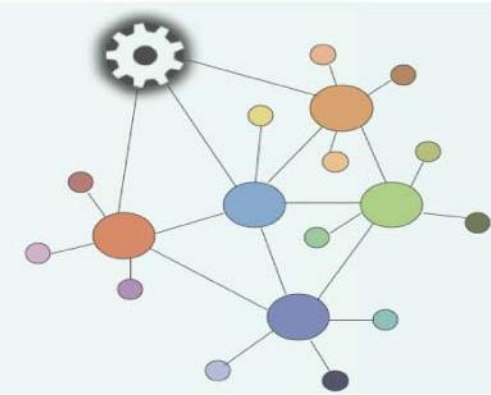


Social Network Analysis Applet to Observe Shared Vocabulary Among Knowledge Forum Authors in the Remote Networked Schools Initiative



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Statement of the issue

Literacy being recognized as a by-product of knowledge building (Scardamalia, 2003) and a predictor of school success, the study of writing events that occur on Knowledge Forum (KF) is important to understand the development of this crucial competency in the Remote Networked Schools (RNS) initiative.

In this context, pupils from different classrooms investigate together real problems, thus affording authenticity of writing, an important dimension of vocabulary acquisition (Baker, Simmons & Kameenui, 1995). Vocabulary knowledge is an important indicator of writing quality (Astika, 1993). Moreover, Teplovs, Donoahue, Scardamalia and Philip (2007) showed vocabulary is an appropriate measure to observe key concepts usage of a discipline.

Specific results coming from the RNS context showed that such usage tends to increase for students that have more occasions of writing on KF (Allaire, 2007 ; Allaire & Gagné, 2008 ; Allaire & Gagnon, 2009). Knowledge building in the RNS context being a collective dynamic, within a single classroom and between different classrooms, contributors' shared lexicon appears as an important object to study. Thus, our goals was:

- 1) To design an assessment tool (KF applet) that allows one to observe such shared vocabulary between authors;
- 2) To analyse in what way lexicon is shared between pupils from similar and different schools that work together.

Methods

Design of the applet

- An applet was designed (Lalancette, 2010) to identify shared lexicon between KF authors.
- A generic dictionary (about 45 000 words) is embedded and others can be customized.

Participants of the study

- 2 school districts, 3 primary schools, 5 classrooms.

Data collection

- Data used come from the third phase of the RNS initiative (2006-2008).
- 1 KF database, 21 investigation activities involving at least 2 different schools.

Data analysis

- Descriptive statistics (sum, mean, standard deviation) of shared lexicon within schools (intra school) and between them (inter school) were generated using KF applet for each investigation activity.
- Analysis of variance (ANOVA) was conducted (SPSS 17) to determine if pupils shared more lexicon with pupils from their own school or the other(s).
- Data from pupils who shared at least one word (intra or inter school) were considered, in relation with total different words used during the investigation activity.

Results

- On average, 157 different words were used in each investigation activity (SD=69.4). This raises in particular the question of key concepts use related to investigation topics.
- Globally, low rates of shared lexicon were noticed (see table 1).

Shared lexicon (number of words)	Intra school	Inter school
Mean	7.68	5.06
Standard deviation	5.25	2.75

Table 1. Shared lexicon for all 21 investigation activities

- Some sub-groups of pupils achieved a higher rate of shared lexicon.

- There were significantly more words shared by pupils from similar schools than from pupils from different schools ($p < .05$).

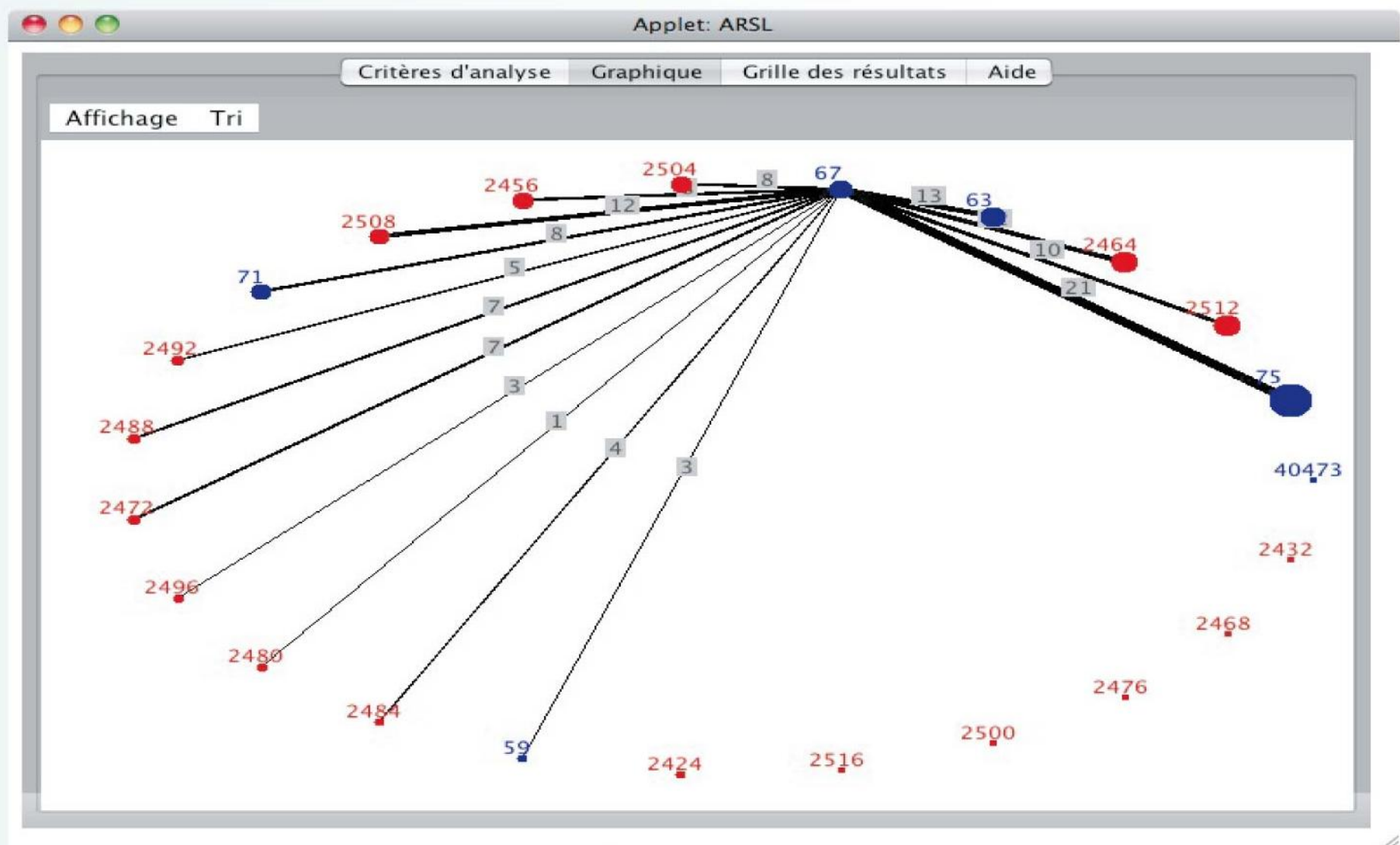


Fig. 2. Shared lexicon details for a single pupil

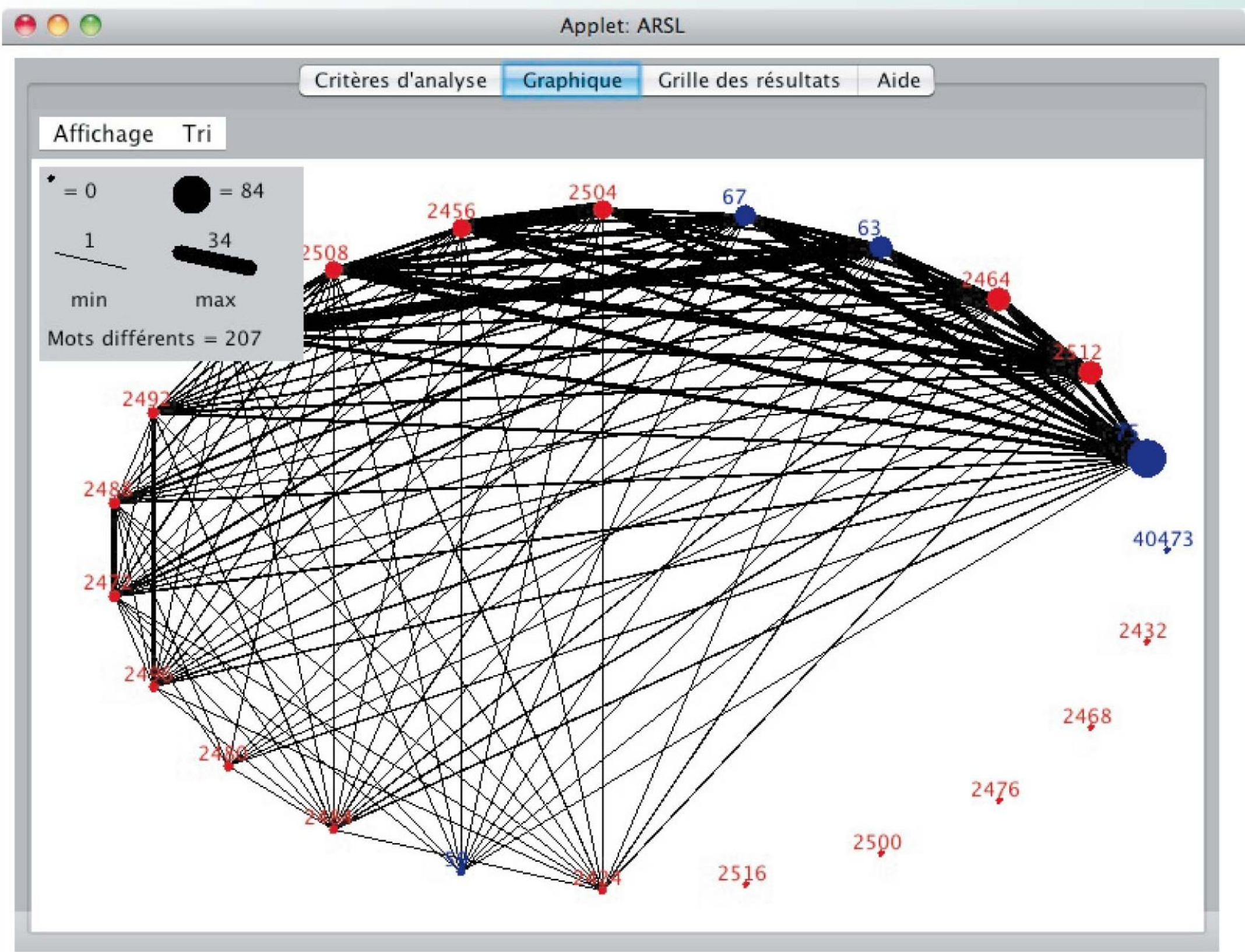


Fig. 1. Illustration of shared lexicon by pupils of two different schools for one investigation activity

Discussion

- An applet that allows to monitor easily main contributors of key concepts.
- Significant difference for intra school shared lexicon could partly reflect the particular face to face dynamics of each networked school/classroom, while contributing to bridge its own boundaries to progressively evolve with other schools/classrooms towards joint and complementary discursive practices.
- Could we considere shared lexicon as a form of implicit social network representation? (see shared repertoire concept; Wenger, 1998).
- A pedagogical stake: ways and interventions to enrich vocabulary that pupils use.

Next Steps

- To observe how pupils from a particular school re-use words introduced by pupils from another school.
- To document shared lexicon growth in relation with the presence of "Big ideas".
- To visualize shared lexicon between more than two authors (clusters).
- To observe evolution of clusters of authors who share a common lexicon.
- To document shared lexicon of specific domains (sciences, social studies, etc).