Encouraging students to *language* in the science classroom

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Abstract

In this paper I underscore the notion of *languaging* as students' ways of functioning in and through language, particularly in interactions that involve spoken and written texts in the classroom. Thus, *to language* should be understood as active student participation - verbally, in particular - that can reveal how they deal with and respond to the challenges and opportunities that originate in the encounter with new content, or while knowledge is being constructed. I argue that *Content and Language Integrated Learning* (CLIL) is an adequate approach for school in general because it accommodates the goals of teachers of languages and teachers of other school subjects. Ultimately, mediators in both categories aim at helping their students to be able to communicate (about) what they know. In addition, I provide a few examples from research that, hopefully, can highlight the importance of opportunities to language in the classroom as a way to develop skills and confidence in formal educational contexts.

Key words: Languaging, content and language integrated learning (CLIL), instructional interaction, language awareness

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Introduction

The personal interest in Language Awareness (LA) stems from my work as a teacher of English as a foreign language (EFL) in Brazil. After more than ten years as a part-time teacher in different, independent language institutes, I left my main job as an engineer in a multinational company, to become the co-owner of a language school and later to join a master's degree program in language studies. Following my MA research (Concario, 2003), which focused on the education and training of EFL teachers, I became more interested in teacher education in general, particularly in the potential contributions of LA for the training of teachers of different school subjects. This led me to a doctoral research into the role of the mother tongue in the construction of school knowledge (Concario, 2009). As a result of my previous experiences, I had naturally begun to wonder if the language (Portuguese as a mother tongue) used in classes of different subjects at regular school could be seen to share similarities with a foreign language from the point of view of students. Thus, I remained interested in LA while becoming more engaged with the agendas of content and language integrated learning.

Broadly speaking, LA relates to theoretical and methodological positions on whether (or not) and to what extent (if any) the internalization and development of

language as form and as skills occurs via (incidental, unintentional, unplanned, unconscious) acquisition or (deliberate, intentional, planned, conscious) learning, and the implications for teaching or professional contexts, and many other social domains. LA can be approached by looking at definitions for a number of traditional concepts in psychology and philosophy like consciousness, intention, attention, noticing, knowing, and even conscience (Concario, 2003; James, 1999; Leow, 1997; Locke, 1998; Robinson, 1995; Schmidt, 1995), but it can also be approached from a historical perspective that is largely - or perhaps narrowly - associated with the British Language Awareness Movement (Donmall, 1985; Hawkins, 1984; James & Garrett, 1992).

In earlier work, I have ventured at putting forward a working definition of LA as sensitivity, noticing, knowledge and experience of an individual as concerns language, in educational settings, which facilitate the capacity to build and use his/her communicative competence to identify and situate him/herself as a human being in the society in which he/she lives, coexists and survives (Concario, 2003 2009). Even though this definition may not sound very fluent or pragmatic in English, I still feel it helps to view awareness as a gradable, varying property, and the purpose here is not to claim that one level is better than any other. In addition, this definition takes into account that awareness is a first-person phenomenon, and this means that awareness is both subjective and a right to be exercised by others as well. Living, coexisting and surviving, in this case, are intended to highlight the importance of paying attention to otherness while, at the same time, being alert about what has to do with one's self.

For teachers, as far as LA is concerned, a commitment to paying attention to otherness in the classroom should mean, for example, an interest in and a concern for whatever students have and attempt to say, even if what is coming from students does not match teachers' natural expectations. The implication, then, is that instructional interaction should be carefully planned and monitored in order to allow students to express linguistically (*to language*) how they are participating in the social processes of constructing knowledge through communication (Hall & Verplaetse, 2000; Mercer, 1995).

In communicative language teaching (Brown, 2000; Canale & Swain, 1980; Widdowson, 1978), language is viewed as form and skills, and interaction can be used to refer to: (a) make-believe role-play intended at automatized use of language chunks; (b) less controlled forms of language practice that can allow students to express their views about a given situation or topic; and (c) a goal in itself, when strategies are taught and practiced in order to help students experience the target language in ways that resemble real-life communication, including turn-taking and (requests for) the provision of clarification. In this third sense - negotiation of meaning and negotiation of communicative processes - interaction is a way both to practice and to develop language skills. *Languaging* and *to language* have become frequent terms to refer to these procedural aspects of verbal communication (Storch, 2013; Swain, 2000, 2006, 2010).

In the specialized literature in the fields of foreign/second language learning and teaching, *languaging* is frequently used to refer to episodes when learners engage in verbal interaction about language features (metatalk, metalanguage) in order to correct, improve, negotiate what they - or other students - have verbalized, with a focus on the language they have produced (Storch, 2013; Swain, 2010). In this paper and elsewhere, I use *languaging* (or *to language*) to refer to ways of making ideas explicit through words.

Other forms of communication, such as gestures, tone of voice, laughter, signs of anxiety and so on must, by all means, be taken into account. However, these can be seen as hints that a person might have something *to language* and, thus, opportunities have to be provided for those words to come out. When *languaging* does occur, however, the focus is not necessarily on how it occurred (actual language) but rather on what it has been about (content, which may even be language, but not necessarily).

The divide between language and (other kinds of) content may be helpful to elucidate the focus of analysis in a particular event; however, the widespread advocacy for Content and Language Integrated Learning (CLIL) is grounded on the principle that the relations between content (subject of text) and language (text itself) are so intertwined that, from an educational viewpoint, it would be best not to treat them separately (Brinton, Snow & Wesche, 2003; Lapp, Flood & Farnan, 2004). The arguments for not separating content from language are even stronger in the case of the first language (mother tongue), which is exactly what I am dealing with here: the data I have included in this paper come from a study conducted solely in Portuguese (mother tongue) to look at how the use of the mother tongue in (a) course books, (b) regular science, history and mathematics lessons in 5th and 6th grade classes of primary school, and (c) in intervention sessions that I conducted with participants in my research impacted on how these students construct and deal with school knowledge.

But then, again, that first language can be felt to be functioning like a foreign language from the point of view of students: in science lessons, for instance, students have to deal with content (concepts, propositions, attitudes, meanings = words) which are novel, peculiar, funny, frightening and so on. So, how do they respond? What are their expectations with regard to what is being taught to them? Why should they share the motivation, interest and linguistic repertoire to deal with that content? By the same token, how can the required language (forms and skills) evolve without the particular content that can only *be languaged about* in the fashions already mastered and recognized by the experts (teachers)? This is exactly what part of CLIL advocates claim: the ideal way to learn to talk/write about something (language) is by having to deal with concepts, propositions, ideas (content). This approach can also be referred to as content-based language learning, and it enjoys considerable tradition in the field of language education, particularly in immersion contexts (second language) and adult higher education (second and foreign language). A more recent interest has been growing among other proponents of CLIL: that by engaging students through considerate instructional interaction, teachers of "subjects other than languages" can facilitate the learning of specialized content. In other words, how can awareness of how language is being used to mediate the acquisition/learning make teaching more successful?

Methodology

Context

My teaching and research interests have gravitated around initiatives to promote Language Awareness (LA) and, more recently, teaching practices that are grounded on Content and Language Integrated Learning (CLIL) (Concario, 2003, 2013, 2014). In my doctoral research (Concario, 2009), I worked with 5th and 6th grade classes in order to investigate, on the one hand, the opportunities afforded to students by course books and teachers' actions so the learners could verbalize their expectations, questions, interests, thinking and other forms of response regarding the content explored in science, history,

and mathematics lessons. On the other hand, I conducted, with low-performing students at those levels, sessions that were specifically planned to promote review and talk about the topics being addressed by their teachers in the regular classrooms. These students came from two public schools in a city in northeastern Sao Paulo state (Brazil), where the study took place.

The research approach was qualitative on the whole. The theoretical and methodological framework has been grounded on principles of interpretive studies that are relevant for classroom and action research, with a particular commitment to emic and reflexive perspectives in order to capture a multitude of voices and opinions in the data and allow for triangulation (Patton, 1990).

I have also explained, in the introduction, that the drive to plan and conduct the research originated from my experience in EFL and the belief in the positive impacts of language awareness on the development of language skills, namely communicative competence. After working for so long with EFL, I suddenly had the insight to look at the role of Portuguese in the construction of school knowledge (mother tongue, sole language of instruction for the participants in my PhD research). To put it shortly, my idea was to look at Portuguese in the classroom, assuming it might function *like a foreign language* from the point of view of students. That is, could evidence be found that 5th and 6th graders had to deal with challenges to communicate in their first language, when dealing with novel concepts and communicative needs, which resemble the difficulties experienced by learners of EFL? The answer was yes!

Students

This paper deals with participants and contexts that are very specific. In a sense, Education in Brazil probably bears similarities to what happens in many countries; however, it is essential to note that no generalization is intended in my assumptions or considerations. Even in Brazil there are so many differences across states, cities and institutions, that it would be too risky to claim that the data in my study are representative of any significant portion of students in Brazilian schools. On the other hand, it is well documented that education is problematic: classes in most schools have more than 40 students, many teachers lack qualification and training, resources are not plentiful, and motivation - for a number of reasons - is generally perceived to be lower than desirable. More specifically, teacher education does not adequately deal with the role of language in learning or the efficient management of instructional interaction, even in programs that are dedicated to the education of language teachers (Concario, 2009, 2013).

The extracts in this paper have been chosen from data collected over a period of two years with 5th and 6th graders from two groups of low-performing students of two public schools. The term “public school” is used in Brazil to indicate that the institution is kept by the government, using taxpayers’ money, and that no additional tuition fee is charged. Low-performing has been used in my research to describe students identified by school administrators and teachers because, over two consecutive bimesters, their grades in at least two out of three subjects (Science, history and mathematics) were lower than passing (6.0). All such students were invited to join the intervention sessions I conducted outside classroom time, and participation was optional after informed-consent letters had been sent to their parents or guardians.

The sessions (95) occurred twice a week in the first year of the study and once a week in the second. There were two groups of 5th graders and one group of 6th graders in the first year, and two groups of 6th graders and one group of 5th graders in the second year of intervention. Thirty-two students (eight girls and 24 boys, age range between 11 and 14 years old) joined the sessions at some point, and there were 11 participants at the end of the second year. Drop-out resulted from a number of different causes, including conflicts in schedule at some point that involved extracurricular activities, difficulty to find transportation and attend sessions, school transfers and other, less frequent reasons. Only three students informed they were no longer motivated to participate in the sessions.

Data Collection

For the intervention sessions I conducted with the participants, a list of topics was prepared based on the course books used in each subject in both schools, and on the plan each teacher responsible for science, history or mathematics had written for their classes. Even though I had the chance to meet and interact with those teachers throughout my research, my goal was never to interfere directly with their jobs. My main concern was to have a range of topics to choose from so I could select, adapt and write materials to use in the sessions in order to review or complement what students were studying at specific times. By doing that, I expected to be able to provide the participants with the chance *to language* about content they had just dealt with – or were just about to deal with – in the regular school.

The typical session lasted for 75 minutes and usually opened with talk about what students were studying in a particular subject or a particular exercise or task they had done at school. Alternately, we would start the session by discussing a previous activity completed in a preceding intervention session. The next step would include reading, discussion, experiment or exercise I had selected or prepared to do with the participants, and a final activity in which the participants and I collectively produced a text to summarize what we had done in that particular session. A final version of this collective text was often dictated or audio-recorded, and the participants were encouraged to talk to someone at home about what we had done in the session.

I kept a journal and made frequent notes during or after each session. I also collected written work from the participants (homework and testimonials) and conducted two interviews with pairs of participants, which were recorded on video. On very few occasions I made audio recordings of the complete sessions, but I soon noticed that the participants behaved very differently whenever I did that. In addition, the quality of the audio recordings never turned out to be good enough. A better strategy, which the students responded much better to, was the video recording of particular occasions when they were doing group work, or when I asked them to talk to the camera at the beginning of specific sessions. Journal entries, transcripts of audio and video recordings and other texts, including notes made during classroom observations and interviews with parents and teachers, have been analyzed in my research.

Both written material and things that the participants said are referred to as texts in this paper. Three samples of texts produced with/by the participants in the intervention sessions have been selected because of the underlying topics: Archimedes' principle; scaling/ratios; and - in a more interdisciplinary fashion - pollination (Science), bartering (History) and multiplication (Mathematics). These samples, therefore, illustrate activities

involving typical *language* and *content* in the domain of science. In addition, I hope their translations into English can exemplify *languaging* as it has been defined in this paper.

Data Analysis

The data pertaining to the interventions in this study comprise a range of different texts: interactions that have been recorded and transcribed; written homework and notes produced by the participants, including those that resulted from input dictated to them; and journal entries and testimonials. For the purposes of analysis, these texts have been categorized as either conversations (recorded and transcribed interactions of two or more participants, including the researcher) or narratives (mostly written material, but also spoken testimonials or other texts generated by one single person). Broadly speaking, Anglo-Saxon discourse analysis (Trappes-Lomax, 2006) has informed the procedures throughout the research.

The analysis of conversations focused on the length of turns, their adjacency and turn taking, and the communicative moves presumably intended by the participants throughout specific transactions. In other words, the goal was to describe the dynamics, participants' contributions and communicative intentions in specific excerpts of interactional text (Nunan, 1992; Sinclair & Coulthard, 1975).

The narratives that are particularly relevant to the scope of this paper are those that explain what was done in the intervention sessions, and these were analyzed in view of standards of textuality (de Beaugrande, 1980). This means, essentially, that the focus of analysis was placed on cohesion and coherence: how the linguistic material was put together in the expression of concepts, propositions and opinions (ideas), and whether or not progression, sufficiency and correctness were likely to be acceptable for school purposes.

Results and discussion

The following excerpt is from a talk in the opening of an intervention session. Students (S = student) were telling me (Re = researcher) what they remembered from a previous session in which we had read about Archimedes' principle and done an experiment involving an egg, a bowl of water and salt.

[S3] I remember the activity about buoyant force, of fractions, from Greece... out there
[S4] Ancient Greece
[S3] from Ancient Greece... the one about lightning, just now, last week, about storms…
[S4] That thing about Archimedes...
[S3] Yeah... about Archimedes... Archimedes' principles...
[S5] Right, there is weight, mass, volume...
...
[Re] If you picked one, for example… out of these activities that you've mentioned… if you said something like: well, there's that activity when we did this and this and that… what do you remember learning?
[S3] The buoyant force was when you told us to do the experiment with the egg in a bowl... using water
[S4] And salt... and then you'd add a spoonful of salt and the egg would… move up, it seems
[S5] Then, when you poured more water, it floated in the center...
[Re] And we did that experiment in order to study...(?)

[S3, S4] Buoyant force
[Re] Buoyant force... and we saw some words to relate to buoyant force…
...
[Re, S3, S4, S5] Weight, mass, volume... density
[Re] And what is density all about, again?
[S5] It was the weight of… the Earth
[S4] Something about weight, mass and volume...
[Re] Why did we need the notion of density... in the experiment?
[S4] In order to understand the experiment better...

The excerpt above shows, among other things, how the participants had failed to produce complete sentences using concepts they claimed to have learned at school and we were reviewing in the intervention session. Their utterances consist of fragments containing key words they obviously remembered but had difficulty to define in what might be considered good academic prose. Another interesting feature that was recurring, especially in the early months of the intervention, was that individual students did not seem to build on what a classmate was just saying in order to add information and refine the text under construction.

Throughout my research this was a recurring finding. Considering that I had been working with low-performing students, who had been so appointed to me by their school teachers and coordinators, I was not actually surprised that they found it difficult to *language* about school content as would be otherwise expected from "good students". However, what really intrigued me was whether or not these participants, the low-performing students, would have the chance to ever *language* at all in the regular classroom and then refine their *languaging* – which obviously would require their revisiting content that had already gone by them. Is it plausible that these participants simply do not have a voice in their regular classrooms? If they do not, why is it so?

In comparison with the first excerpt, the transcript below, from a later session with the same group of participants, demonstrates that they were then more committed to one another. Although there are many reasons that could account for greater engagement and collaboration (more attractive topics, participants more familiar with the routine, simpler concepts), longer sentences were produced by individual students in each turn, the use of specialized vocabulary seems to have been deliberate and effective, and there was evidence that the participants knew what the communicative goal was as they dismissed less relevant information ("but that doesn't matter").

[S3] We were talking about scaling and the teacher brought a map of France, I guess…
[S6] Nooo...
...
[S1] Germany
[S3] Yeah... Germany. Then we got a ruler and measured the scale from one city to another...
[S5] What city?
[S3] Oh... I don't remember, but that doesn't matter... we measured that…
[S1] We checked the distance between one city and another, and then we…
[S3] Used scaling...
[S1] Used scaling to find out...
[S3] How many kilometers

[S1] Right... to find out how many kilometers there were between that place and the other…
...

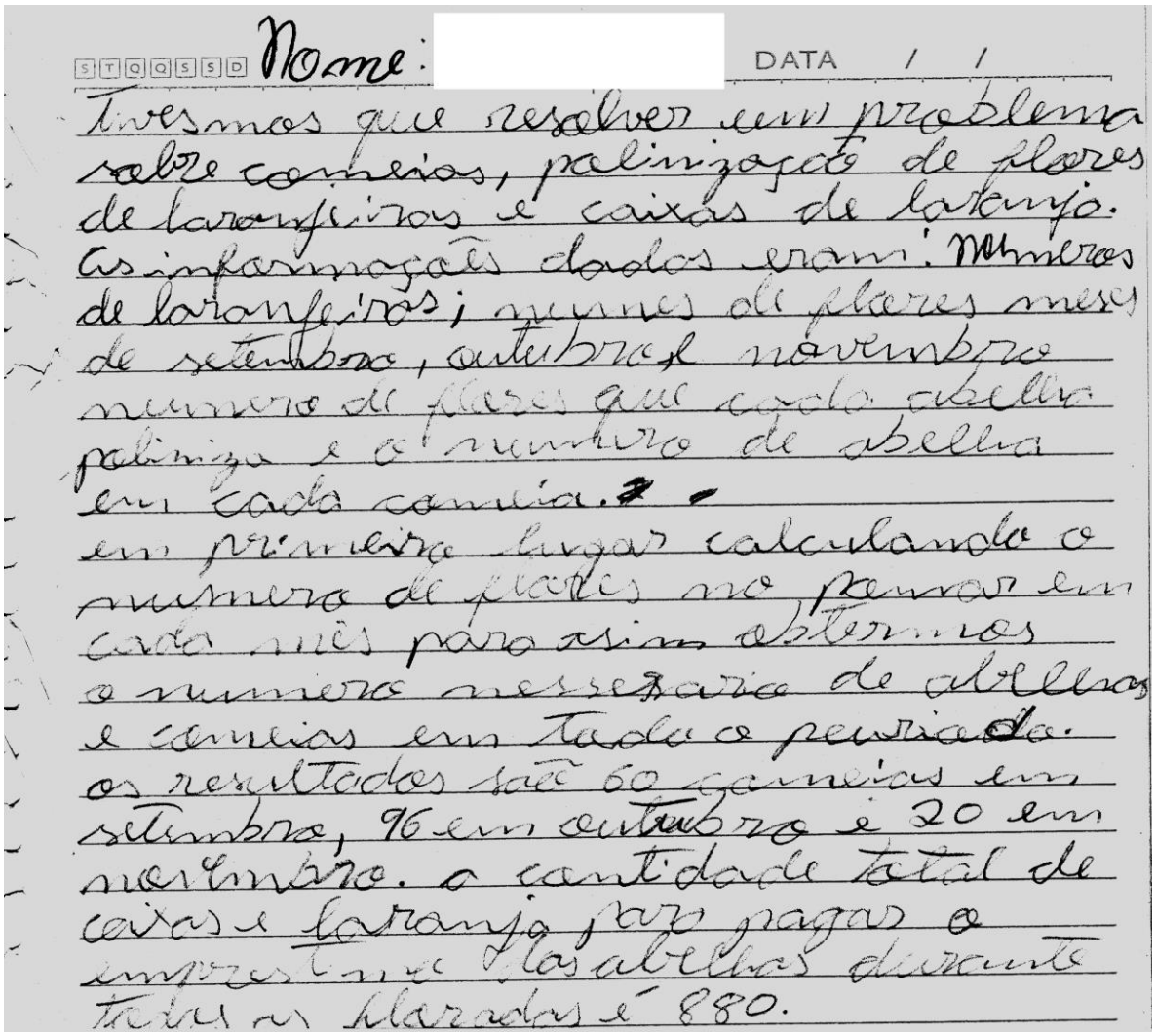
[Re] So, our goal in the activity was to do what, S3?
[S3] Scaling
[Re] And what is scaling?
[S3] Scaling is when you take... when you use the paper... like, you measure one centimeter with a ruler… Wow, everyone is so quiet...
(Students laugh)
[S3] One centimeter by the ruler corresponds to ten kilometers, ten meters... things like that...
...
[Re] So, S1, we got the map... and what is this thing about the ruler?
[S1] What do you mean?
[Re] Why have we used the ruler?
[S1] To measure... you know, there's Cologne, then the other city and we measured the distance between each city
[Re] And the total distance?
...
[S1] I don't remember
...
[S3] Each centimeter counted as 63 kilometers
...
[S5] One centimeter corresponds to 63 kilometers
...
[S3] We got the measurement between one city and the next, then added that up... and then used the ratio, and found out how many kilometers would correspond to the centimeters between cities

If the apparent change in the pattern of the communication these students were engaged in can be indicative of more refined language skills and greater command over the content, is it fair to assume that such gains have resulted from the opportunities they have been given to language over time, in the interventions? At least in terms of how their interaction seems to be more cohesive and committed to textual progression - for the languaging is clearly oriented towards explaining what was covered in the intervention sessions -, progress seems to have been made. So, if there is no reason to refute this claim, does that mean that what these low-performing students had not actually had was the chance to practice and refine their languaging about what is being encountered are school?

My research has revealed plentiful, compelling evidence that – at least for part of the student population – the languaging that is expected by experts is not what learners are necessarily ready to deal with. Like what happens in the case of foreign language study, learners who feel they never quite understand what fluent people are talking about, and who learn to feel they cannot deliver what other speakers can deliver, will tend to shy away. This personal take, too, could be the result of my EFL experience in Brazil. Nevertheless, whenever I have had the chance to share this concern with colleagues who work in different parts of the world, the response I get from them is that there may be a point in raising the question: are teachers and students actually speaking the same

language in the science, history, mathematics (etc.) classroom even when they share the same mother tongue?

Finally, the sample below is a copy of how a participant turned in a text dictated in a session and which he later showed to his mother at home (Figure 1). I have attempted to render a literal translation of the original in Portuguese, and the few spelling errors have been overlooked.


S T Q Q S S D Nome: DATA / /

Tivemos que resolver um problema sobre caixas, polinização de flores de laranjeiras e caixas de laranja. As informações dadas eram: Número de laranjeiras; quantas de flores mes de setembro, outubro e novembro número de flores que cada abelha poliniza e o número de abelha em cada caixa. Em primeiro lugar calculando o número de flores no pomar em cada mês para assim obtermos o número necessária de abelhas e caixas em toda o período. Os resultados são 60 caixas em setembro, 96 em outubro e 20 em novembro. A cantidade total de caixas e laranja para pagar o empréstimo das abelhas durante todo os Marados é 880.

Figure 1. Student writing sample

We had to solve a problem about beehives, pollination of orange flowers and orange crates. The given information was: number of orange trees, number of flowers in September, October and November, number of flowers each bee can pollinate and the number of bees in each hive. First we calculated the number of flowers in each grove in each month so we could find out how many bees and hives we would need for the whole period. The results are 60 beehives in September, 96 in October and 20 in November. The total number of orange crates to pay for the loan of bees during the blossom season is 880.

There are two main reasons for including the text above in this paper. First, it is one example of written work produced by a participant, even though the original had been

dictated word for word at the end of a session. Second, the student who turned in the paper (Figure 1) was always very reluctant to participate in the interactions whenever the group was dealing with specific tasks that focused on school content. However, that particular student was invariably ready to start and continue chatting about topics that were not really the focus of interactions.

Again, as in foreign language classrooms, students may choose to stay - or may be forced - out of interactions in the target language, which does not necessarily mean that they have nothing to contribute. What may happen, eventually, is that these students "sabotage" the script they are expected to follow, and teachers do not necessarily find out the reasons for their not playing along with the plan.

The decision to include dictations in the sessions did not come at the start of the interventions. In fact, it took me some time to realize that more controlled, mechanical practice might help to get the participants to "produce" narratives. Actually, I decided to dictate sample narratives of what we had done in the sessions because a few students kept telling me that they did not know what kind of homework I "wanted them to do" for the following meeting.

It took me a while to suspect that what I "wanted them to do" could be meaning some timid, veiled protest - perhaps a way for those kids to suggest that I was not being clear? After all, it probably takes confidence for a low-performing student to consider that the difficulty could be lying outside, then take the next step and ask for/demand clarification. Incidentally, I remember very clearly how surprised and pleased I felt during the second conversation transcribed above, when one of the students made me play the game according to his rules:

...
[Re] So, S1, we got the map... and what is this thing about the ruler?
[S1] What do you mean?
[Re] Why have we used the ruler?

To return to the dictated narrative in the previous page (Figure 1), what is important to say is that the participant who turned it in actually asked to read it aloud and comment on it in the following session. He wanted to tell the other participants that his mother said, after he shared the text with her, that it was the first time he had taken the initiative to show school work at home. He also said that he was really enjoying the chance to participate (talk and be heard) in "class". When I asked what he meant by “class”, he said it was the place we met for our intervention sessions and also the classroom at school. He added (again an attempt at literal translation): *Now I feel I know what the teacher wants me to say, at least in some lessons*. To me, this is a very strong instance of *languaging* that hints at the desire to coexist and survive in classrooms. Why not encourage that?

Concluding remarks

In this paper I have shared personal interests in topics that have strongly directed and influenced my teaching and research: awareness of language and the implications for instructional interaction, and how content and language interrelate in the socioconstruction of knowledge. My main goal was to highlight how traditional concerns

and knowledge in Applied Linguistics can help frame issues related to teaching in general and, in particular, how the language encountered by students when they deal with novel information and learning contexts may pose challenges that resemble those faced by students of a foreign language. Learning new content (concepts, propositions, attitudes) relates very strongly to willingness, opportunity and support *to language* about it. In societies that are ready to recognize and value knowledge and competencies only when they are talked/written about, it would be fair for students to be given the chance to practice and show what they can do even when that does not correspond - yet - to what is expected, recognized and accepted by experts. At least in basic (primary + secondary) education, there seems to be room for more tolerance, generosity and responsibility. In the case of the research that has originated this paper, there is plenty of evidence that students, teachers and institutions need more support so that more favorable conditions can be present in schools: more motivated and qualified teachers, fewer students in class, stronger collaboration among specialists in different fields, and greater recognition among families of the contribution of education for improving the chances of success – which might increase the amount of talk about what happens in schools.

If one general claim can be made, it is that Applied Linguistics - particularly as far as (foreign, second, additional) language teaching is concerned - has accumulated a robust body of knowledge that can be very helpful in informing educational policies and practices. The concern for meaningful communication is so central in this area, that it should be easy to recognize the potential for collaboration with materials writers, and other professionals involved in teacher education and school-policy making. In my research I was glad to find out that this already occurs in a few countries. However, broadly speaking, interdisciplinarity and collaboration seem to be more common propositions in theoretical work than in observable practice.

References

de Beaugrande, R. (1980). *Text, discourse, and process. Toward a multidisciplinary science of texts. Volume IV in the series Advances in discourse processes*. Norwood: Ablex.

Brinton, D. M., Snow, M. A. & Wesche, M. (2003*). Content-based second language instruction.* Ann Arbor, MI: University of Michigan.

Brown, H. D. (2000). *Principles of language learning and teaching*. (4th ed.). Englewood Cliffs, NJ: Prentice - Hall.

Canale, M. & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1(1), 1-47.

Concario, M. (2003). *Consciencia linguistica no ensino de ingles como lingua estrangeira: Seu papel na abordagem comunicativa e na formacao de professores.* (Master's thesis). Sao Jose do Rio Preto, Brazil: UNESP.

Concario, M. (2009). *A lingua portuguesa e a construcao do conhecimento escolar.* (Doctoral dissertation). Campinas, Brazil: UNICAMP.

Concario, M. (2013). A lingua materna do ponto de vista do ensino de lingua estrangeira. In A. T. Sartori & S. R. Silva (Org.). *Reflexoes em Linguistica Aplicada: praticas de ensino de linguas e formacao do professor* (p. 193-217). Campinas: Pontes.

Concario, M. (2014). Baixo desempenho e enriquecimento da interacao: Propostas de Feuerstein e mediacao da aprendizagem. *Olh@res*, 2(2), 405-423.

Donmall, G. (1985). *Language awareness. NCLE papers and reports 6*. London, UK: CILTR.

Hall, J. K. & Verplaetse, L. S. (2000). *Second and foreign language learning through classroom interaction.* (Ed.) Mahwah, NJ: Lawrence Erlbaum.

Hawkins, E. (1984). *Awareness of language: An introduction*. Cambridge: CUP.

James, C. (1999). Language awareness: Implications for the language curriculum. *Language, culture and curriculum*, 12(1), 94-115.

James, C. & Garrett, P. (1992). *Language awareness in the classroom*. London, UK: Longman.

Lapp, D., Flood, J. & Farnan, N. (2004). *Content area reading and learning. Instructional strategies*. (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Leow, R. P. (1997). Attention, awareness, and foreign language behavior. *Language learning*, 47(3), 467-505.

Locke, J. (1998). *An essay concerning human understanding*. Oxford, UK: OUP.

Mercer, N. (1995). *The guided construction of knowledge. Talk amongst teachers and learners*. Clevedon: Multilingual Matters.

Nunan, D. (1992). Interaction analysis. In D. Nunan (Ed.). *Research methods in language learning* (p. 159-183). Cambridge, UK: CUP.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. (2nd ed.). Newbury Park, CA: Sage.

Robinson, P. (1995). Attention, memory, and the "noticing" hypothesis. *Language learning* 45(2), 283-381.

Schmidt, R. (1995). Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning. In R. Schmidt (Ed.). *Attention and awareness in foreign language learning. Technical report n. 9* (p. 1-63). Honolulu: University of Hawai'i.

Sinclair, J. & Coulthard, M. (1975). *Toward an analysis of discourse: the English used by teachers and pupils*. Oxford: OUP.

Storch, N. (2013). *Collaborative writing in L2 classrooms*. Bristol: Multilingual Matters.

Swain, M. (2010). Talking-it-through: languaging as a source of learning. In: R. Batestone (Ed.). *Sociocognitive perspectives on language use and language learning* (p. 112-130). Oxford, UK: OUP.

Swain, M. (2006). Languaging, agency and collaboration in advanced second language learning. In: H. Byrnes (Ed.). *Advanced language learning: the contributions of Halliday and Vygotsky* (p. 95-108). London, UK: Continuum.

Swain, M. (2000). The output hypothesis and beyond: mediating acquisition through collaborative dialog. In J. Lantolf (Ed.). *Sociocultural theory and second language learning* (p. 97-114). Oxford, UK: OUP.

Trappes-Lomax, H. (2006). Discourse analysis. In: A. Davies & C. Elder (Ed.). *The handbook of Applied Linguistics* (p. 133-164). Oxford: Blackwell.

Widdowson, H. G. (1978). *Teaching language as communication*. Oxford, UK: OUP.