
Students' interaction with web-based literature: towards dissolution of language boundaries

Evode Mukama

Faculty of Education
National University of Rwanda
P.O. Box 01, Butare, Rwanda
and
Department of Behavioural Sciences and Learning
Linköping, Sweden
E-mail: emukama1@yahoo.fr

Abstract: The aim of this study is to investigate how new knowledge can be developed in computer-mediated social practice. Its focus is on how language frames university students' interaction and action while studying web-based literature in small task-based groups. The empirical data were collected from a case study where 57 Rwandan student teachers were completing an examination task mediated by computer at the end of an academic course. The study draws on naturally occurring talk, observations and in-depth interviews. The data were analysed from a sociocultural perspective. The findings reveal that students coping with web-based literature face a twofold reality of classroom discourse rooted in their sociocultural and educational contexts: the one conveyed through foreign languages of instruction, the other whose vehicle is their native language. The study suggests an alternative way of constructing a substantial learning discourse based on dissolution of language boundaries.

Keywords: collaborative learning; computer-supported learning; cumulative talk; discourse; exploratory talk; Rwanda.

Reference to this paper should be made as follows: Mukama, E. (2008) 'Students' interaction with web-based literature: towards dissolution of language boundaries', *Int. J. Knowledge and Learning*, Vol. 4, No. 5, pp.478–495.

Biographical notes: Evode Mukama is expected to receive his PhD in Education from Linköping University, Sweden, in January 2009. Currently, he is a Lecturer at the National University of Rwanda and a PhD student at the Department of Behavioural Sciences and Learning. His thesis focuses on thinking and learning with information communication technology. He has taught learners of different ages and backgrounds. His research interests include knowledge building in computer-supported social practice, educational change and curriculum development.

1 Introduction

Rwanda Vision 2020 identifies Information and Communication Technology (ICT) as a top national priority (GoR, 2001). The implementation of this vision in schools may require coordinated efforts from students, teachers and managers. In their study carried out in Rwanda, examining learning in ICT-based environments, Mukama and Andersson (2008) noted that students and teachers need to be empowered in the acquisition of ICT skills and appropriate pedagogies to help them cope with the new situation. For example, the authors found that where the management of school computers is centralised, the users seem to be frustrated by a lack of opportunity to engage in creative practice and develop problem-solving skills. In contrast, where the management of computers is decentralised to the users, the students express a feeling of self-confidence and ownership of learning with the tools. Overall, Mukama and Andersson's study shows that ICT users in Rwandan schools are motivated and committed to collaborate through peer teaching in ICT-based learning environments. Facilitating students' critical reflection in such environments may require appropriate language use.

The Rwandan Constitution of 2003 states that the national language is Kinyarwanda. Before the genocide of 1994, the language of instruction in primary schools was Kinyarwanda, and in secondary and tertiary education, French. After the genocide, students entered schools from Anglophone and Francophone backgrounds. Therefore, since 1995 the Government of Rwanda (GoR) has decided to create a 'trilingual' society, introducing English as an official language and medium of instruction in addition to Kinyarwanda and French. Thus in Rwandan educational policy, language is implemented as follows:

- Primary 1–3: Kinyarwanda as the language of instruction; English and French taught as subjects
- Primary 4–6: either English or French as the language of instruction (depending on the school choice and the teachers' language proficiency); Kinyarwanda, English and French taught as subjects
- Secondary 1–6: idem as Primary 4–6
- Tertiary: both English and French as languages of instruction.

Research has shown that Rwandan students' competence in English and French is very low, especially among rural girls (Williams, 2003; Ntakirutimana, 2005; Mineduc, 2007a). Hence, Hayman (2005, p.25) states, "The implication of research findings was that the emphasis should be placed on ensuring children receive a quality education in a language which they understand, namely Kinyarwanda, if EFA [Education for All] goals are to be achieved." Hayman's discussion is not new. After independence in the 1960s, Le Thanh Khoi (1971) wrote that new African leaders should provide education in local languages, arguing that learning is better conveyed in students' native languages. Nevertheless, the GoR believes that communication in English and French is important geographically and for international trade (GoR, 2005). In this view, for instance, Rwanda envisions becoming a regional ICT hub provider, with English and French as the media of communication. Additionally, the aims of the language in education policy in Rwanda are, among other things, to promote Rwandan and foreign cultures, and to build an educated knowledge-based and technologically oriented society (Mineduc, 2007b).

This debate may indicate how much research needs to be done in order to understand what goes on in classroom settings mediated by ICT as a tool for learning and how students' values are handled. As ICT is designated a top priority of the GoR, the current study will attempt to examine how students cope with web-based literature and how they develop their interactions in this multilingual setting.

2 Language as a social mode of thinking

Vygotsky (1978) considers that language has two major interlinked functions: First, as a cultural tool, language is used for the purpose of communication, for example, in conversational exchanges about social experiences. Second, as a psychological tool, language helps to organise individual thoughts and to make sense of the world. Mercer (2002) points out, "We use language to transform individual thought into collective thought and action, and also to make personal interpretations of shared experience" (p.145). Mercer argues that language can effectively support learning when it is used as exploratory talk. This kind of talk implies that speakers exchange ideas critically, constructively and in a progressive way towards joint achievements. In other words, the value of talk is shown in its progression towards collaborative thinking, the evaluation of individual propositions and the active participation of speakers, which allows the construction of shared knowledge. According to Olson (1995), reading and writing give impetus to cognition, making speech and language a means of reflection, planning and analysis. Olson asserts that what counts is "what a script represents and what it fails to represent" (p.118). Of course, in the present study the unit of analysis is not a written text as such – *i.e.*, looking at how a text is constructed and interpreted; it is rather about word meanings – trying to understand how language mediates interaction and action in the process of learning with ICT.

In addition to exploratory talk, Mercer (1995) identifies two other modes of talk that can occur in classroom settings: cumulative and disputational. In cumulative talk, students' discussions seem to be positively constructed, as they can elaborate, repeat and confirm each other's propositions, though in an uncritical way. Disputational talk is mainly characterised by disagreement and lack of mutual understanding in taking decisions. The three modes of talk depict different discourses in classroom social interactions. Fairclough (2003) defines a discourse as language in use to frame the social life of a community. Mercer (1995) extends this definition and states that a discourse conveys both the social and intellectual life of the speakers. Thus, education aims, among other things, at helping students to shape discourses effectively. Swales (1990) utilises the concept *community of discourse* to mean that a group of people, sharing the same interests, can engage in language practices and use a distinctive terminology and particular networks of communication in order to achieve a certain goal. Accordingly, one of the requirements of gaining membership in this community is that people are able to speak the discourse. As long as discourses can take various forms, education will need to encourage those that may enhance students' creativity and problem-solving abilities. Exploratory talk, for instance, is clearly distinct from the other modes of talk (cumulative and disputational) in that it is a learning discourse which creates conditions through which shared meaning can be made. For example, studying group cognition in computer-mediated learning, Stahl (2005, p.81) claims that it is important to analyse the meanings of a discourse as a whole in order to understand speakers' ideas.

Investigating how students collaborate around traditional notes compared to computer-based notes, Crook (2002, p.65) maintains that collaboration is not merely a matter of working together to solve a particular problem of shared interest; rather it is “a coordinated effort to build common knowledge”. In other words, organisation of the discourse may facilitate collaborative learning, where knowledge can be negotiated. Collaborative learning also refers to the concept of the *effective group*, suggesting that groupmates strive for a common goal to achieve their own and each other's success (Johnson and Johnson, 2009).

The first assumption of the present study is that, according to Rwandan education policy, learning should take place through an ‘official’ classroom discourse. In other words, social interaction and action are (in theory) mediated by the languages of instruction, English and French. However, Wells (1999) claims that “in learning their mother tongue through situationally based conversation, children also appropriate the knowledge and practices of their culture” (p.35). In this connection, Vygotsky (1978) makes a strong argument that, first, language plays a prominent role in shaping interpsychological processes. This is to say that, with language as a tool, students can discuss constructively and critically. Secondly, by so doing, knowledge is co-constructed and appropriated or internalised by each individual learner. In Vygotskian terms, ‘internalisation’ is at the level of intrapsychological processes. Knowledge building, according to Wells (1999), depends on “the cultural continuity provided by the social-material environment” (p.253). From Wells’ statements, we can infer that the language of instruction can create and convey social interactions and knowledge-building processes more effectively if it is a language students are conversant with and if it is grounded in their social and cultural environment. Therefore, the second assumption of this study is that Kinyarwanda cannot only convey an everyday discourse, but also frame students’ learning. This is to say that, in learning settings, Kinyarwanda may be used to voice personal ideas, and to make sense of those of other students. In this way, Kinyarwanda may operate as an ‘unofficial’ classroom discourse, in that it is not officially a language of instruction in higher education according to the language policy in Rwanda. Thus, the actual classroom discourse may result from both the ‘official’ and ‘unofficial’ learning discourses.

3 Language and context in computer-supported learning

According to Suarez-Orozco and Sattin (2007), the world needs “global citizens”, and “education for globalization should aim to educate the whole child for the whole world” (p.62). The authors state that the age of globalisation requires social and cultural networks across the world which, in turn, implies the dissolution of national boundaries. For this to be possible, they suggest that crucial skills linked to critical thinking, communication, language, collaboration and technology should be the main agenda of school curricula. Indeed, the web has become a forum for global exchanges and an opportunity for the digitisation of data (Yang, 2001), though “the English language and Western values dominate the Internet” (Joo, 1999, p.248).

Even if the internet may allow students to access the world, it raises some difficulties of conceptualisation and implementation in classroom cultural settings. Joo (1999) argues that information seems to flow from industrialised to developing countries and that

cultural diversity is not respected. The author (1999, p.247) adds that many schools “simply copy or translate existing materials on the Internet, to save money and time, without considering their own social, cultural, historical, and educational contexts”. Joo therefore suggests that it is important to explore the cultural backgrounds of web-based literature.

Yang’s (2001) study on integrating computer-mediated tools and language reveals that some students feel uncomfortable reading on the web, which may lead to frustration, cognitive disorientation and learning anxiety. Yang reports that students with high language abilities seem to cope much better with the huge amounts of information available online. However, other students find the vast amount of data overwhelming, time consuming and too technical, *i.e.*, written in a language they cannot easily understand. In Yang’s study, students with a high appreciation of US culture and web-based English learning reported that the web can enhance language ability and cultural understanding.

Understanding language functions in a particular culture is essential for the design of technology-supported learning practices. Joo (1999) stresses that mastering a language is insufficient to fully understand a foreign website. This implies that it is equally important to know the cultural context within which information is provided. For example, Mukama (2007) argues that some African students experience difficulties understanding Western literature because they fail to digest the social and cultural reality within which this literature is provided. In fact, Halliday (1978) explains, “The context plays a part in determining what we say; and what we say plays a part in determining the context” (p.3). Chen *et al.* (1999) maintain that “the quality and nature of learning are largely determined by the individual’s experience of cultures and technologies” (p.228).

Research has also focused on the relationship between technology, local languages and English in various contexts. In a Swedish perspective, Sharp (2007) argues that English is often used as an auxiliary language for the sake of the discourse. This means that English increases the lexical repertory, enhances stylistic variation, allows expressivity and conveys interaction and values between the speakers. According to Sharp, some users of English in a Swedish context report, among other things, that this language is fashionable, sounds interesting and confers status. In a study of youth language in media settings in a Finnish context, Leppanen (2007) states that English is used as an intracultural tool of communication. In addition, Leppanen’s study reveals that English is an expression of belonging to a worldwide community and, hence, a tool for negotiating personal identity. Analysing English loanwords on ten Macedonian business websites, Dimova (2007) argues that most English borrowings in internet and computer technology settings are nouns due to the lack of terminology for hardware, software and internet packages in domestic contexts. Leppanen (2007) assumes that as most web-based sources are developed in English, it follows that this language is needed to handle them. Some linguists, however, consider language mixing and borrowings an indicator of domestic language decay (Hildendorf, 2007; Sharp, 2007). These studies may reflect how the expansion of the use of international languages in domestic contexts is of general research interest in terms of globalisation and learning.

Although researchers have explored the relationships between ICT, contexts and foreign languages (mainly English), surprisingly little evidence has been offered regarding the transformation of learning practices, particularly when students have to collaboratively study web-based literature written in foreign languages and, at the same time, preserve the values embedded in their mother language. The purpose of the current

study, therefore, is to investigate how language frames student teachers' interaction and action while they cope with web-based literature in small task-based groups. To achieve this, the following research questions guide the study:

- In computer-supported collaborative learning activities, what kinds of discourses do student teachers in small groups engage in?
- What learning conditions does language bring to the study of web-based literature in small task-based groups?
- What are the student teachers' reflections on studying web-based literature in small task-based groups?

4 Method

4.1 Participants and settings

Towards the end of a 60-hour academic course on curriculum development, 57 Rwandan student teachers (12 women and 45 men) were given an examination task to be completed in small groups of four participants. Thus they formed 13 groups of four participants each and one group of five members. The task consisted of writing a two-page literature review, using web-based sources and relating the paper to the context of Rwanda. Students had to choose one topic among seven options, search related web-based literature and analyse it in their group. Each participant was requested to write an individual paper, discuss it with the group members, and eventually revise it according to the group's comments before its final submission. To help the participants to complete their task, a four-day training programme was organised, covering how to search, retrieve and utilise web-based literature, especially electronic journals and databases. Each group had two computers connected to the internet. It was the first time the participants had come across such a training programme, though they had some skills using Google search, word processors and spreadsheets (Mukama and Andersson, 2008). Before the group discussion, the participants were required to individually read a paper they had retrieved. Three experienced former student teachers were invited to attend the training and support the participants in their learning if required.

English was the medium of instruction. However, the participants were more proficient in Kinyarwanda. In fact, the participants were selected from among university students whose language of instruction in secondary school had been French. At university, English became their second language of instruction in addition to French. As they were in their fourth year, this means that the students had at least three years' experience using English and French as languages of instruction. The background to this study is ICT: examining students' social practice in order to explore in depth how language can shape their interaction and action in small task-based groups.

4.2 Procedures

Field notes were made from observations of the participants' activities in the small task groups. While they were completing the task, each group was videoed and/or audio-recorded for approximately 30 min. This allowed us to observe how

the participants were attempting to construct their social world, and how they were negotiating learning. Silverman (2001) has used the term *naturally occurring talk* to characterise these kinds of conversational exchanges happening independently of the researcher's intervention. After a preliminary data analysis, the concept *classroom discourse* emerged as the core category. Thus naturally occurring talk and observations were supplemented with in-depth interviews conducted with 12 participants (six women and six men). Here, Morgan (1997) advises to select key informants rather than conducting interviews with all participants. The in-depth interviews, which varied between 15 and 20 min, enabled us to examine different types of language use in students' interaction and action while studying web-based literature. The interviews were conducted in Kinyarwanda. Relevant extracts of naturally occurring talk, field notes and all in-depth interviews were transcribed verbatim. Later, extracts used in this paper were translated into English.

The empirical data were analysed qualitatively. This allowed us to use the process of coding, memos and diagrams to identify and compare the patterns and potential relationships emerging from the data. Inspired by sociocultural theory, a literature review was conducted. This review enabled us to clarify and supplement emerging key concepts, and analyse and discuss the findings.

5 Findings

The findings are presented in three main sections:

- 1 cumulative versus exploratory talk
- 2 reflections on language in use
- 3 learning discourse and cultural awareness.

The first section describes and examines student teachers' interaction and action in 'direct' learning settings. This means that the analysis refers to observations and to naturally occurring talk relating to how student teachers coped with web-based literature. The two other sections explore student teachers' reflections on language use in computer-supported collaborative learning, highlighting their sociocultural and educational contexts as expressed through the in-depth interviews.

5.1 *Cumulative versus exploratory talk*

The main strategy that the participants used to search and retrieve electronic journals was primarily based on identifying keywords related to their topics. Sometimes, keywords were drawn from course literature or they emerged from the participants' discussions. When keywords were agreed upon, the participants used computers to search, select and print articles they were interested in. In most groups, to select a paper, one of the participants read aloud abstracts of articles on the screen while others followed. The participants discussed each abstract briefly to decide whether they should print out the paper or continue searching. When a paper was printed, each participant received a copy before the group discussed it together. Often, after some readings and discussions, the participants decided to search again for new articles, which allowed them to compare different sources.

In their discussions, either around a screen or around a printed paper, the participants' talk was predominantly in Kinyarwanda. Most of the time, the participants systematically read sentence by sentence, translating into Kinyarwanda; comments were provided in this language, with some mixing of English and French. The following example (Sequence 1) illustrates a discussion in one of the groups. For the presentation here, the utterances are written in English but in different font styles depending on the original language: for English, italics; French, bold; and Kinyarwanda, normal.

Sequence 1: Experience and curriculum

Pawulo: Here they say this ((reading)): '*What is taught is not necessarily what is learnt.*' What you teach is not what children learn.

Suzana: I think that I have understood a little here, but there is another thing I don't understand well.

Pawulo: Hmm.

Suzana: *How does experience relate to the curriculum?*

Tomu: *Relate to the curriculum?*

Suzana: Yes! I really need some information on that.

Pawulo: That will be **our concluding sentence**, relating to... Here they say this ((reading)): '*teachers need to establish children's prior knowledge in order to develop their learning and understanding of new information and concepts effectively.*' Do you understand where the problem is?

Suzana: ((Hesitating)) Yes.

Pawulo: ((Continuing to read a long passage)) [...].

Suzana: ((Interrupting)) Please stop there! Just explain!

Pawulo: ((Rephrasing the whole passage)) Here they mean that teachers must begin from students' previous knowledge. The problem they come across is **lack of time**. *Lack of time* to conduct what is called **individualised teaching**, that is, to take care of each child. Then what these authors mentioned as **pedagogy** is this...

Suzana: ((Interrupting and starting to read in English)) '*Greater use of alternative pedagogical strategies...*'

Samu: ((Interrupting and starting to read)) '*Greater use of alternative pedagogical strategies in whole class teaching encourages ((inaudible)).*'

Pawulo: There you are.

Suzana: *Alternative pedagogical strategies* are like **active methods** to allow each child to **participate actively**.

Pawulo: That is like a recommendation given.

In Sequence 1, the participants appeared to be active, but their discussions were very close to the original text under study. Reading the paper aloud tended to be the dominating strategy for coping with web-based literature in small groups. The sequence starts with Pawulo reading a sentence and afterwards providing an explanation, which was essentially a translation into Kinyarwanda of what he had read. When Suzana asked for some explanation regarding the relationship between experience and curriculum, the group members seemed to search for the response in the paper through reading, highlighting some concepts in a cumulative way. Thus reading aloud seemed to support students' learning superficially in terms of making sense of the content. For example, Suzana's remark to Pawulo may show that she was annoyed by the repeated readings: "Please stop there! Just explain!" During the discussion of web-based literature, the participants seemed to pick out and mention without further analysis a number of concepts, such as 'individualised teaching' or 'pedagogy'. The talk continued to progress mainly through reading. This can depict cumulative talk in that the participants' discussion was developed positively though uncritically. Throughout their discussions, Suzana's question was not clearly explored.

On some occasions, however, students could elaborate on the ideas provided in the web-based literature and discuss them in Kinyarwanda. This means that they could develop their own complex sentences in Kinyarwanda, often peppered with English or French words. Sequence 2 is a typical illustration:

Sequence 2: Discussion on assistance

Agusitini: ((Reading)) *'As the child learns to complete the task with less and less assistance and eventually with no assistance, the child's cognitive skills develop.'*

Heneriko: This means that **children** can either have assistance or not. Both cases are possible. If they don't have any assistance, they can achieve it alone. But when they receive assistance, they add something to their previous abilities.

Agusitini: Well, the way I understand this is that children need some assistance at the beginning to complete their *tasks*, don't they? Gradually they will need less and less assistance until they can complete the task alone.

Others: Yes! Yes!

In Sequence 2 the participants seem to be spontaneous. They raised complex and constructive issues which improved the quality of their discussion or debate. In other words, Kinyarwanda could help them to develop exploratory talk. It was in their local language that individual thoughts were mainly elaborated, explained and evaluated. Therefore, Kinyarwanda seemed to be the major language used in shaping the participants' thinking in computer-mediated social practice.

5.2 Reflections on language in use

5.2.1 Language translation as a means of analysis

In the in-depth interviews, two-thirds of the participants mentioned that sometimes colleagues who were proficient in foreign languages helped them to translate, understand and summarise the web-based articles. However, they recognised that translation

could distort the original meaning of a text. For example, Matiyasi reported: "Often our translation is not correct. They say [in French] that '*traduire c'est trahir*' [a proverb meaning literally 'translating is betraying']." Roza noticed that what students translated was not necessarily the meaning: "We shouldn't do it [translation] because sometimes you tend to translate literally instead of focusing on meaning." In this connection, Suzana said that she often had to discuss with students who had helped her translate her paper until they agreed upon the embedded meaning, and until she figured out how she had to use it in her research. This may show that she was able to go beyond the technical support received from others (in translation and summary) to reflect on the web-based literature through discussions. It also shows that translation can be an asset in understanding and contextualising knowledge.

The participants affirmed that, in some situations, using translation was inevitable and necessary. Roza illustrated this with an example:

"Even in classroom settings, Kinyarwanda is used. Some lecturers have to explain in Kinyarwanda when they realise that we don't understand what they mean. But outside the classroom, we speak Kinyarwanda and that is where we understand things much better."

A few participants argued that the teaching of English and French should be emphasised at school and university at the expense of Kinyarwanda. The majority of participants, however, maintained that Kinyarwanda could support their learning, though they were aware of its limitations. For example, Samusoni explained, "The problem is the language. Language is very difficult. I wish that the Internet had literature in Kinyarwanda. However, it is a challenge because Kinyarwanda is not international." Dominiko was also cautious: "We have not yet developed research studies and scientific concepts [in Kinyarwanda] which can be circulated around the world. [...] We should think of the quality of Kinyarwanda papers." In other words, the participants were not sure whether Kinyarwanda could compete with other languages globally and they were concerned about the quality of literature in Kinyarwanda.

From the participants' point of view, it seems that Kinyarwanda could play a prominent role in computer-supported collaborative learning; however, they suggested that Kinyarwanda should be elaborated to be able to support English and French in the learning process.

5.2.2 Structure and organisation of ideas

On different occasions, most participants reported that their discussions of web-based articles were supported by their native language. They argued that this allowed them to exchange ideas, to understand each other's propositions and to reach a consensus. Moreover, they stated that, in Kinyarwanda, they were able to recall, summarise and then explain their arising thoughts. For example, asked why his group discussed in Kinyarwanda a web-based article written in English, Matiyasi pointed out:

"We are more conversant with Kinyarwanda. It is there where we express our ideas and where our ideas are better structured and coordinated (hmmm). That is why, when we are in a group, because we have grown up using Kinyarwanda, our ideas occur spontaneously in Kinyarwanda. Developing [ideas] in French or English is more like listing words – vocabulary that we acquired several years ago."

This utterance shows that the participants were concerned with the development of meaning. However, their main obstacle was that they were not proficient in English, the language in which most web-based literature is written. The most convenient way of solving this problem was to discuss in Kinyarwanda. From the participants' point of view, Kinyarwanda enabled them to structure and coordinate ideas in meaningful propositions. Hence, they argued, in Kinyarwanda they were able to communicate their thoughts and at the same time make sense of other participants' contributions. Moreover, Matiyasi stated that constructing ideas in foreign languages was like listing words. This argument might indicate that the participants experienced greater difficulty expressing their thoughts and making some inferences in a foreign language than in Kinyarwanda.

5.2.3 *Spoken versus written expression in supporting reflection*

Commenting on the process of group learning, some participants revealed that their level of reflection on a paper depended on their spoken or written proficiency in the languages common on the internet, such as English and French. Sequence 3 is an illustration from an interview:

Sequence 3: Spoken and written expression

I: I remember that in your group when you retrieved a text written in English, you discussed it in Kinyarwanda. What is the reason behind that?

Dominiko: Well, this is related to the users' language proficiency. For example, I remember that in my group we were working in English. However, we were not sufficiently proficient in that language. We can read the text, but speaking is very hard for us. Well, writing is also an outcome of reflection, we can write of course with some difficulty, but discussing in English is much harder for us.

I: Why is spoken expression more difficult for you?

Dominiko: I think that spoken expression is more difficult because we have to conceive and transmit an idea spontaneously during the conversation. This is different from writing, because in writing you have to produce your ideas on paper: you can change it and correct it until you create something useful and something that conforms to the rules of the language, so to speak (hmmm). Yes. In spoken expression, on the other hand, you formulate ideas and you transmit them. When transmission of ideas is immediate it entails mistakes.

Some participants said that they had more difficulties talking than writing English and French and that this was a common problem among most university students. Dominiko's reflections depicted in Sequence 3 seem to sum up the participants' views on this issue. If students did not discuss in English or French, as highlighted by Dominiko, this was because they were not sufficiently proficient in those languages and wanted to avoid linguistic mistakes linked to speaking spontaneously during the talk.

On the other hand, Sequence 3 reveals that writing, in Dominiko's experience, enhanced students' reflections on a paper in a foreign language in which they were not sufficiently proficient. For instance, according to Dominiko, writing could be a way of

complementing, questioning, modifying and developing their ideas. He said that students were able to change or correct their writings until they produced “something useful and grammatically correct”. In other words, writing could support and enhance students' reflections on emerging propositions.

5.3 *Learning discourse and cultural awareness*

5.3.1 *Freedom versus obligation*

Two-thirds of the participants expressed their concern that Kinyarwanda, their native language acquired during childhood, was under pressure from foreign languages. For example, Alufonsi claimed that, with foreign languages, he never felt free. He reported his experience as follows: “In history, we learned that if you want to dominate others, you have to teach them your language. We have been used like this.” The idea of equating Kinyarwanda to freedom was also mentioned by Roza. She explained it clearly in the following sequence:

Sequence 4: Freedom versus obligation

- I: You said that outside the classroom, you speak Kinyarwanda, why is that?
- Roza: Well, I don't know how to explain it, but it is a matter of our culture. Seeing students outside speaking the language they were using in class or another [foreign] language is rare. When they get out, it seems like they recover their freedom. They switch to Kinyarwanda.
- I: You said that when students go outside, they seem to recover their freedom. I compare this to a classroom situation where they are forced to speak in a foreign language. What do you think about that?
- Roza: Well, maybe I can't say that they are forced, rather they are obliged (hmmm). This means that when you are studying in English, you must ask questions in English. The discussion should be in English and by so doing you respect the lecturer using that language. When he or she speaks in a language and you use a different one, that is not wise. There I can say that in the classroom students are obliged to; outside they have some freedom to speak their own language and others of their choice (hmmm). Anyway, students are not in prison.

Roza stressed that students' use of Kinyarwanda was linked to Rwandan culture. She contrasted the freedom to speak and think in Kinyarwanda with the obligation to use the languages of instruction when responding, asking questions or being respectful to a lecturer. Apparently proud to point it out, Monika, another participant, made this comment: “even for learning, I often use Kinyarwanda. I use French as an obligation. At my school, they obliged me to speak French and I have only been using it because I am obliged to.” Reporting on his experience of primary schools, Samusoni revealed that obligation was sometimes tied with implementation of the language policy in Rwanda: “Some teachers or principals have made it obligatory for students to speak French at school. They told students ‘If you speak Kinyarwanda, you will be punished.’ We will see the results of this later.” This shows that the implementation of the national policy required creating situations that would stimulate thinking, learning and social interaction

in the foreign languages. However, this strategy seemed to interfere with the students' freedom to use Kinyarwanda, a language that allowed them to tackle the problems of everyday life.

5.3.2 *Sociocultural context and self*

Most participants revealed that they were proud of their national language, Kinyarwanda, spoken by most Rwandans across the country regardless of socioeconomic background. They also stated that they were more comfortable using Kinyarwanda in conversation. For example, Roza stressed, "In our culture, we like our native language very much." Dominiko put it another way: "In our culture, we feel prouder when we talk in a language we understand better. That is why we speak Kinyarwanda." Samusoni affirmed this: "Kinyarwanda is the easiest language for us." Some participants went further, explaining that speaking foreign languages outside the classroom was not encouraged by Rwandan culture or the context. Nansi put it as follows:

"On campus, we speak Kinyarwanda when we are discussing something. If you speak in another language, people think you are arrogant. It is as if you think you are very important, that you know better than other people. That is why we prefer Kinyarwanda, so that we can be well thought of by those around us."

Most participants reported that in a gathering of Rwandan people, Kinyarwanda was the working language. In fact, the participants repeatedly voiced that Kinyarwanda was used in their everyday lives, for example, at home, in university, at work and in the market. The situation described by the participants could illustrate a gap between classroom and everyday practice regarding language use. The participants maintained that Kinyarwanda was part of their culture and that it gave them a sense of belonging to their society. In other words, Kinyarwanda seemed to grant them self-confidence, self-esteem and social integrity. It can be inferred that beyond feeling proud and comfortable with Kinyarwanda, the language could play a central role in exchanging ideas. In the participants' terms, Kinyarwanda could mediate web-based literature for "understanding things much better" and for generating "powerful ideas".

5.3.3 *Time awareness*

Most participants mentioned the notion of time in their reflections on handling web-based literature. They reported that Kinyarwanda permitted them to save considerable time in externalising their thoughts and in enhancing social interaction. By way of contrast, they stated that formulating and realising an idea in English or French was time consuming. For example, asked why her group read some extracts of web-based articles in English and discussed them in Kinyarwanda, Monika explained:

"We work like this because ideas come faster. A message... Thoughts come faster in your native language. Transmitting a message is also faster than when ((hesitation)) starting from French... rather from English into French. In other words, the meaning comes faster in Kinyarwanda except when you are doing work that requires appropriate concepts as in French. Otherwise, ideas come faster in Kinyarwanda."

The participants stated that one of the main problems they encountered in coping with web-based literature was that most articles were in English but they were conducting their research in French. Monika explained: "As most data on the Internet is in English,

it takes me time to search it, and I must also have time to translate it into the language I am working in (French). That is twice the work.” Nikola explained that the process of translation was more than moving information from English into French. He pointed out that Kinyarwanda was an intermediate language in the process: “Kinyarwanda is part of our thinking. In order to understand ideas [content], we must first translate them into Kinyarwanda and then translate them again into the language of instruction. That is why the process becomes too long.” Similarly, asked to state the challenges he came across in studying web-based articles, Matiyasi responded as follows:

“When I retrieved a paper, I had to sit down with my dictionary and translate it into French. This helped me understand the content. The challenge I mentioned earlier, when I was translating the paper, I had first of all to understand it in Kinyarwanda before I could put it in French.”

These experiences may indicate that Kinyarwanda not only shaped the students' thinking and learning in web-based environments, but also that it was a necessary condition for making sense of what was learned.

6 Conclusions

The analysis of the participants' naturally occurring talk and reflections indicates that the students' learning strategy consisted of exploring sentence by sentence or extract by extract and translating from the original language of the text, mainly English, into Kinyarwanda. Group discussions were primarily in Kinyarwanda, sometimes peppered with English or French. The following conclusions can thus be drawn from this learning strategy:

- Kinyarwanda seems to be a necessary condition for making sense of what is learned.
- Kinyarwanda seems to be the major language used in shaping students' thinking in computer-mediated social practice and may enable them to structure and coordinate their thoughts in meaningful propositions.
- Translation can be an asset in enhancing understanding and contextualising knowledge.
- Expressing themselves in writing could support and enhance students' reflections on emerging propositions in the study of web-based literature.
- The implementation of the national education policy for language in computer-mediated social practice may require creative situations that can stimulate and convey thinking, learning and social interaction in foreign languages.
- It seems that there is a need to cross language boundaries in order to allow students to deal with web-based literature most effectively.

In studying web-based literature, most students seemed to be confronted with a twofold reality resulting from the sociocultural context of the country. This study has identified two major types of discourses conveyed in computer-supported social practice:

- 1 In this study, 'official' classroom discourse entails the use of English and French as the languages of instruction for the study of web-based literature. In the context of globalisation, the GoR views these languages as media that might enable students

to cross national boundaries and become internationally competitive (GoR, 2005; Mineduc, 2007b). However, according to the findings of the present study, the implementation of the 'official' classroom discourse faces a number of obstacles. Firstly, because the students were not sufficiently proficient in English and French, especially in spoken English and French, they experienced difficulties in using these languages to discuss web-based literature critically, to develop creative thinking and to make relevant inferences. The students hardly developed their own and full sentences in English or French. One of the participants revealed that constructing ideas in a foreign language was nothing more than an addition of vocabularies. Thus, the use of foreign languages of instruction rather characterised cumulative talk. This kind of talk consisted of reading an extract of a web-based paper in English and translating it into Kinyarwanda. This could indicate that learning was mainly shaped by the repetition of the same extracts from a text under study into Kinyarwanda. However, the participants affirmed that translation allowed them to understand and contextualise knowledge. Secondly, the participants considered the use of English and French an obligation. This striking concern has been interpreted as an obstacle to implementing the goals of EFA (Hayman, 2005). In this context, foreign languages of instruction, such as English and French, tend to discriminate against potential students who fail to master them. Nevertheless, those students who face difficulties with foreign languages of instruction have the right to learn in a language they understand better, normally their native language (Mukama, 2007). Thirdly, the students' sociocultural context did not offer them sufficient opportunities to speak and to improve their foreign language proficiency. For example, the participants explained that speaking foreign languages in their society could be regarded as a sign of arrogance. In contrast, a study from the Swedish domestic context reveals that some students consider that speaking English is fashionable and confers status (Sharp, 2007). In a Finnish context, for some young people, using English seems to be an expression of negotiating identity and belonging to a large community (Leppanen, 2007). Finally, the participants reported that they experienced more difficulties expressing themselves in speech than in writing when they were required to produce their ideas in the official foreign languages. This issue can be addressed in three ways:

- Students will need to improve their spoken proficiency so that they can discuss web-based literature in English and French without being afraid of making mistakes.
 - They will need to exchange ideas in writing which, as the participants argued, can enhance their reflections as well as improve their language skills.
 - Students will need to support their discussions using Kinyarwanda as a language they understand better and which, as the participants suggested, can be elaborated for this purpose.
- 2 'Unofficial' classroom discourse reflects the use of the local language, Kinyarwanda. The participants argued that they felt more comfortable and proud discussing web-based literature in Kinyarwanda. They maintained that their mother tongue confers a sense of ease, meaning that they were able to think, communicate ideas and make sense of others' contributions, and all this spontaneously. In other words, in Kinyarwanda they could save time and energy to study the learning material.

Kinyarwanda was used actively to develop exploratory talk. The participants reported that Kinyarwanda allowed them to formulate, structure and coordinate their thoughts in meaningful propositions. Briefly, beyond shaping the everyday discourse, Kinyarwanda seems to play a central role in the students' learning. Hence, it can be inferred that the language conveyed an 'unofficial' classroom discourse in computer-supported social practice. The use of Kinyarwanda seems to be associated with the students' sociocultural context. In the participants' view, Kinyarwanda was the working language, not only their own but also of most Rwandan people, as it was used in most sectors of society and spheres of life. Drawing from the findings, Kinyarwanda seems to be a mediating tool that can ensure students' freedom, self-confidence, self-esteem and social integrity, and also grant a sense of belonging to their culture. These findings support earlier studies that found that learning can be more effective when students' sociocultural, historical and educational values and contexts are taken into consideration (Le Thanh Khoi, 1971; Halliday, 1978; Joo, 1999; Yang, 2001). In this connection, Chen *et al.* (1999) maintain that conversational exchanges mediated by technology are culturally sensitive.

7 Dissolution of language boundaries

On the one hand, it seems relevant to acquire and use international languages in order to become competitive in the region, especially in the East African Community, of which Rwanda is a member, and in the world as recommended by the national educational policy on ICT (GoR, 2005; Mineduc, 2007b). International languages, as shown in this study, can facilitate access to different sources. Mukama and Andersson (2008) maintain that access to various sources may support students' critical thinking in ICT-based learning environments. Furthermore, Leppanen (2007) asserts that English will be necessary as long as this international language dominates the internet. On the other hand, it seems relevant to develop some competence in the language that students understand better. The findings show that Kinyarwanda can play a central role in students' conversational exchanges and mediate their thinking to build and convey joint knowledge. Helping students to develop the same competence in English and French, *i.e.*, their foreign languages of instruction, would require shaping a learning environment that could stimulate and convey students' social interaction and action in these languages. The sociocultural settings in Rwanda, however, do not seem to offer this opportunity and even tend to be obstructive. Therefore, it would be an illusion to pretend that students would be able to compete worldwide without being competent. Competence comes first and competition follows. As Fullan (1993) states, "[S]tudents must succeed if society is to succeed" (p.46).

Crook (2002) claims that the successes of computer-supported collaborative learning "hinge upon the manner in which discourse is actively organised to construct the valued outcome of common knowing" (p.66). Similarly, Stahl (2005) argues that collaborative knowledge lies behind the enrichment of the discourse and interaction. Accordingly, and drawing from the findings, there is an indication that foreign and native languages can support each other and contribute to the construction of a community of discourse conducive for computer-assisted collaborative learning. For example, with English and French, students may primarily have access to international web-based sources and

communicate their own contributions with and to the world. With Kinyarwanda, students would be able to discuss those sources critically and constructively and confront them with their sociocultural and educational contexts by means of exploratory talk. This interpretation concurs with previous studies underscoring that knowledge can be jointly achieved when students learn in a language with which they can build mutuality and can more likely develop exploratory talk (Mercer, 1995; 2002; Wells, 1999; Crook, 2002). This may be suitable in a situation where Kinyarwanda is an official language of instruction. In this study, exploratory talk was most unconstrained when students were speaking Kinyarwanda.

Acknowledgement

I wish to express my gratitude to Sida/SAREC and to the National University of Rwanda, the sponsors of my PhD programme, Sida Ref. No. 2004-000746.

References

- Chen, A.Y., Mashhadi, A., Ang, D. and Harkrider, N. (1999) 'Cultural issues in the design of technology-enhanced learning systems', *British Journal of Educational Technology*, Vol. 30, pp.217–230.
- Crook, C. (2002) 'Deferring to resources: collaborations around traditional vs computer-based notes', *Journal of Computer Assisted Learning*, Vol. 18, pp.64–76.
- Dimova, S. (2007) 'Research report: English, the internet and computer terminology in Macedonia', *World Englishes*, Vol. 26, pp.373–387.
- Fairclough, N. (2003) *Analysing Discourse*, Oxon: Routledge.
- Fullan, M. (1993) *Change Forces*, London: The Falmer Press.
- GoR (2001) 'Rwanda development indicators 2001. Towards Vision 2020. Exit underdevelopment and poverty', MINECOFIN, Department of Statistics, Kigali.
- GoR (2005) 'An integrated ICT-led socio-economic development plan for Rwanda 2006–2010', Kigali.
- Halliday, M.A.K. (1978) *Language as Social Semiotic: The Social Interpretation of Language and Meaning*, London: Arnold.
- Hayman, R. (2005) 'The contribution of the Post-Basic Education and Training (PBET) to poverty reduction in Rwanda: balancing short-term goals and long-term visions in the face of capacity constraints', Post-Basic Education and Training Working Paper Series No. 3, University of Edinburgh, Edinburgh.
- Hildendorf, S.K. (2007) 'English in Germany: contact, spread and attitudes', *World Englishes*, Vol. 26, pp.131–148.
- Johnson, D.W. and Johnson, F.P. (2009) *Joining Together*, 10th ed., New Jersey: Merrill, forthcoming.
- Joo, J.E. (1999) 'Cultural issues of the internet in classrooms', *British Journal of Educational Technology*, Vol. 30, pp.245–250.
- Le Thanh Khoi (1971) *Enseignement en Afrique Tropicale* (Teaching in Tropical Africa), Paris: Presses Universitaires de France.
- Leppanen, S. (2007) 'Youth language in media contexts: insights into the functions of English in Finland', *World Englishes*, Vol. 26, pp.149–169.
- Mercer, N. (1995) *The Guided Construction of Knowledge*, Clevedon: Multilingual Matters.

- Mercer, N. (2002) 'Developing dialogues', in G. Wells and G. Claxton (Eds.) *Learning for Life in the 21st Century*, Oxford: Blackwell, pp.141–153.
- Mineduc (2007a) 'Compétences en Anglais, en Français et en Kinyarwanda au Niveau Primaire et Secondaire dans le Système Éducatif Rwandais: Résumé: (Competence in English, French and Kinyarwanda at primary and secondary level in the Rwandan educational system: a summary)', CNDP, Kigali.
- Mineduc (2007b) 'The language in education policy', Draft paper, CNDP, Kigali.
- Morgan, D.L. (1997) *Focus Groups as Qualitative Research*, 2nd ed., California: Sage.
- Mukama, E. (2007) 'Rethinking languages of instruction in African schools', *Policy & Practice. A Development Education Review*, Vol. 4, pp.53–56.
- Mukama, E. and Andersson, S.B. (2008) 'Coping with change in ICT-based learning environments: newly qualified Rwandan teachers' reflections', *Journal of Computer Assisted Learning*, Vol. 24, pp.156–166.
- Ntakirutimana, E. (2005) 'The trilingualism policy in Rwandan education almost 10 years ago', Paper presented in the *38th Annual Meeting on Language and Identity in Applied Linguistics*, University of Bristol, 15–17 September.
- Olson, D.R. (1995) 'Writing and the mind', in J.V. Wertsch, P. Del Rio and A. Alvarez (Eds.) *Sociocultural Studies of Mind*, Cambridge: Cambridge University Press, pp.95–123.
- Sharp, H. (2007) 'Swedish-English language mixing', *World Englishes*, Vol. 26, pp.224–240.
- Silverman, D. (2001) *Interpreting Qualitative Data*, 2nd ed., London: Sage.
- Stahl, G. (2005) 'Group cognition in computer-assisted collaborative learning', *Journal of Computer Assisted Learning*, Vol. 21, pp.79–90.
- Suarez-Orezco, M.M. and Sattin, C. (2007) 'Wanted: global citizens', *Educational Leadership*, April, pp.48–62.
- Swales, J. (1990) *Genre Analysis: English in Academic and Research Settings*, Cambridge: Cambridge University Press.
- Vygotsky, L.S. (1978) *Mind in Society*, Cambridge, MA: Harvard University Press.
- Wells, G. (1999) *Dialogic Inquiry*, Cambridge: Cambridge University Press.
- Williams, E. (2003) 'Consultancy to develop Mineduc capacity to create and implement a "trilingual" policy in Rwandan schools', Final report, CfBt/Stoas, January.
- Yang, S.C. (2001) 'Integrating computer-mediated tools into the language curriculum', *Journal of Computer Assisted Learning*, Vol. 17, pp.85–93.