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Zelime, J.; Deutschmann, M.; Rijlaarsdam, G.

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THE EFFECT OF THE LANGUAGE OF TESTING ON SECOND LANGUAGE LEARNERS' ACADEMIC PERFORMANCE IN SOCIAL STUDIES

The case of Kreol Seselwa and English in the Seychelles classrooms

JUSTIN ZELIME*, MATS DEUTSCHMANN** & GERT RIJLAARSDAM***

Umeå University ** Örebro University * University of Amsterdam*

Abstract

This study examines the use of Seychelles Creole (hereafter, Kreol Seselwa), and English as languages for testing knowledge in the Social Studies classroom of the Seychelles. The objective of the study was to ascertain whether the languages used in the test affected the pupils' academic performance. The paper is theoretically influenced by the Social Practice approach to writing (Street, 1984), challenging a monolingual (autonomous) approach in favour of a more multilingual (ideological) model which takes into account all the learners' language repertoires. A within groups experimental design was implemented, and 151 primary six pupils (11-12 years) from three different schools wrote a short test, in a counterbalanced design, in two languages. The topic of the test was fishing, mostly local contextual knowledge, taught in English. The tests were marked for content in both languages. The results showed that the scores on both languages highly correlated, indicating that both tests captured the same knowledge constructs. However, pupils achieved significantly higher marks in the tests written in Kreol Seselwa than in English. The study has implications for policymakers, teachers and most importantly learners in other multilingual settings, particularly in post-colonial countries like the Seychelles, where the mother tongue is undervalued in the classroom.

Keywords: Kreol Seselwa, L2 medium of instruction, subtractive multilingualism, social studies

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Corresponding author: Justin Zelime, Umeå University, email: Justin.zelime@umu.se
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1. INTRODUCTION

There is a substantial body of academic research which asserts the view that teaching and testing in a child's mother tongue (hereafter L1) offers the best chance of educational success (see Prophet & Badede, 2006; Janks, 2010; Mohamed, 2013; Clegg & Simpson, 2016). This has special implications for learners in multilingual contexts where the medium of instruction in school is not their L1. The choice of the L1 as medium of instruction is not given in large parts of the world (Mohamed, 2013, p. 185). For instance, according to Plonski, Teffera and Brady (2013), at least 26 African countries have English as one of their official languages and in most of these cases it is also the medium of instruction in schools. Spolsky (2004), claims that these countries adopt their language-in-education policies due to several co-existing, but often conflicting factors, namely national ideology, the role of English as a global language, a nation's sociolinguistic situation, and an increasing interest in the rights of linguistic minorities.

In an attempt to reconcile these "conflicting factors", policy makers in many of these countries have adopted an early exit *transitional* bilingual or multilingual model of education, where writing is taught in the L1(s) for the first few years of education. The medium of instruction is then replaced, often after only two to three years, by a colonial language, a process which Lambert (1981) defines as subtractive bilingualism. This sudden change of the language situation in the classroom has serious implications for the learner. Not only is there a risk that pupils have difficulties in understanding the teacher, but they may also experience difficulties in communicating their own knowledge and understanding in a language that they are not entirely familiar with. Clegg and Simpson (2016), claim that in the absence of carefully planned and supported transition, learning is lost (See also Heugh, Benson, Bogale, & Mekonnen, 2007). Further, assessing and examining children in a language they do not master can be problematic. As Clegg (2005, p. 42) puts it: "if we assess children in a second language it may not tell us what they know".

The above descriptions fit the situation in the Seychelles, where this current study takes place. Seychelles has an early exit transitional system of education whereby pupils are taught entirely in English from primary three onwards. In this study we examine the effects of using the L1, Kreol Seselwa, and English, a second language (hereafter L2) as languages for testing knowledge in the subject of Social Studies among primary six pupils in the Seychelles. Our aim is to ascertain whether the choice of language of testing used in a short written mock test (Kreol Seselwa and English) affects the pupils' academic performance and, if so, to what extent. We also examine whether potential language effects differ between high performance pupils (Upper stream A) and low performance pupils (Lower stream B). The topic of the test was 'fishing', a subject topic based mostly on locally contextualised knowledge from the Social Studies syllabus. This rather limited study is a first attempt to explore issues of greater magnitude. In effect we want to approach the question of whether the Seychelles education system, and other similar systems in

Africa, really give pupils a fair chance to show what they know when they are being examined in a language they do not fully master.

The article is organized as follows. In Section 2, we provide a background of the Seychelles explaining its colonial history as well as its current language-in-education context, including its education structure, language and testing policies etc. In Section 3, this is followed by a literature review of selected studies on language and education quality from the wider context of sub-Saharan Africa. In this section, we also look at specific issues related to teaching Social Studies in an L2. Section 4, gives an overview of the theoretical frameworks in which we ground our study, including Street's (1984) view of literacy as Social practice. In Section 5, we give an outline of our research aims and questions, followed by a description of the methods of data collection in Sections 6. This is followed by our results and analysis thereof (Section 7), and we round up the paper with a discussion of the implications of our findings locally and further afield (Section 8) followed by general conclusions (Section 9).

2. THE SEYCHELLES LANGUAGE-IN-EDUCATION CONTEXT

The study takes place in the Seychelles, a small island state outside the east coast of Africa and a former French and British colony from which it has inherited two national languages; French and English. The third national language is Kreol Seselwa, the mother tongue for all but 6000 of the inhabitants (Simons & Fennig, 2017). Kreol Seselwa is a standard language with its own orthography. As of the 30th June 2017, the Seychelles population was estimated at 95,843 inhabitants (Seychelles National Bureau of Statistics, 2017). Most of the population (88 %) is found on the main island, Mahe, where the three primary schools consulted for this study are located.

2.1 *The Seychelles education system*

The Seychelles education system is based on a comprehensive policy of education for all (Education Act, 2004). All in all, it consists of eleven years of compulsory schooling preceded (from the age of 6) by two years of Early Childhood education (ages 3½ to 5½) which are not compulsory, but which most children attend (Ministry of Education, 2000; 2004). Progression is divided into five key stages of goals and expectations, which serve as signposts to map out the learners' different rates of progress and achievement (see Figure 1 below).

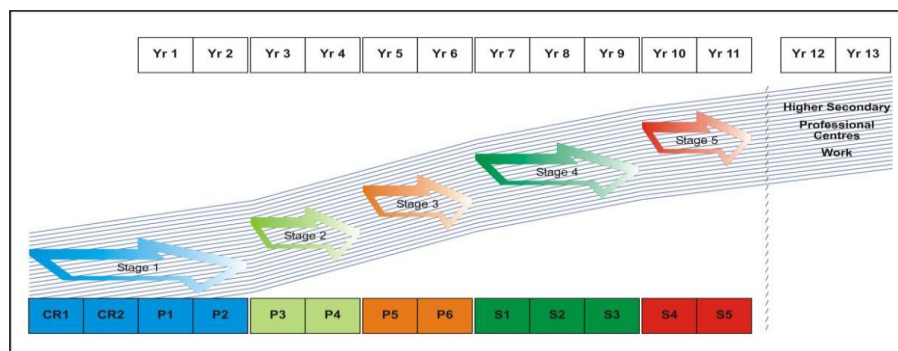


Figure 1: The Seychelles education structure (National Curriculum Framework, 2013, Ministry of Education)

Kreol Seselwa is the primary medium of instruction from Creche to primary two (Stage 1—ages 3½-8). Kreol Seselwa is also taught as a language subject from primary one to primary six and is allocated 5 x 40 minutes of teaching time per week in the primary school curriculum. Note that Kreol Seselwa’s role as a school subject ends in primary six. From primary three onwards the primary medium of instruction changes to English (Stages 2 to 5), and all subjects, except for French, Kreol Seselwa, physical education and arts and crafts activities, are taught in English. English is also taught as a subject and is allocated 7 x 40 minutes per week in the primary and secondary school curricula. French is essentially taught as a foreign language from primary one to secondary five, and is allocated 5 x 40 minutes per week in the primary and secondary school curricula. The main transition point that this paper focuses on is the end of Stage 3 (primary six). At this point learners sit national examinations, and after this (Stage 4 onwards) Kreol Seselwa is removed entirely from the system as an academic subject and as medium of instruction. In other words, primary six constitutes the final point of literacy development in Kreol Seselwa supported by school.

2.2 The Seychelles National Curriculum Framework

The Seychelles National Curriculum Framework (Ministry of Education, 2013) is broadly supportive of multilingual approaches to learning and attaches equal importance to the three national languages Kreol Seselwa, English and French. According to this document any of “the three national languages can [...] be used as support languages in the teaching of particular subjects, depending on the context and circumstances of students, teachers and schools, to ensure a maximum level of understanding by all learners” (p. 16). In practice, however, research evidence shows that English occupies a much stronger position than Kreol Seselwa in the classroom (see Zelime & Deutschmann, 2016; 2018), while French essentially holds the position of a foreign language. This is particularly evidenced in practical implementation of the

curriculum framework. Teachers are on the whole very negative to the use of Kreol Seselwa in the classroom (see Purvis, 2004; Laversuch, 2008; Fleischmann, 2008; Nadal, 2014; Zelime & Deutschmann, 2016, 2018) and there is evidence from Ministry of Education reports that the use of Kreol Seselwa as support language is actively discouraged and even condemned. For instance, inspectorate reports from the Ministry of Education (2014) revealed “a high degree of code-mixing during the delivery of lessons.” (p. 47), leading to their conclusion that “the prescribed medium of instruction has to be respected by teachers and greater emphasis has to be placed on more effective curriculum implementation.” (p. 47) Aspects such as these can have especially large adverse effects on learners’ performance in locally contextualised subject areas like Social Studies.

2.3 Effects of L2 examination in the Seychelles

The Seychelles education system is highly exam oriented, with frequent written assessments and yearly written exams, which are all conducted in English (apart from the subjects of French and Kreol Seselwa). The Seychelles Primary English Curriculum (Ministry of Education, 2003), places strong emphasis on formal, frequent testing of grammar rules, language structure and accuracy as illustrated by the following quote from the goals part of the curriculum (2003, p. 4). Primary six learners should be able to: “[p]roduce independently, pieces of writing in which the meaning is made clear to the reader and in which organisational devices and sentence punctuation, including commas and the setting out of direct speech, are generally accurately used”. However, over the last 11 years, the Seychelles National Examination reports (Ministry of Education, 2006-2017) have raised serious concerns about the level of writing proficiency at the end of primary schooling. These yearly reports confirm that the majority of primary six pupils have been performing poorly in the English exams and reports have attributed these low performances to a problem of writing, a skill that continues to present the greatest challenge for many learners (Ministry of Education, 2012). Particular concerns are raised about pupils’ inability to formulate more complex ideas in English in the reports. For instance, it is noted that most learners choose narrative compositions in English instead of the more challenging argumentative ones in the national exams, and a majority of learners are described as “lacking the required vocabulary and analytical skills” (p. 8) to complete the tasks. Undeveloped ideas and poor language accuracy as well as pupil production containing incomplete sentences and lacking adjectives and adverbs are also noted in the reports (Ministry of Education, 2017).

Important to note at this stage is that there is great variation in language abilities among pupils in the Seychelles schools. According to the Southern and Eastern African Consortium for Monitoring Educational Quality (SAQMEC) study of reading achievements in 14 African Nations, Seychelles had among the greatest within-school inequity among the nations investigated (Hungu & Thuki, 2010, p. 63). Hungu and Thuki’s study (2010) also shows that the Seychelles had one of the largest

differences in reading scores between rich and poor pupils of the 14 nations investigated, and that pupils who spoke English more frequently at home did better in reading than those who rarely did so. In fact, the results positioned Seychelles with the greatest differences of all the nations in the study (Hungu & Thuki, 2010, p. 81).

3. FURTHER PERSPECTIVES ON L2 MEDIUM OF INSTRUCTION

3.1 Evidence from L1 and L2 medium of instruction systems in Sub-Saharan Africa

Empirical evidence from various studies in the sub-Saharan African region shows that models of education which require early switch of medium of instruction contribute to “failure and attrition” (Heugh, 2009, p. 120). For instance, in her 2010 study of reading and learning in South Africa, Janks (2010, p. 29) argues that “[t]he reader is so caught up in understanding the meaning of each new word, that he or she loses the thread of the sentence as a whole.” Children in Grade Four in her South African study were not ready for English as the medium of instruction as “[t]hey simply [did] not have the vocabulary, language and literacy skills for learning in English across the curriculum.” (p. 29). She concludes that “[children] in the throes of a language/literacy switch cannot be expected to perform as well as children who are reading in their home language exclusively” (p. 29). This finding has been replicated in many other parts of Africa. For instance, in Botswana, Prophet and Badede (2006, p. 238) revealed that “students who are not proficient in the language of instruction are hindered in their thinking skills, their exploratory skills and their explanatory skills”. Garrouste (2011) shows language proficiency in the medium of instruction to be one of the most important impact variables on success in Mathematics. Overall, there is evidence that learning is significantly impeded when an unfamiliar L2 is used as medium of instruction (see Diarra, 2003; Harris, 2011; Motala, 2013; Trudell & Piper, 2014). These examples from different parts of the African continent clearly illustrate the potential negative impact that L2 medium of instruction and examination can have on learners’ academic achievement.

In contrast, several other studies have demonstrated that especially “early primary education, and early literacy, is most effectively conducted in a language familiar to the pupils” (Ferguson, 2013, p. 17). In two studies from South Africa and Tanzania, Brock-Utne and Desai (2010) were able to confirm that primary six pupils who struggled to write in English, even after six years of having it as the medium of instruction performed significantly better when they were allowed to write in their L1. This claim is bolstered by empirical evidence from a range of African countries: Mozambique (Benson, 2000), Burkina Faso (Alidou & Brock Utne, 2006), Kenya and Nigeria (Abd-Kadir & Hardman, 2007), Tanzania (Mwinsheikhe, 2009), Mauritius (Sauzier-Uchida, 2009), and Zanzibar (Clegg & Afitska 2011). In the Seychelles context, the introduction of Kreol Seselwa as medium of instruction in 1981 led to a significant improvement in pupils’ performances in written exams (Campling, Confidence & Purvis 2011, p. 51), and learners who were taught in Kreol Seselwa during

their first four years of education after 1981, outscored their predecessors in almost every subject (Bickerton, 1990, p. 48).

3.2 Learning social studies through an L2

Based on further success stories of L1 literacy use reported from various parts of Africa including Benin, Burkina Faso, Cameroon, Mali, Tanzania and Zambia, Alidou (2011), argues that “[t]he demand for literacy and basic education should be tied to the question of relevance and effectiveness” and that “[l]iteracy programmes must be contextualised in order to be effective” (248). With relevance for this study, the implications of contextualising literacy in the Social Studies classroom through the L1 is of particular interest. Various studies have shown that the subject of Social Studies can pose special challenges for learners in multilingual contexts where the medium of instruction is not their L1 (see Short, 1994; Weisman & Hansen, 2010; Szpara & Ahmad, 2010). According to Weisman and Hansen, (2010), Social Studies should only be taught in an L2 when the learners have reached an advanced level of proficiency in the language. This is motivated by a lot of activities in the Social Studies subject depending on language skills.

In the same light, Short (1994, p. 36), states that “Social Studies education is closely bound to literacy skills”. For instance, when talking about abstract concepts such as democracy, citizenship, culture, economy, responsibility and community, L2 learners may struggle if they cannot find concrete referents to enhance their understanding. They may also struggle to formulate their own contextual knowledge in English. They are forced to step outside their familiar world and write about experiences that do not relate directly to their daily life. Furthermore, they may lack background knowledge in the L2, and their own “funds of knowledge” (see Moll, Amanti, Neff & Gonzalez, 1992) may not be valued by the school system. In effect, Social Studies is potentially an important subject for these learners because it provides them with a rare opportunity “to share their experience related to culture, language and knowledge” (Weisman & Hansen, 2010, p. 180). The content of Social Studies, probably more than many other subjects taught at school, has the potential to be ‘contextualized’ (Hornberger & Skilton-Sylvester, 2000) in the local micro setting, at least hypothetically motivating the use of L1s to explain and clarify the curriculum content. Teaching the subject in English also challenges Social Studies teachers to make use of contextual support from local languages to help the learners make sense of decontextualized or abstracts concept that they may come across. The nature of subject thereby motivates the establishment of much needed language bridges between the L1 and L2.

3.3 Social studies in the Seychelles National Curriculum

Social Studies is an academic subject from primary 2 to primary 6. The syllabus focuses on the pupils’ past, present and emerging future. It also considers how these

pupils interact with their physical and social environment. It teaches the pupils to see people as social beings interacting with their environment in different times, places and cultures. Some of the main themes are the family in the neighbourhood, the district and the country with their immediate environment and the Indian Ocean region and the world as a global village. Some of the topics found in the Social Studies syllabus deal with physical features and monuments of Seychelles and their historical links, the importance of different economic activities such as fisheries, farming and tourism to the country, understanding the government and its functions, the impact of the weather and climate on the country and others in the region etc.

4. THEORETICAL FRAMEWORK—A SOCIAL PRACTICE APPROACH TO LITERACY

This paper is theoretically influenced by the Social Practice (Street, 1984) and New Literacy Studies approaches to literacy, which challenge a monolingual (autonomous) approach in favour of a more multilingual (ideological) model which takes all the learners' language repertoires into account. Street (2003, p. 77) argues that this new tradition of looking at literacy does not place its focus so much on specific skills acquisition but rather on seeing literacy as a social practice. The Social Practice approach challenges traditional and universal skilled based views of literacy, raising questions of "whose literacies are dominant and whose are marginalized or resistant" (Street 2003, p. 77). Correspondingly, Ivanič (2004, p. 227), argues that a factor that makes writing a difficult task for learners, especially in multilingual contexts, is where policy and practice are based on "a fundamental belief that writing consists of applying knowledge of a set of linguistic patterns and rules for sound-symbol relationships and sentence construction". In such a system, academic success requires the ability to acquire and master the target language at the expense of the learner's L1. This describes the Seychelles context fairly accurately.

Similarly, Hornberger (1990, p. 213) uses the term '*biliteracy*' to describe "any and all instances in which communication occurs in two (or more) languages in or around writing". This is an extension of the ideological view of literacy proposed by Street (1984). Hornberger and Skilton-Sylvester (2000, p. 105) argue that "too often, the focus on productive L2 literacy development is accompanied by a skills-based view of literacy". In multilingual educational contexts where learners come to school with more than one language repertoire, a skilled based approach to writing using an L2 medium of instruction may have a negative influence on the general writing development and the learning situation of the learners.

5. PRESENT STUDY: AIMS AND RESEARCH QUESTION

Building on the research and theoretical base discussed above, the aim of this paper is to assess the effect of the language of testing (in this case Kreol Seselwa and English) on the academic performance of primary six learners in the Seychelles in the subject of Social Studies. The paper raises the basic question of which of the two

languages the learners perform better in given current marking practice. The short written test represents a content knowledge test on a topic of local contextual interest (Fisheries). The study focuses on the following research questions:

- 1) To what extent does the language of testing affect primary six Seychellois learners' performance in a Social Studies test?
- 2) Does the language effect differ between high performance pupils (stream A) and low performance pupils (stream B)?

6. METHODS AND MATERIALS

6.1 Design

We applied an experimental within-groups design for the study. The experiment took place over three weeks in November of 2016, on the main island of Mahe, in the Seychelles. It involved three different primary schools, each participating with their primary six cohorts, two classes from each school resulting in six classes altogether. In all schools, the experiment was conducted during two sessions, one week apart. The task consisted of writing a short informative text about the fishing industry of Seychelles to assess their knowledge of that particular topic which had been taught previously in Social Studies. They had to write the test in English and in Kreol Seselwa. The sequence (English first, then Kreol Seselwa, or Kreol Seselwa then English) was counterbalanced across classes.

6.2 Participants

Altogether, 151 primary six pupils (46% boys), aged between 11 and 12 years, participated in the study. Due to a zoning policy (section 56 of the Education Act, 2004), which makes it compulsory for the pupils to be enrolled in schools located in their parents' or guardians' district of residence, all pupils came from the same district where their schools were based. All pupils had been learning English, Kreol Seselwa and Social Studies as academic subjects for a minimum of five-six years prior to the experiment. They had also been exposed to English as a medium of instruction from the time they were in primary three. The majority of the pupils (> 95 %) had Kreol Seselwa as their L1 and English as an L2. Finally, in each school the participants had the same teacher for English, Social Studies and Kreol Seselwa. The two classes in each school were composed according the covert streaming policy operating in the Seychelles. Streaming is a traditional practice in the Seychelles education system whereby primary school pupils are assigned to different classes within a school based on their general academic ability. In 2009, the de-streaming policy (Ministry of Education, 2013) attempted to eradicate this practice, but it continues covertly to date. The participants' details are summarised in Table 1 below:

Table 1: Distribution of pupils who participated in the study in relation to schools, classes and gender

School	Upper stream class level		Lower stream class level		Total		Sum	%	
	male	fe-male	male	fe-male	male	fe-male		male	fe-male
Providence	7	22	14	10	21	32	53	39.6	60.4
Assumption	10	18	15	5	25	23	48	52.1	47.9
Aldabra	10	21	13	6	23	27	50	46.0	54.0
Sub-Total	27	61	42	21	69	82	151	45.7	54.3

6.3 Selection of the schools & classes

The sample of three schools from a total of 24 schools was based on convenience, since we had already established good contacts with these schools in previous research work. It should however be noted that the schools are quite representative for Seychelles regarding aspects such as social demography pupil performance in national tests, class sizes, teacher competence etc. For the purpose of anonymity, the schools' real names have been changed to the following pseudonyms; Providence, Assumption and Aldabra Schools. Providence school is located in an urban area, whereas Assumption and Aldabra schools are situated in a more rural area. However, all three of them are situated on the coastline and in fishing communities. Each school streamed the students in two groups, A (Upper stream) and B (Lower Stream).

For all participants, the primary six national exam results (2016) for three subjects were collected, namely English (EN), Social Studies (SS) and Kreol Seselwa (KS). These were used as covariates to compliment the test results (see Table 2). Multivariate analyses with schools and class level (Upper stream-A and Lower stream-B), as factors and the three examination scores as dependent variables revealed significant effects of schools ($F(6, 278) = 3.014, p = .007$), Class Level ($F(3, 138) = 96.541, p < .001$), and an interaction between class level and school ($F(6, 278) = 3.763, p = .001$), indicating that although the distance between the two levels varied across the schools, there was clear evidence of streaming. For example, comparing upper stream and lower stream results in the national English exams, we see a difference of over 30% between the streams in the three schools.

Table 2: Distribution of National Exam scores per school and classes

School	Upper stream (A)						Lower stream (B)					
	EN		KS		SS		EN		KS		SS	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Assump- tion	67.4	8.1	65.9	8.2	55.8	12.1	19.8	13.6	27.5	17.7	20.6	10.2
Aldabara Provi- dence	61.4	18.0	65.2	11.6	52.6	14.5	27.2	15.1	36.2	16.6	22.7	10.2
	59.8	14.6	65.9	8.2	47.9	15.1	35.4	17.3	36.6	17.6	31.9	16.3

6.4 Materials

6.4.1 Test construction

The aim of the task was to test participants' knowledge on the topic of fishing and to what extent they could communicate that knowledge in English and Kreol Seselwa. We constructed the writing task with the help of the three teachers whose classes participated in the experiment. The task was designed in English first and then translated into Kreol Seselwa. We consulted the learning objectives related to the topic "fishing industry" as expressed in the Social Studies syllabus to ensure content and construct validity as well as a positive backwash of the test. We also used a model from that year's (2016) centrally validated national mock exam paper for Social Studies as an example for the test. However, we made some minor modifications with regard to the type of questions and their level of difficulty to achieve the objective of the test. For instance, in the mock exam paper, the participants were given matching and multiple-choice exercises about the fishing industry to test their knowledge. Thus, there was very minimal writing, the skill under scrutiny in this study.

6.4.2 The writing task

The task included a picture of four local fishermen cleaning their catch in a small boat (see Figure 2 below). The picture represented the artisanal or traditional fishing method. It had specific prompts such as the size of the boat, the types of fish caught, the fishermen's clothes and the sea, to guide the participants' writing process. The participants had to answer four questions in written text, based on the picture. First, they had to state the economic activity shown in the picture. Second, they had to list the types of methods used to carry out the activity. Third, they were asked to provide names of different types of fish caught through these fishing methods. Finally, they had to list four benefits that the fishing industry brings to the Seychelles economy. They had ten minutes for the task. The questions were low order and factual in nature, requiring retrieval of basic content knowledge. Also, the task, with a picture as

the main cue, corresponded to the narrative genre that the participants were familiar with from the English lessons.

The photograph below shows one of the economic activities of Seychelles. Study it carefully and write a short paragraph of about 10 sentences to describe the following:

1. The economic activity it represents
2. The methods used to catch the fish
3. The types of fish caught.
4. The benefits of this activity to the community and country.



Figure 2: The English version of the writing task

6.4.3 Translation of task

We took great care to ensure that the intended meaning of the writing instructions did not get lost in translation. All three teachers partook actively in the translation of the task by checking its accuracy, language constructions etc. We used their valuable feedback in the construction of the final translated text. Worth noting also is that there were two proficient Kreol Seselwa speakers in the research team.

6.4.4 Preparation of the marking scheme

We prepared the marking scheme and the three teachers validated it. We reached a unified agreement on the following points:

- 1) It should contain 15 information units leading to 15 marks altogether.

- 2) Any answer in the English texts written in Kreol Seselwa should be marked as incorrect with the exception for the names of fish, where local names were accepted.
- 3) Any answer in the Kreol Seselwa texts, written in English, should be marked as incorrect.
- 4) Any answer that did not relate directly to the questions asked should be considered irrelevant, hence incorrect.
- 5) Answers to the four questions could be ordered freely in the text, and not necessarily according to the sequence of the questions.
- 6) Answers should not be marked for grammatical, structural, or spelling errors.

The marking scheme is summarised in Table 3 below:

Table 3: Description of the marking scheme

Test Questions	Marks (max)	Marking scheme with possible answers
Q1: State the economic activity which the picture represents	2	1 mark only for stating <i>Fishing</i> as answer Full marks (2) for stating <i>artisanal</i> or <i>traditional</i> fishing
Q2: State the methods used to catch the fish	4	1 mark each for the first 4 correct methods provided (hook, line, bait, trap, small boat, net)
Q3: Name the types of fish caught by these methods	5	1 mark each for the first 5 correct fish named (see table for some examples of fish)
Q4: State some benefits of the economic activity.	4	1 mark each for the first 4 correct benefits stated. (selling (money), protein, export, personal consumption, provide to hotels)

6.5 The experiment procedure and sequence of delivery

The experiment consisted of 12 sessions altogether. The class ability groupings that existed in the schools was kept during the experiment since we did not want to disrupt ordinary teaching routines unnecessarily. In each school, one of the parallel classes (upper and lower stream) was chosen to take the test in English first and then in Kreol Seselwa, while the other class started with Kreol Seselwa followed by English to counterbalance potential sequence effects. Since there were only three schools, there was no perfect balance of sequence between the schools. This meant that two of the schools, Providence and Assumption, started with English followed by Kreol Seselwa in the upper stream class (A), and Kreol Seselwa first followed by English in the lower stream class (B). In the third school, (Aldabra), the sequence was reversed whereby the upper stream class started with Kreol Seselwa first followed by English, and the lower stream class started with English first followed by Kreol Seselwa.

Marking the test

One of the researchers, who was also a native speaker of Kreol Seselwa, marked the test (Rater 1). This was followed up by independent marking from two of the teachers (Raters 2 & 3) serving as reliability checks. There was a very high reliability of scores between the three raters. The correlation between Rater 1 and Rater 2 ($n = 47$) was .92 and .94 for English and Kreol Seselwa respectively. The correlation between Rater 1 and Rater 3 ($n = 53$) was .72 and .85 for English and Kreol Seselwa respectively. The Cronbachs alpha for English varied between .84 and .96, and for Kreol Seselwa between .92-.96. Even though Rater 1 scored systematically more leniently than the two other raters for English and Kreol Seselwa, the high reliability of scoring allowed for the use of the score of Rater 1 in the final analyses.

6.6 Pre-analysis

6.6.1 Off-task cases

Altogether, 13 participants either did not produce any response to any question of the tests (empty scripts), or produced nonsensical responses throughout. We coded these texts as off Task. Six of them were in the English test and seven in the Kreol Seselwa test. The off-task scores were significantly related to the national exam scores for English, Kreol Seselwa and Social Studies respectively ($F(3,150) = 3.244$, $p = .024$; $F(3,150) = 3.444$, $p = .018$, $F(3,150) = 3.330$, $p = .022$). This implies that the off-task scores were produced by participants with relatively low capacities on English, Kreol Seselwa and Social Studies. In the final analysis, we excluded the cases with off task scores ($n=10$ in total, some participants were off task in both languages), but we included them in the overall mean descriptions.

6.6.2 Outliers

We inspected the data set for outliers using boxplot analysis, and found no outlying scores for the exam scores on English and Social Studies. However, we found ten participants with outlying scores for Kreol Seselwa (< two standard deviations below the mean ($M = 51$), outlying scores varying from 4 to 12). We excluded these ten cases in the final multifactorial analysis.

6.6.3 Test reliability

The test consisted of four prompts for content, which were scored individually. The four scores for the English test and for the Kreol Seselwa test proved to form a reliable scale (standardized Cronbach's alpha respectively .75 and .73). Therefore, the mean scores of the four items were used in the final analysis.

7. RESULTS

The correlation between the scores on both tests proved to be relatively high ($r = .72$). This indicates common variance in the measurements (ca 50%), implying that the conceptual structures measured in both languages overlapped. In addition, both test scores were related to the three exam scores in a similar manner, with correlations varying between .46 (exam scores Social Studies and test scores in Kreol Seselwa) and .60 (exam scores English and test scores in English). To test the effect of the language of testing on the performance on Social Studies, we compared nested models (see Table 4 below).

Table 4: Comparisons of nested models to test the effect of test language

Factors		Models		Model comparisons				
			χ^2	<i>df</i>		χ^2	<i>df</i>	<i>p</i>
Random	Subject	M 0	1680.587	2				
	Class	M 1	1391.526	4	0 vs 1	289.06	2	0.000
Fixed	Effect Learner characteristic: Language & Social Science Competence	M 2	1309.16	6	1 vs 2	82.366	2	0.000
		M 3	1219.61	8	2 vs 3	89.55	2	0.000
	Effect Gender	M 4	1219.604	9	3 vs 4	0.006	1	0.938
		M 5	1219.565	10	4 vs 5	0.039	1	0.843
	Test Sequence	M 6	1219.471	11	5 vs 6	0.094	1	0.759
		M 7	1219.443	12	6 vs 7	0.028	1	0.867
	Test Language * Class Level	M 8	1218.231	13	7 vs 8	1.212	1	0.271
		M 9	1216.089	15	8 vs 9	2.142	2	0.343

First, we estimated the effects of the random parts (individuals, classes), and then we added the exam scores for English, Kreol Seselwa and Social Studies, which proved to be an improvement of the explanatory power (Model 2). Adding the factor Test Language also did result in the improvement of explanatory power (Model 3).

Including other factors did not improve the explanatory power (see models 4, 5, 6, 7, 8 & 9 in Table 4). This means that, provided the factors competence and test language, no additional effect is observed of gender (Model 4), test sequence (Model 6), class level (Model 7), nor from interactions between these factors. Table 5 shows the means scores for both tests, and includes all participants (including outliers). Overall, pupils scored significantly higher when the test was taken in Kreol Seselwa. However, there are no significant differences in the magnitude of the difference between the English and Seychelles Kreol scores in the different sub-grouping of interest to this article (i.e. class streams).

Table 5: Estimated means for different groupings (all respondents)

Mean scores (out of 15)	English	Kreol Seselwa	Mean Differences
High stream	7.10	9.07	1.97
Low Stream	3.10	5.29	2.19
Girls	6.32	8.40	2.09
Boys	4.38	6.41	2.03
Overall	5.43	7.49	2.06

8. DISCUSSION AND IMPLICATIONS

The main purpose of the study was to assess the effect of using Kreol Seselwa and English as test languages on the academic performance of primary six learners in Social Studies. In effect, we wanted to know to what extent the “English only” monolingual approach to testing may put pupils at a disadvantage, hence, raising the question of whether the use of an L2 as language of examination hinders pupils from communicating their knowledge, or not. However, since we have chosen a rather limited topic in an equally limited subject, it is arguably difficult to draw general conclusions on monolingual testing from our data. We also wanted to see if there was a difference in the magnitude of this test effect between the upper and lower streamed classes in each school.

The main finding shows that in general the participants scored significantly higher in this specific Social Studies test when they wrote in Kreol Seselwa compared to English. This effect constituted approximately a 13 per cent improvement based on the total score (2/15 marks). The finding thus supports earlier studies that suggest that pupils may be impeded by the L2 when communicating their knowledge (see Brock-Utne. & Desai, 2010; Fleisch, 2008; Alidou, 2011, above). In effect, it is essential to note here that the subject of the test (fishing) was highly localized and this might have contributed to more successful answers in Kreol Seselwa rather than English. In this particular study we could not show that there were any significant differences in the magnitude of the difference between English and Kreol Seselwa test

scores among upper and lower stream pupils. Thus, the study indicates that the use of English as test language in our particular study leads to a general performance loss affecting all pupils, irrespective of class level (upper & lower stream). Note here, however, that in an exam-oriented system with clear pass and fail levels, a 13 per cent loss of performance will be more serious for a weaker pupil than a high performer.

As discussed in Section 3.3 above, Social Studies is a subject which addresses local topics and the results from this study support the view that a cognitive, skilled-based, autonomous approach to literacy (see Street, 1984, Hornberger & Skilton-Sylvester, 2000) is detrimental to educational success in a L2 medium of instruction system like that of the Seychelles. According to Ivanič (2004, p. 228) the “skills” approach to writing focuses “on linguistic skills instead of the characteristics and demands of the social context in which writing is being used [...]”, and Hornberger & Skilton-Sylvester (2000, p. 106) contest the autonomous (skills) model, proposing an ideological, multiple and socially constructed model of literacy, whereby the learner can be granted the right to write in his/her mother tongue alongside the dominant L2. Our results support this view. Pupils were better equipped to perform well in the assigned task when they could use their L1 and were thus granted agency to write about what they actually knew. In effect, it is possible to speculate that the pupils would also fare better in other less locally contextualised subjects like sciences and mathematics whenever reference is made to local knowledge by the teachers. In such instances the pupils might benefit if they are allowed to use their L1. So, even though this study might be limited, it does illustrate that in order for the school curriculum to connect the outside world with the school world, the choice of language is an important variable and has to be taken into account in order to enable the learners to reach their full potential.

The findings from this study also challenge earlier findings on teacher beliefs in the Seychelles, which show that a majority of primary school teachers believe that learners will underperform in Social Studies if they are examined in Kreol Seselwa (see Zelime & Deutschmann, 2018). The opposite seems to be the case, and this may well apply to other subjects too. Note here, however, that we have only examined one small knowledge area of Social Studies. Further studies would be needed to confirm this hypothesis. It should also be noted in this context that the subject was taught in English, and that the benefits of examining in Kreol Seselwa may have been even greater had the subject also been taught in the same language. This leads on to a larger debate concerning choice of medium of instruction, and does suggest that if local context is to be incorporated in the curriculum, which we firmly believe it should, it would make sense to adopt a more bilingual approach to teaching and learning. Indications from the investigated texts suggest that pupils use local words to describe everyday objects and activities that surround them, even when writing in English. Excluding Kreol Seselwa from teaching and learning may thus mean excluding the societal context which pupils find themselves in from “school knowledge”. School knowledge thus risks being seen as detached from ‘real life’ and

irrelevant, thereby losing its role in helping young learners make sense of their worlds.

This study has broader implications for the current education system in the Seychelles, and similar post-colonial contexts. We would argue that in spite of its limited nature, the study does point to the potential benefits of elevating the role of Kreol Seselwa in primary school teaching and learning, especially when the local context is raised in subjects across the curriculum. Our results challenge widely held beliefs among teachers today that Kreol Seselwa cannot be used as medium of teaching, learning and examination. In our view, such beliefs ought to be challenged with concrete evidence in the current educational debates. As our study shows, it is not unreasonable to assume that generally held beliefs among teachers are based on unfounded opinions. Further, according to the National Curriculum Framework (2013), every teacher is supposed to be “a language teacher”, and this, we would argue, also entails a deeper understanding of the potential roles different languages can play in the school system. From a pedagogical perspective, a more content-based approach to literacy (see Draper 2000), could be adopted whereby cross-disciplinary projects from English, Kreol Seselwa and Social Studies, based on content-specific literacy issues, can be promoted. Such models would not only lead to a deeper understanding of locally contextualised subject matters and develop literacy skills in Kreol Seselwa, but also promote English knowledge relevant to everyday life—it is reasonable that pupils be armed with English knowledge that allows them to talk about their most immediate surroundings given the dominant role the language has in the education system. A prerequisite here, of course, is that the current subtractive bilingual medium of instruction model be replaced by a maintenance model of transition whereby the child’s L1 is initially used for instruction and gradually the L2 is added as medium parallel to the L1, and where both languages are promoted as media of instruction in the entire education process.

9. CONCLUSION AND SCOPE FOR FURTHER RESEARCH

This limited study clearly points to the potential benefits that a more multilingual approach to teaching, learning and examination would have in the primary school system of the Seychelles. The results show that all pupils could benefit from such an approach and that it would also allow better prerequisites to incorporate the local context in school knowledge.

Further studies are, however, needed to gain a better understanding of the effects language choice on learning and the examination thereof. Not discussed in this article is the fact that girls outscore boys significantly, and that there were twice as many boys in the lower stream classes. In addition, eight out of ten outliers who scored zero in both tests were boys. Another aspect not discussed here is the fact that there were also strong indications that the *quality* of what was written was strongly affected by the examination language used, since we only measured content knowledge, and did not examine more complex aspects of literacy. For example,

preliminary findings suggest that the texts written in Kreol Seselwa contained far more personal and contextual references than the English texts. This aspect is something we will return to in future studies. This study is also very limited in that it only examines one isolated part of the learning processes that go on in class. Noteworthy here is that pupils were not examined orally, so in effect we may have missed much knowledge documentation due to general inabilities to express ideas in writing. Further, all teaching that had taken place prior to this experiment, had been conducted in English. What would have been the effect if a more bilingual approach had been adopted? We would thus argue for more long-term intervention studies that take more medium of instruction aspects such as these into account, including the teaching. Such studies are indeed urgent in order to develop more appropriate medium of instruction-models, much needed not only in the Seychelles, but throughout the post-colonial world.

INFORMED CONSENT

Informed consent to carry out this study was received from the Ministry of Education, Republic of Seychelles on 24th October 2016.

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