SYSTEM A: The Individual Learner

- University of Manitoba
- Centre for Research, Youth, Science Teaching & Learning

Associated Research Focus: How do attributes of the learner combine to impede, contribute to, and sustain personal science and mathematics success?

Objectives:

(1) to identify personal attribute factors that impede or support the learning of science and mathematics in formal school settings;

(2) to identify the risk and protective factors that affect decisions to further study science and mathematics;

(3) to identify the course trajectories of students in relation to demographic and achievement data as they progress through the school system.

Projects in System A

- Linking Communities to Enhance Learning Opportunities in Science for both Teachers and Students in Minority Language Schools " - Dr. Léonard Rivard and Dr. Rodelyn Stoeber (Collège universitaire de Saint-Boniface)
- "Trajectories of Students Learning Mathematics and Science: Research Study" - Dr. Ralph Mason (University of Manitoba) and Janelle McFeetors (River East Transcona School Division)
- "Improving Learning in Chemistry through Improved Teaching and Assessment" - Dr. Brian Lewthwaite, Dr. Karen Smith, Dr. Philip Hultin (University of Manitoba) and Dr. Tony Bartley (Lakehead University)
- "Teaching for Resiliency in Science Students over Five Years" - Shannon Gadbois, Dr. Bev Bailey and Sandy Margetts (Brandon University)

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Le Centre de recherche sur l'enseignement et l'apprentissage des sciences (CRÉAS)

Linking Communities to Enhance Learning Opportunities in Science for both Teachers and Students in Minority Language Schools

Setting the scene for professional development: How can technology help?

Rodelyn Stoeber
Professor
Faculté d'éducation

Major Objectives of Our Project

- To determine the risk and protective factors impacting on the teaching of science in the francophone minority language context.

- To develop and implement a professional development strategy that addresses the identified needs of science teachers in this context.

- To explore how technology can be used to develop and sustain the P.D. strategy.

- To develop pedagogical strategies that promote reading and writing in the teaching and learning of science.

- To develop pedagogical strategies that promote reading and writing in the teaching and learning of science

Development team

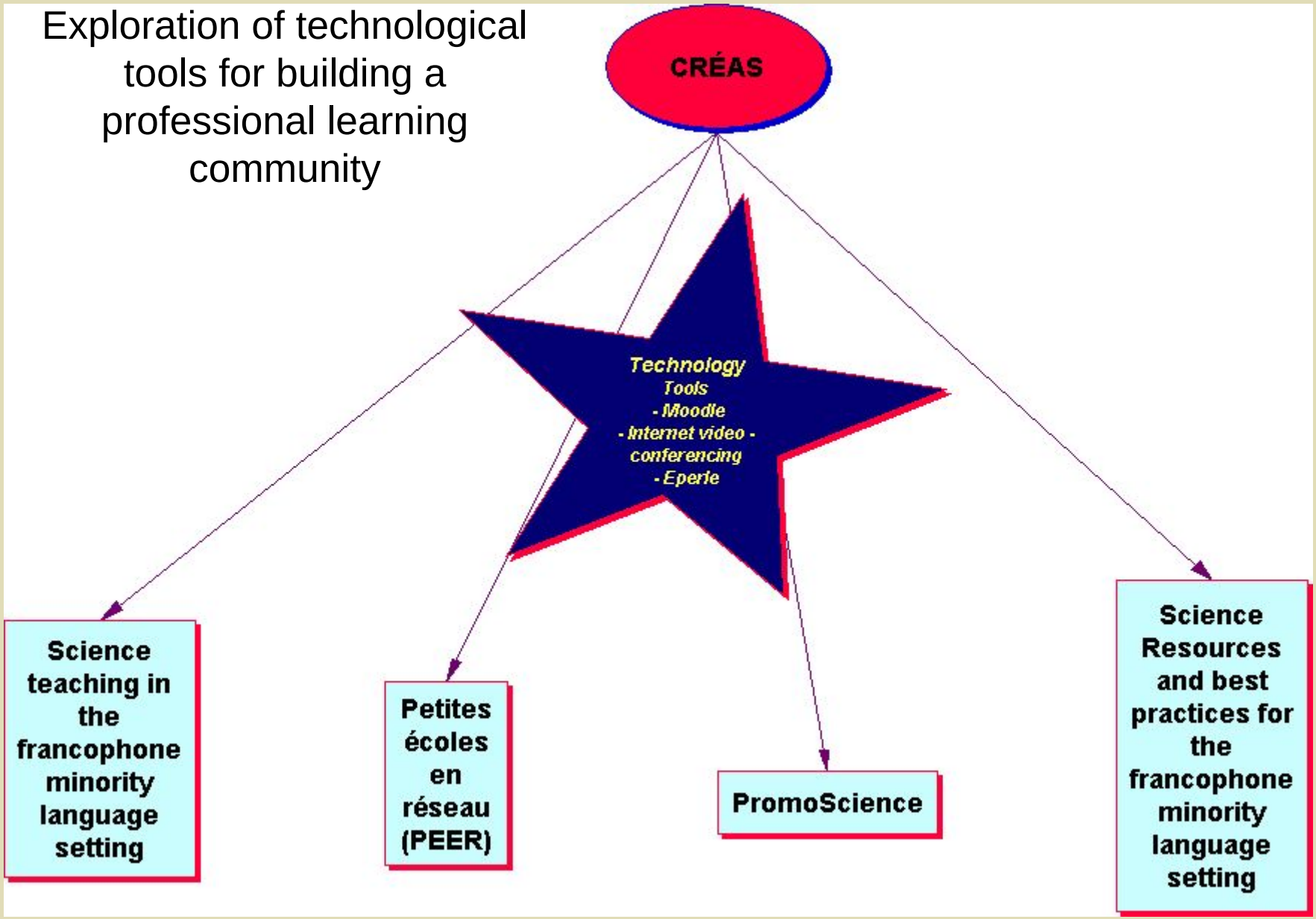
Léonard Rivard – Dean, Faculty of Education Director of Research: CUSB

Deny Gravel – Middle and Senior Years Coordinator

Danièle Dubois-Jacques – Science Consultant: BEF

Rodelyn Stoeber - Professor, Faculty of Education: CUSB

Exploration of technological tools for building a professional learning community



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First year of the project

Identification of the risk and protective factors impacting science teaching in the francophone minority language context.

↓

Identify the teacher needs for professional development regarding science issues and concepts in the minority language.

Challenges associated with teaching in a minority language setting

- Multi-level classes
- Inadequacy of French-language teaching materials
- Isolation of schools
- Shortage of specialists
- Lack of in-service PD in French

Gilbert et al. (2004)

Implications for P.D.

Need for sessions and support related to :

- laboratory issues, techniques and experiments
- lessons and activities that link theory and experiments
- resources for STSE
- resources in French

Implications for P.D.

Need for sessions and support related to :

- the « big ideas » in each science cluster
- sharing of knowledge
- technology tools and integration
- more activities that match curricular outcomes

Project PEER (Petites Écoles En Réseau)

Creation of a virtual learning community for the purposes of:

- addressing the needs of small, rural schools
- giving teachers the opportunity to teach using their areas of expertise and promote sharing of expertise
- enhancing programs and curriculum
- enriching the learning environment of students - group learning, access to experts and mentors
- exploring the roles of the teacher and the student in this context
- creating a relevant strategy and model with regards to the teaching of science and other curricula for small rural schools

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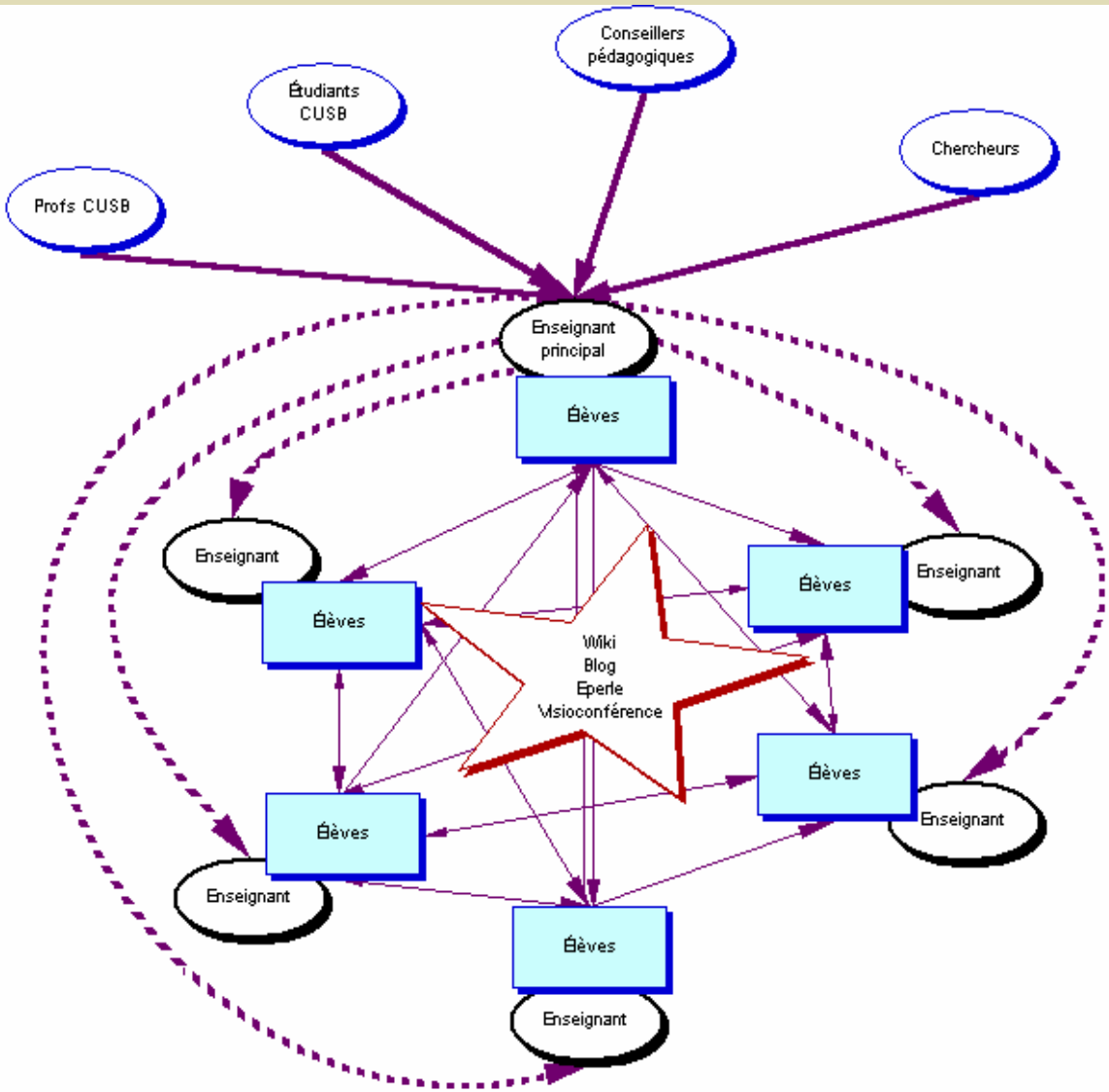
Conseillers pédagogiques
Étudiants CUSB
Chercheurs
Profs CUSB
Enseignant principal
Élèves
Enseignant
Élèves
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Élèves
Wiki
Blog
Eperle
Visioconférence
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Delivery of the Professional Development

What?

Why?

How?

Literature Review

- "Traditional" professional development approaches have been cited as inadequate and are viewed as being pockets of innovation without the necessary time and support for learning and do not necessarily conform to learning outcomes (Lee, 2005)

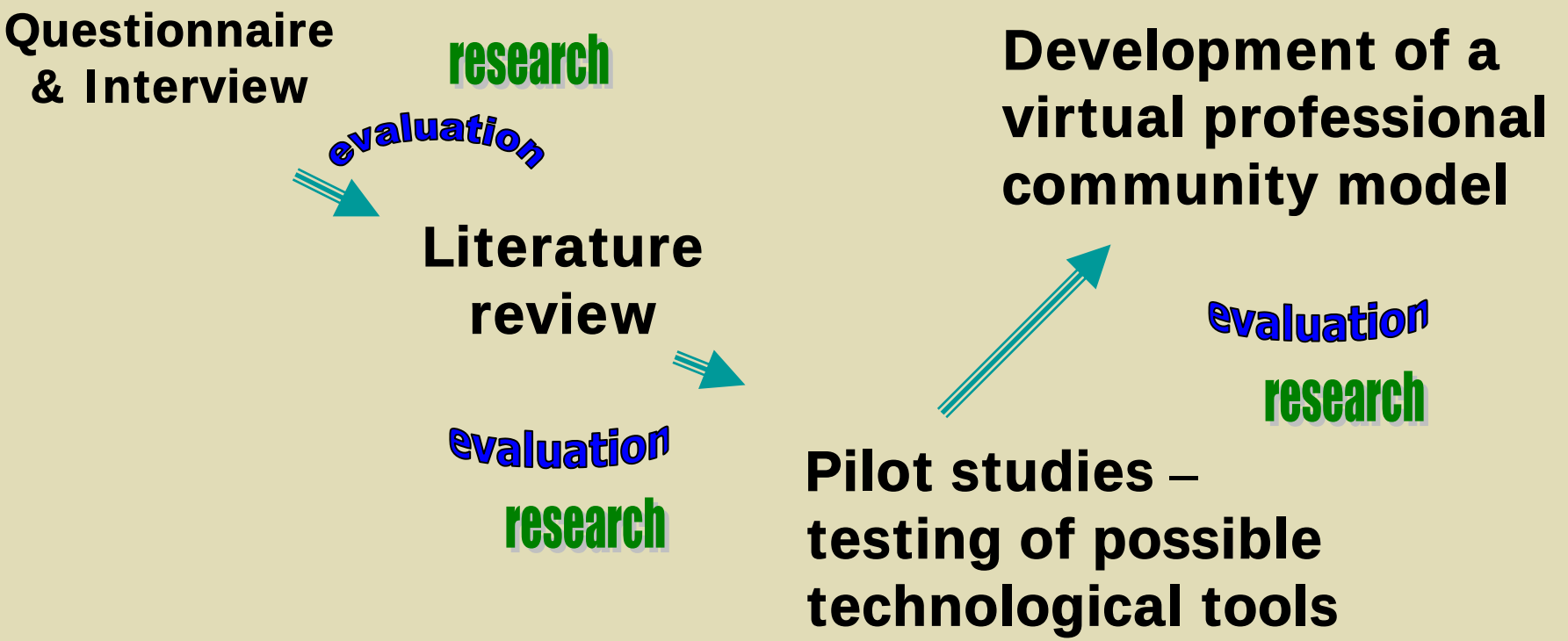
- Teachers are often seen as targets of change rather than agents of change and often feel detached because they have little or no say in what is being presented (Halsdorfer, 2006)

Literature Review

- In a community based learning environment, teachers construct and improve their learning experiences, work together, exchange feedback and learn from each other (Keller, Bonk & Hew, 2004).

- Working collaboratively is an effective means for developing professionally especially for those working in rural settings (Gerber et al., 2003)

Sustaining Professional Development



Pilot projects – exploration of tools

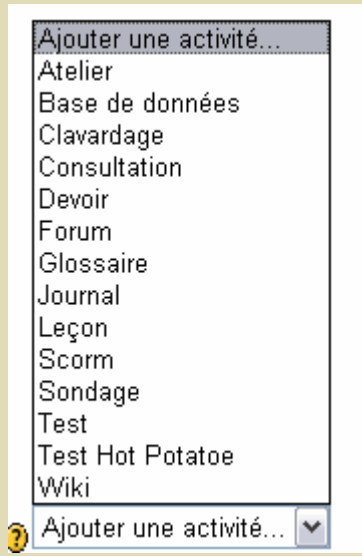
- **WebCT -** collaborative online learning community – distance education
- **Wikispaces -** A free wiki host providing community wiki spaces, visual page editing, and discussion areas
- **Atrium (First Class - DSFM) –** collaborative online learning community, E-mail
- **Moodle -** a course management system (CMS) - a free, Open Source software package to help educators create effective online learning communities.
- **Epearl –** Electronic Portfolio

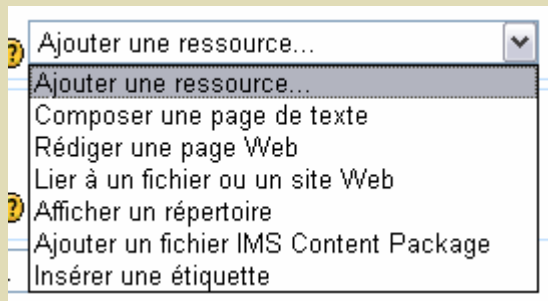
MOODLE

Teachers

Moodle

Students





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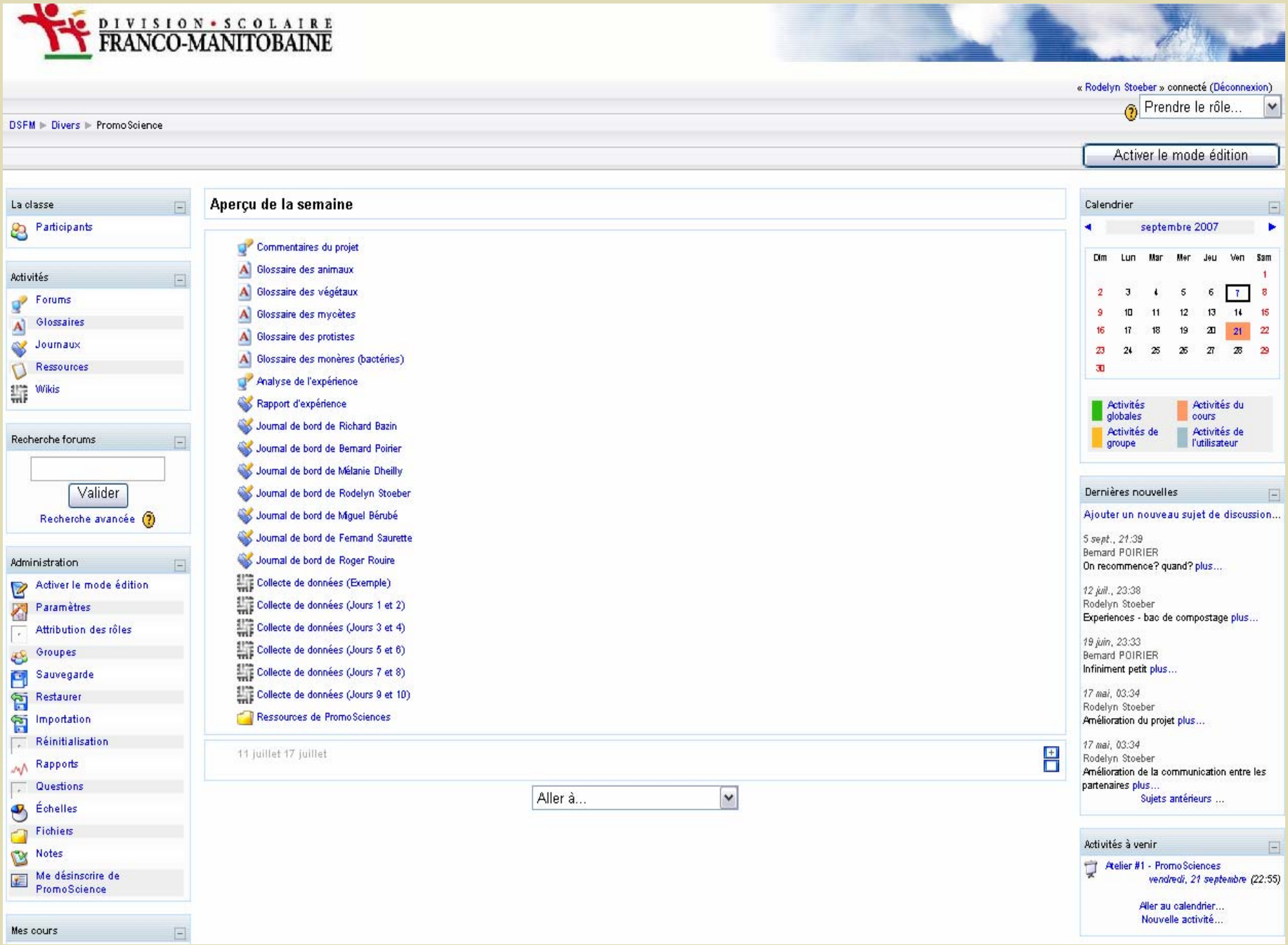
DIVISION • SCOLAIRE
FRANCO-MANITOBAINE
« Rodelyn Stoeber » connecté (Déconnexion)
Prendre le rôle...
DSFM ▶ Divers ▶ PromoScience
Activer le mode édition
La classe
Participants
Activités
Forums
Glossaires
Journaux
Ressources
Wikis
Recherche forums
Valider
Recherche avancée
Administration
Activer le mode édition
Paramètres
Attribution des rôles
Groupes
Sauvegarde
Restaurer
Importation
Réinitialisation
Rapports
Questions
Échelles
Fichiers
Notes
Me désinscrire de PromoScience
Mes cours
Aperçu de la semaine
Commentaires du projet
Glossaire des animaux
Glossaire des végétaux
Glossaire des mycètes
Glossaire des protistes
Glossaire des monères (bactéries)
Analyse de l'expérience
Rapport d'expérience
Journal de bord de Richard Bazin
Journal de bord de Bernard Poirier
Journal de bord de Mélanie Dheilly
Journal de bord de Rodelyn Stoeber
Journal de bord de Miguel Bérubé
Journal de bord de Fernand Saurette
Journal de bord de Roger Rouire
Collecte de données (Exemple)
Collecte de données (Jours 1 et 2)
Collecte de données (Jours 3 et 4)
Collecte de données (Jours 5 et 6)
Collecte de données (Jours 7 et 8)
Collecte de données (Jours 9 et 10)
Ressources de PromoSciences
11 juillet 17 juillet
Aller à...
Calendrier
septembre 2007
Dim Lun Mar Mer Jeu Ven Sam
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30
Activités globales
Activités du cours
Activités de groupe
Activités de l'utilisateur
Dernières nouvelles
Ajouter un nouveau sujet de discussion...
5 sept., 21:39
Bernard POIRIER
On recommence? quand? plus...
12 juil., 23:38
Rodelyn Stoeber
Experiences - bac de compostage plus...
19 juin, 23:33
Bernard POIRIER
Infiniment petit plus...
17 mai, 03:34
Rodelyn Stoeber
Amélioration du projet plus...
17 mai, 03:34
Rodelyn Stoeber
Amélioration de la communication entre les partenaires plus...
Sujets antérieurs ...
Activités à venir
Atelier #1 - PromoSciences
vendredi, 21 septembre (22:55)
Aller au calendrier...
Nouvelle activité...

Elluminate - Synchronous web casting software

- meet virtually for regularly scheduled classes, group projects, ad hoc sessions
- real-time discussions with students supported with PowerPoint slides, web sites, whiteboard mark-up capability and shared applications.
- blended learning approach – possibilities: guest presenters, student group project meetings, online tutorial/lab sessions, peer-based tutoring, exam review, virtual office hours, mentoring
- communication tool for research collaboration and meetings

Online Community of Professional Learners