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Scientific vocabulary use and indicators of proficient readers and writers in the Remote Networked School initiative

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Abstract
Discourse being an important part of the knowledge creation process, pupils not only have the opportunity to progressively get acquainted with the knowledge building principles. When working on Knowledge Forum, they have to use and refine their reading and writing skills (Scardamalia, 2003), including specific vocabulary as they work in collaboration to understand authentic problems from sciences and social studies domains. The actual study builds on previous research work in the context of the Remote Networked School (RNS) Quebec initiative about basic vocabulary measurements. In this poster, we explore relations between scientific vocabulary use and presence of indicators of proficient readers and writers in rurals schools that are using a collaborative asynchronous platform (Knowledge Forum). Participants were students from primary level of one school district that are part of the RNS initiative. Data were gathered using the Analytic Toolkit (Burtis, 2001) and a lexical analysis applet throughout two full school years (2007-2008 and 2008-2009). Data also included proficient reader and writer indicator measurements. We anticipate that we will be able to elude some tendencies regarding asynchronous reader/writer profiles.

Statement of the problem

Knowledge building/knowledge creation is an epistemology, a pedagogy and a technology, and its relevance for democratizing knowledge in a knowledge society is certainly a growing idea of value to many people. However, when time comes to concretize it, it is a challenging proposal to many teachers. We know that there is no "recipe" but Scardamalia & Bereiter (2003) argue for a developmental trajectory that starts at the primary level of education.

Discourse being an important part of the knowledge creation process, pupils not only have the opportunity to progressively get acquainted with the knowledge building principles. When working on Knowledge Forum, they have to use and refine their reading and writing skills (Scardamalia, 2003), including specific vocabulary as they work in collaboration to understand authentic problems from sciences and social studies domains. There is a consensus in literacy that vocabulary knowledge and text comprehension are inextricably linked (Wood, 2001). Indeed, studies state that depth and breadth of a student's vocabulary is an important factor of an efficient capacity to understand various texts (Anderson & Freebody, 1981; Coady, 1993; Stoller & Grabe, 1993; Thorndike, 1973). Reading frequency is also often stressed as an important factor. In regards of writing, a large body of researches (MacArthur, 2006; Graham & Harris, 2005; Faigley, Cherry, Jolliffe, & Skinner, 1985) show proficient writers are those who invest in developing ideas based on specific goals, e.g. advancing their comprehension of authentic problems. They also do clear word choice, self-regulate their writing process and revise their ideas.

The actual study builds on previous research work in the context of the Remote Networked School (RNS) Quebec initiative about basic vocabulary measurements (Allaire, 2007; Allaire & Gagné, 2008). In this poster, we explore relations between scientific vocabulary use and presence of indicators of proficient readers and writers in rurals schools that are using a collaborative asynchronous platform (Knowledge Forum) for diversifying their social interactions for learning and knowledge building purposes.

Methods

Participants were students from primary level of one school district that are part of the RNS initiative. This school district was chosen as it has the most considerable volume of asynchronous interactions (text) among all school districts participating in the initiative. Data were gathered using the Analytic Toolkit (Burtis, 2001) and a lexical analysis applet throughout two full school years (2007-2008 and 2008-2009). Data also included proficient reader and writer indicator measurements, and are summarized in the table below.

Proficient reader indicators	**ATK / lexical analysis applet measurements**	**Specifics of measurement**
Reading frequency	- Notes read - Reading rate - Frequency of knowledge building activities	- Number of notes read by student - Percent of notes read by student - Duration of knowledge building activities and distribution over time
Reading diversity	- Nature of knowledge building activities - Density reading coefficient (social network analysis)	- Domain related to knowledge building activity - Diversity in who reads whose notes
Proficient writer indicators	**ATK / lexical analysis applet measures**	**Specifics of measurement**
Developing ideas	- Length of notes - Length of build-on trees - Density writing coefficient (social network analysis) - Vocabulary use	- Word count per note - Number of notes per thread of discourse - Diversity in who builds on whose notes - Word count from scientific lexicons
Self-regulation	- Scaffolds use	- Types and number of time writing supports are used. Those supports help students to identify their writing intention in regards of which ideas they contribute.
Revision of ideas	- Revisions	- Number of times notes are modified by student
Clear word choice	- Vocabulary use over time	- Word count from scientific lexicons over school years

In regards of data analysis, we plan to identify correlations and proceed with analysis of variance.

Results and discussion

Data analysis are at an early stage. As the volume of interaction is large, we anticipate that we will be able to elude some tendencies regarding asynchronous reader/writer profiles.

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