasks consisted of presenting standard instructions in the language that was tested; English for the English tasks, Kirundi for the Kirundi versions and French for the French versions, but learners were allowed to ask questions in any language that was convenient to them. Once the instructions had been given, the researcher gave

the children two or three practice items to ensure that they fully understood what was expected of them. During the testing sessions, no feedback was given to the children concerning the accuracy or appropriateness of their answers. The tasks were scored simply, with one mark given for each correct answer. The metalinguistic tasks were given in the same order in each of the three languages: French, English and Kirundi versions.
The testing session for each of the languages under investigation comprised eight tests representing the three macro skills; the phonological, morphological and the syntactic awareness. Subskills are outlined in the table below:

Table 1: Contents of M.L.A testing sessions

Phonological awareness tests	**Morphological awareness Tests**	**Syntactic awareness tests**
Phoneme Grapheme Decoding	Affix identification	Error detection
Phoneme Transposition	Morphological Compounding	Error correction task
Phoneme substitution	Word analogy	
Pseudo Word Decoding		

4. RESULTS

We sought to find out whether the scores on each MLA task in a given language could predict the scores in a related language (here French and English) or whether performance on one MLA task, say in French, would predict performance in Kirundi, though unrelated. For the latter, we would then conclude that MLA for this condition is cross-linguistic and for the former we would consider that it is typological. In case, no correlation was found, the MLA for this condition of learners would be considered to be intralinguistic and unpredictable.

The independent variables are the two learning conditions, i.eearly simultaneous versus late sequential trilingual literacy modes. The dependent variables are the 9 MLA tasks categorized into Phonological Awareness, Morphological Awareness, and Syntactic Awareness tasks.
In the following sections, we first present results of the Spearman's of within-language correlates for the two groups in the three languages.

4.1. Within-language Metalinguistic Awareness correlates for both groups

The findings as outlined here below show that all three metalinguistic awareness constructs internally correlated across the three tested languages and in the two testing groups but at varying magnitudes. Correlation coefficients are stronger on Kirundi than they are on French and English, and slightly higher for the ESLLs than they are for the LSLLs.

Table 1: Within-language Metalinguistic Awareness correlates among the ESLLs and the LSLLs

Intralinguistic MLA measures	**ESLLs**	**LSLLs**
FR─PGRD-PSWD	43**(.006)	43**
FR-AFX IDENT-MOC	37*(.019)	37*(.019)
FR-E.DET-E.COR	.86**(.000)	.75**(.000)
KI-PGRD-PSWD	.92**(.000)	.92**(.000)
KI-PGD-PHSUB	.55**(.000)	.55**(.000)
KI-PGD-PHTR	.34*(.31)	.34*(.016)
KI-PHSUB-PHTR	.53**(.000)	.54**(.000)
KI-E DET- E COR	.36**(.000)	.36**(.000)
EN-PGRD-PSWD	.74**(.000)	.74**(.000)
EN-PHSUB-PHTR	.77**(.000)	.76**(.000)
EN DET- EN COR	.36**(.000)	.36**(.000)

*** p<.01 PGRD= Phoneme Grapheme Decoding, PSWD= Pseudo Word Decoding, AFX IDENT= Affix Identification; PhSub=Phoneme Substitution; PHTR= Phoneme Transposition; E Det= Error Detection; E Cor= Error Correction*

As the table above shows, not all metalinguistic awareness skills correlated intralinguistically. Significant and homogeneous correlations were found between the Phoneme Grapheme Decoding and the Pseudo Word Decoding tasks, Phoneme substitution and Phoneme Transposition, Error Detection and Error Correction across the three languages and with nearly equivalent correlation coefficients. All three metalinguistic awareness skills correlated internally in the three tested Languages. Another noteworthy finding is that correlations did not occur externally, beyond the internal function of another MLA construct but only correlate internally in the three constructs; phonological awareness, morphological awareness, and syntactic awareness.

The correlation coefficients between phonological awareness sub skills in the different languages were the strongest and were quite similar in the two learning conditions. Kirundi PGRD and PSWD, r = .92** both for the ESLLs and the LSLLs; English PGRD and PSWD, r = .74** and

French PGRD and PSWD, r = .43**. However, the correlation coefficients between morphological awareness sub skills in the three languages were relatively moderate in French, r = .37** but insignificant in the other languages. The correlation coefficients between syntactic awareness subskills was most significant in French , r = .86** than in Kirundi and English with equal significance; E Det –E.Cor, r = .36** .

In English, some patterns of significant within-language correlations between the phoneme transposition tasks and other metalinguistic awareness skills emerged. Phoneme Substitution strongly correlated with Phoneme transposition (rs = .77**, p<.001) , the same patterns surfaced in Kirundi (rs = .41**, p=.008) but no correlation surfaced between the two variables in French. Seen intralinguistically, Phonological awareness is a construct-based and skill-based, homogeneously independently of the learning condition.

Similarly all Morphological Awareness tasks correlated but intralingually invariably across the three languages in the two conditions. There was a strong relationship between Affix Identification and Morphological Compounding in French (rs> .50, ps =.001) The Spearman's correlation analysis output also shows us is a small (12%) shared variance in the ranks of the Affix Identification and Word Analogy in French. No correlations were found between the MOC test and the Word Analogy Test in either language.
In English, identical findings were observed. The strength of association between the grades on Affix identification and the MOC Test was in the range of (rs> .50, ps<005), lower to the French result. A shared variance in the range of nearly 35% in the ranks of Affix Identification and Word Analogy was found at a level of significance of (ps =.001).In contrast, there were no significant relationships between the Morphological Compounding test and the Word Analogy tasks.
Identically, the Spearman's rank-order test found a strong relationship between the ESLLs' grades on Kirundi M.A. A strong, positive correlation emerged between Affix Identification and Morphological Compounding Test which was statistically significant (rs>70, ps<.001).This means that as scores on the Affix identification test increased for the entire sample, so did their scores on the Morphological Compounding Test. In contrast, there were no significant correlations between Morphological Compounding and Word Analogy tasks.

These findings allow us to reject our null hypothesis of no positive intralinguistic correlation between MLA in French, English, and Kirundi for the ESLLs condition. It therefore appears that MLA for this category of test-takers is an intralinguistic construct for all the measures.

4.2. Cross linguistic Metalinguistic Awareness correlates

We examined cross-language correlations among metalinguistic awareness skills (phonological, orthographic, and morphological) for each of the three languages in the two groups by whole sample (N= 80).

4.2.1 The ESLLs group

In the following table, we present the most significant between-language correlations found.Table 3 summarizes phonological awareness correlations in the three aforementioned cross-linguistic directions.

Table 3: Between-language correlation of phonological awareness tasks for paired French-English, French-Kirundi and English-Kirundi

		English P.A Tasks							
						Kirundi P.A Tasks			
		PGRD	PSWD	Ph.Sub	PHTR	PGRD	PSWD	PHSub	PHTR
French PA Tasks	PGRD	.30 .05*	.36 .023*		.35* .028	.34* .032			
	PSWD								
	PH Sub	35* .027		.50** .001		.48** .002	.551(**) .000	.52** .001	.40** .01
	PHTR			.48** .002	.44** .005				.34* .032
English PA Tasks	PGRD					-.41** .008			
	PSWD								
	PHSub					- .333(*) .039	- .461(**) .003		.423(**) .007
	PHTR								.41(*) .008

** * þ=0.01 level (2-tailed).*

** þ= 0.05 (2-tailed).*

The correlations among the P.A tasks in each language, shown in Table …?, indicate different patterns for French – English, French –Kirundi, and English-Kirundi combinations .

The correlation between the Phoneme Grapheme decoding and the Pseudo Word Decoding tasks remained very strong between French and English (rs> .36, ps< .05), and was maintained cross linguistically between French and Kirundi (rs> .30, ps = .032) and between English and Kirundi (rs>-.46**ps = .003). However, the fact that the French Grapheme Phoneme Decoding task correlated strongly with Kirundi (rs> .35, ps< .05) more than it did with English (rs> .30, ps =.058), defies the typological assumption made earlier.

Another striking observation is that strong cross linguistic correlations were found between the Phoneme substitutions and Phoneme Transposition tasks. Patterns of strong correlation coefficients between French and English were very strong in the range of (rs> .50, ps< .001), and were transferred cross linguistically to Kirundi,(rs> .52, ps =.001).

The correlation coefficients for the Phoneme Transposition task in the three languages were almost similar in the three directions; Kirundi (L1)-French (L2),(rs = .34, ps=.03*) ; Kirundi (L1)- English(L3), (rs = .41**, p=.008) and French (L2)-English (L3), (r = .44**,p=.005). Significant and strong correlations between Phoneme substitution and phoneme Transposition also transverse in all the three directions with almost similar ratio; Kirundi (L1)-French (L2),(rs = .40, ps=.01*) ; Kirundi (L1)- English(L3), (rs = .42**, p=.007) and French (L2)-English (L3), (r = .48**,p=.002).

Another important observation is the fact that Kirundi and English PA tasks negatively correlate in the PGRD tasks (rs =- .41**, p=.008) but which turn positive between Kirundi Phoneme Substitution and Phoneme Transposition. This means that the higher the scores were on the PGRD , the lower they were on English PGRD hence showing an instance of learners ‘confusion of the Kirundi and English phonetic speech sounds and their decoding mechanisms. However, the negative correlations did not surface between English and Kirundi Phoneme substitution and Phoneme Transposition which are phonological tasks.

Table 2: Between-language correlation of morphological awareness tasks for paired French-English, French-Kirundi and English-Kirundi

			English MLA tasks			**Kirundi MLA tasks**	
	Spearman correlation	**Affix Id**	**MOC Test**	**Word Analogy**	**Ident.**	**Morpheme Compounding**	**Word Analogy**
	Correlation Coefficient	-.052	.135	.302	.181	.211	.107
	Sig. (2-tailed)	.755	.413	.062	.270	.198	.515
MOC Test	**Correlation Coefficient**	-.188	.065	.254	-.041	.081	-.069
	Sig. (2-tailed)	.252	.696	.118	.805	.624	.675
Word Analogy	**Correlation Coefficient**	-.037	.179	.224	.340(*)	.363(*)	-.232
	Sig. (2-tailed)	.823	.275	.170	.034	.023	.155
Affix Ident	**Correlation Coefficient**		.449(**)	.513(**)	.228	.131	.134
	Sig. (2-tailed)		.004	.001	.163	.427	.415
MOC Test	**Correlation Coefficient**	-.449(**)		-.135	.170	.300	-.048
		.004		.414	.300	.063	.772

French Tasks

English Task

	Sig. (2-tailed)						
Word Analogy	**Correlation Coefficient**	.513(**)	-.135		.133	.252	-.061
	Sig. (2-tailed)	.163	.300	.419		.000	.475

** þ= 0.01 level (2-tailed).* þ= 0.05 level (2-tailed).

Note: *These results reflect the most significant findings for a detailed account of all data including the insignificant see appendix*

Here, the only significant cross linguistic correlational patterns emerged between Word analogy and Morpheme Compounding between French and Kirundi, English and Kirundi but turned out very weak between English and French.From this we deduce that correlational patterns between these two tests are cross linguistic and not typological.

Table 3: Between-language and within-language correlation of syntactic awareness tasks

			French Tasks		**English tasks**		**Kirundi Tasks**	
		Spearman correlation	**Error Detection**	**Error Cor**	**Error Detection**	**Error Cor**	**Error Detection**	**Error Cor**
French Tasks	Error Detection	**Correlation Coefficient**		.860(**)	.308	.291		
		Sig. (2-tailed)		.000	.057	.072		
	Error Cor	**Correlation Coefficient**			.288	.405(*)		
		Sig. (2-tailed)			.075	.011		

	Error Detection	**Correlation Coefficient**				.202	.293	.276
		Sig. (2-tailed)				.217	.071	.089
English Task	Error Cor	**Correlation Coefficient**					.289	.241
		Sig. (2-tailed)					.075	.139
	Error Detection	**Correlation Coefficient**	.293	.276	.231	.297		.898(**)
		Sig. (2-tailed)	.071	.089	.158	.066		.000
Kirundi tasks	Error Cor	**Correlation Coefficient**	.289	.241	.176	.251		
		Sig. (2-tailed)	.075	.139	.283	.123		

** þ= 0.01 level (2-tailed).

* þ=0.05 level (2-tailed).

Note: *These results reflect the most significant findings.For a detailed account of all data including the insignificant see appendix*

The correlations among the tasks in each language, shown in Table 35 indicate slightly different patterns from the previous analyses. Spearman's correlations tests found no cross linguistic relationships between the ESLLs' grades on syntactic awareness tasks. However, stronger intralinguistic correlations on SA grades were found in all languages except for English.

In French, a very strong shared variance of 75% was found between Error detection and the Error Correction grades. There was a strong, positive correlation between Affix Identification and MOC Test which was statistically significant (rs>70, ps<.0001).In contrast, there is no overall significant relationship between grades on both measures of S.A in English, neither were the

cross linguistic correlations found. In Kirundi, a very strong correlation was found between S.A measures with a statistical significance of (rs>89, ps<.0001).

We examined cross-language correlations among metalinguistic awareness skills (phonological, orthographic, and morphological) for each of the three languages in the two groups by whole sample (N= 80).

4.2.2. THE LSLL group

In order to investigate the strength and the type of relationships between grades in the LSLLs group, a Spearman's correlation was run in all the three possible combinatory directions; French - English, French-Kirundi, and English-Kirundi. The results of the Spearman's rho correlation analysis are summarized in the table below. Our analyses start with establishing the within-construct between language associations before tackling the within-construct and cross linguistic correlations and lastly the cross-construct, cross linguistic associations.

4.2.2.1 Phonological Awareness Transferability

Table 6: Between-language and within-language correlates for all P.A measures

		English MLA Tasks				**Kirundi MLA Tasks**				**French MLA Tasks**			
		GrPh	**PsW**	**P.S**	**P.T**	**GrP**	**PsW**	**P.S**	**P.T**	**GrP**	**PsW**	**P.S**	**P.T**
French Tasks	GrPh.		.36* .023	-.35* .027			.35* .028				.43** .006		
	PsW												
	P.S	-35* .027		.50** .001	.48** .002	.48** .002	.55** .000	.52** .001	.40* .01				
	P.T				.44** .005								
English Tasks	GrPh		.74** .000	-.35* .027			.74** .000						
	PsW												
	P.S				.77**				.42**				

			.000			.007	
Kirundi Tasks	P.T						
	GrPh	-.41** .008		.92** .000	.55** .000	.34* .031	
	PsW	-.46** .003					
	P.S	-.33* .039					
	P.T		.42** .007				.41** .008

* * þ=0.01 level (1-tailed).* þ= 0.05 (2-tailed)

There are strongly maintained but different cross linguistic correlational patterns between PA sub skills across the three pathways in this condition.

The above table indicates different patterns for French – English, French –Kirundi, and English-Kirundi combinations .

The correlation between the Phoneme Grapheme decoding and the Pseudo Word Decoding tasks remained very strong between French and English (rs< .36, ps< .028), and was maintained cross linguistically between French and Kirundi (rs = .35, ps = .028) and between English and Kirundi (rs =70 ps = .000). However, the fact that the French Grapheme Phoneme Decoding task correlated strongly with Kirundi (rs> .35, ps< .05) more than it did with English (rs> .30, ps =.058), defies the typological assumption made earlier.

Another striking observation is that strong cross linguistic correlations were found between skills and across skills in the Phoneme substitutions and Phoneme Transposition tasks. Patterns of strong correlation coefficients between French and English Phoneme substitution tasks were very strong in the range of (rs> .50, ps< .001), and were transferred cross linguistically to Kirundi,(rs> .52, ps =.001).Similar findings surfaced across the domain specific between the Phoneme Substitution and Phoneme Transposition skills. Internal correlations in the Phoneme Transposition tasks across languages surfaced only between French and English and never in any pathway involving Kirundi as opposedto the ESLLgroup.

Significant and strong correlations between Phoneme substitution and phoneme Transposition also transverse in all the three directions with almost similar ratio; Kirundi (L1)-French (L2),(rs = .40, ps=.01*) ; Kirundi (L1)- English(L3), (rs = .42**, p=.007) and French (L2)-English (L3), (r = .48**,p=.002).

Another important observation is the fact that Kirundi and English PA tasks negatively correlate in the PGRD tasks (rs =- .41**, p=.008) but which turn positive between Kirundi Phoneme Substitution and Phoneme Transposition. This means that the higher the scores were on the PGRD , the lower they were on English PGRD hence showing an instance of learners 'confusion of the Kirundi and English phonetic speech sounds and their decoding mechanisms. However, the negative correlations did not surface between English and Kirundi Phoneme substitution and Phoneme Transposition which are phonological tasks.

4.2.2 Morphological Awareness transferability

Some patterns of significant cross-linguistic correlations between English (L3) metalinguistic awareness skills and other MLA measures in the three languages: in Kirundi (L1), in French (L2), and in English (3) emerged as it can be seen in the table below:

Table 4: Between-language and within-language correlates for all M.A measures

		French Tasks			**English Tasks**			**Kirundi MLA**		
		A.ID	**MOC**	**W.A**	**A.ID**	**MOC**	**W.A**	**A.ID**	**MOC**	**W.A**
French Tasks	Affix Ident		.			67** .000				
	MOC Test						.37* .019		.40* .012	
	Word Analogy									.55** .000
English Tasks	Affix Ident									
	MOC Test	.40* .011								.35* .027
	Word Analogy		.37* .019							
Kirundi	Affix									

	Ident									
	MOC Test						.46** .003			
	Word Analogy					.35* .027	.32* .041			

*** þ= 0.01 level (2-tailed).* þ= 0.05 level (2-tailed).*

Note: *The above table only reflects the most significant findings for a detailed account of all data including the insignificant see appendix*

Here, with the exception of the findings in previous analyses, there was no single intralinguistic correlation between the grades. Associations between French and English were strong between Affix Identification and the MOC Test (r = .67**;þ<001), between the MOC Test and Word Analogy(r = .67**;þ<001). With Kirundi, French grades correlated with within-construct tests, that is, grades on the French MOC Test correlated with Kirundi grades on the MOC Test(r = .40*;þ=01) , French Word Analogy with Kirundi Word Analogy (r = .55**;þ<.001).

Similar cross linguistic correlations emerged with English and Kirundi, with very mild coefficients and on just one task. English MOC Test correlated with the Word Analogy task with a mild correlation coefficient (*rs*=.35*, *þ*=.027).

4.2.3 Syntactic Awareness transferability

Table 8: Between-language and within-language correlations of syntactic awareness tasks

			French Tasks		English tasks		Kirundi Tasks	
		Spearman correlation	**Error Detection**	**Error Cor**	**Error Detection**	**Error Cor**	**Error Detection**	**Error Cor**
French Tasks	Error Detection	**Correlation Coefficient**		.745(**)	67**	.341(*)	.339(*)	.415(**)
		Sig. (2-tailed)		.000	.000	.033	.035	.009
	Error Cor	**Correlation Coefficient**	.745(**)			.384(*)	.334(*)	
		Sig. (2-tailed)	.000			.016	.038	
	Error Detection	**Correlation Coefficient**	67**			.365(*)		
		Sig. (2-tailed)	.000			.022		
English Tasks	Error Cor	**Correlation Coefficient**	.341(*)	.384(*)				
		Sig. (2-tailed)	.033	.016				
Kirundi tasks	Error Detection	**Correlation Coefficient**	.339(*)					.954(**)
		Sig. (2-	.035					.000

	tailed)		
Error Cor	**Correlation Coefficient**	.415(**)	.954(**)
	Sig. (2-tailed)	.009	.000

** þ= 0.01 level (2-tailed).
* þ=0.05 level (2-tailed).
Note: These results reflect the most significant findings for a detailed account of all data including the insignificant see appendix

From the table above, we clearly see a strong correlation between Error detection and error correction that is maintained in each language and across languages. Some patterns of significant within-language correlations between the two tasks emerged.

Within-language correlations are stronger in Kirundi (L1) in the magnitude of *(rs*=.95**, *þ*<.001) and in French (L2) in the range of (*rs*=.74**, *þ*<.001) and mild in English (rs=.36*, þ<.05). This means that the ability to detect errors in a language facilitates the ability to correct them. Noteworthy, the correlations between French and English were more significant both within similar tasks and across the two SA tasks than with any other possible language combinations. French Error detection grades correlated with English error detection *(rs*=.67**, *þ*<.001) and with English Error Correction *(rs*=.34*, *þ*<.05). However, a correlation was found between French error detection and Kirundi error detection in a very mild magnitude *(rs*=.95**, *þ*<.001). A shared variance of 17.2% was found in the ranks of French Error correction grades and Kirundi Error correction grades with a level of significance of (*þs*=.009). The Spearman rho analysis did not find any correlation between English (L3) and Kirundi(L1) S.A tasks.

5. Discussions

This study addressed the transfer of metalinguistic skills in the two trilingual literacy learning conditions. It was hypothesized that children who have learned languages in sequence cross linguistically transfer more metalinguistic-level knowledge than those who learnt languages simultaneously. Also, this transfer would affect the languages which share more surface level linguistic similarities, here French and English, than those which do not. In other words, no transfer was expected to occur between French Kirundi and Kirundi English.
Spearman's Moment Correlation analyses were run to test the hypotheses whether MLA is a typological / cross linguistic or an intralinguistic construct, we conducted Spearman's Moment correlation analyses.

Results showed that all three metalinguistic skills transfer across the three tested languages regardless of the specific linguistic pathway (French-English, French-Kirundi, English-French, English-Kirundi, Kirundi-English, and Kirundi-French) considered.
On the other hand, seen intralinguistically, results displayed paired significant and homogeneous correlations between the Phoneme Grapheme Decoding and the Pseudo Word Decoding tasks, the Phoneme substitution and the Phoneme Transposition, the Error Detection and the Error Correction tasks across the three languages and with nearly equivalent and strong correlation coefficients. The correlation coefficients between phonological awareness sub skills in the different languages were the strongest and were quite similar in the two learning conditions. Phoneme Substitutition strongly correlated with Phoneme transposition in English, and in Kirundi but no correlation surfaced between the two skills in French, Kirundi PGRD and PSWD, both for the ESLLs and the LSLLs; English PGRD and PSWD, and French PGRD and PSWD.

However, the correlation coefficients between morphological awareness sub skills in the three languages were relatively moderate in French, and insignificant in the other languages. The correlation coefficients between syntactic awareness sub skills were most significant in French, than in Kirundi and English with equal significance. In English, some patterns of significant within-language correlations between the phoneme transposition tasks and other metalinguistic awareness skills emerged. This implies that independently of the learning condition and the language under test, learners who displayed the abilities to decode real phonemes could as well decode pseudo sounds, learners who did well on substituting phonemes found it easy ?the task of phoneme transposition, learners who detected errors could as well correct them.

Our findings can be summed up in the following terms:

- MLA is construct -based and skill- based transferable.
- MLA is homogeneously transferable among the two types of trilingual literates;
- MLA transferability is independent of trilingual learning modes.
- Correlation coefficients are stronger on Kirundi than they are on French and English.MLA is more transferable on Kirundi PA subskills than SA and on MA sub categories.
- MLA Transferability is intralinguistically skill-predictable between PGD and PSWD, PHSub and Ph.Transp, Affix Identification and Morpheme Comp., Error detection and Error Correction tasks.

These findings are supportive of research demonstrating intralinguistic transfer of phonological, and syntactic skills (Kendra & Wang, 2009; Schiff & Calif, 2007) but at the same time, it does not accord with another body of research demonstrating the specific nature of each of the skills (Cardenas-Hagan et al., 2007; Da Fontoura& Siegel, 1995; Kendra & Wang, 2009; Wang &Koda, 2005; Wang et al., 2006). In fact, intralingualistic transfer is logically feasible,

particularly when learners draw upon common linguistic, and memory sources regardless of one specific linguistic input leading to patterns of abstraction. It might be the case that the simultaneous and linguistic experience renders a more attuned and fine-grained nature of children's awareness to linguistic patterns.

Seen through the lenses of the cross linguistic correlations, findings indicated different patterns for French – English, French –Kirundi, and English-Kirundi combinations. The correlation between the Phoneme Grapheme decoding and the Pseudo Word Decoding tasks remained very strong between French and English, and was maintained cross linguistically between French and Kirundi but was mild between English and Kirundi. However, the fact that the French Grapheme Phoneme Decoding task correlated strongly with Kirundi more than it did with English, defies the typological assumption made earlier.

Another striking observation is that strong cross linguistic correlations were found between the Phoneme substitutions and Phoneme Transposition tasks. Patterns of strong correlation coefficients between French and English were strong but transverse to the Kirundi pathways as well.

P.A, M.A, and SA transfer across the three languages but at varying magnitude; there are positive correlations between French and English PA, and SA which turn negative between Kirundi and English but remain positive between French and Kirundi. This occurrence is true for both ESLLs and LSLLs. Our results therefore confirm that MLA is a non-typological but a cross linguistic transferable construct. It also appeared that MLA transferability is skill-predictable, there were strongly maintained correlational patterns between PA, MA , and SA sub skills in the three pathways and in the two learning conditions. Those skills were: Phoneme Grapheme Decoding and Pseudo Word Decoding, Phoneme Substitution and Phoneme transposition which share the feature +CONTROL under Bialystok and Ryan's(1986) classification, Morpheme Compounding and Word Analogy which share the feature +Analysis, and Error detection and Error Correction which share internal syntactic patterns and the feature +analysis+control.

These findings imply that there are parallel metalinguistic tasks which demonstrate convergent validity and appear to tap into similar underlying skills in the three languages. They further show that the development of one such metalinguistic skill in one language brings about development in this same skill in the other language(s) that the learner acquires/learns. Similarly, the results showed that despite the surface dissimilarities in the three languages, there was evidence that the children could transfer metalinguistic knowledge of grammar cross linguistically. The significant cross-language relationships between all the grammatical tasks suggest that explicit awareness of phonology, morphology, or of syntax, is not language-specific. Children who are aware of these aspects of grammar in one language tend to also be aware of them in their other language.

These findings corroborate those of Bialystok (1997) and Cummins (2001) who found that the MLA skills are underlying cognitive competencies that are not affected by surface structure linguistic modifications. According to the interdependence framework, the correlations between languages can be seen as reflections of a common underlying proficiency that serves the skills in

both languages: a child's efficiency in solving language tasks, is thought to partly depend on a common language knowledge base.

6. Conclusion

In a nutshell, it has appeared that examining the transfer of metalinguistic skills in the two trilingual literacy learning conditions is equally striking. It was hypothesized that children who have learned languages in sequence cross linguistically transfer more metalinguistic-level knowledge than those who learnt languages simultaneously. This hypothesis was grounded in the Transfer Facilitation Model by Koda (2008) and the Rothmann's (2010) Typological Primacy Model(TPM).We assumed that this transfer would affect the languages which share more surface level linguistic similarities, here French and English, than those which do not. Results revealed that MLA is construct -based and skill- based transferable and that MLA is homogeneously transferable between the two types of learning conditions. Correlation coefficients were stronger on Kirundi than they were on French and English. Furthermore, they showed that MLA is more transferable on Kirundi PA sub skills than on SA and MA sub categories.

These findings imply that there are parallel metalinguistic tasks which demonstrate convergent validity and appear to tap into similar underlying skills in the three languages. They further show that the development of one such metalinguistic skill in one language brings about development in this same skill in the other language(s) that the learner acquires/learns. Also, the results showed that despite the surface dissimilarities in the three languages, there was evidence that the children could transfer metalinguistic knowledge of grammar cross linguistically.

7. Implications in Burundi's ML learnability

Our results confirm that MLA is a non-typological but a cross linguistic transferable construct. It also appeared that MLA transferability is skill-predictable; there were strongly maintained correlational patterns between PA, MA , and SA sub skills in the three pathways and in the two learning conditions. Those skills were: Phoneme Grapheme Decoding and Pseudo Word Decoding, Phoneme Substitution and Phoneme transposition which share the feature +CONTROL under Bialystok and Ryan's(1986) classification, Morpheme Compounding and Word Analogy which share the feature +Analysis, and Error detection and Error Correction which share internal syntactic patterns and the feature +analysis+control.

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