Centre for the Study of Learning and Performance

Centre d'études sur l'apprentissage et la performance

Annual Report

2005 – 2006

Acknowledgments

CSLP/CEAP Annual Report
April 1, 2005–March 31, 2006

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A Message from the Director, Philip C. Abrami

Welcome to the 2005–2006 Annual Report of the Centre for the Study of Learning and Performance/Centre d'études sur l'apprentissage et la performance (CSLP/CEAP). This is our third and midterm year as a provincially recognized and funded Centre of Excellence under the FQRSC Regroupements Stratégiques program of infrastructure grants.

Our midterm review occurred this year and the results of the evaluation and site visit were extremely positive. The review committee listed these as our strengths:

- Remarkable scientific quality of the centre
- Exceptional support from the host institution
- Excellent value added to the training of students in academic research
- Excellent management and leadership from the director and theme leaders
- Excellent diffusion of research results
- Remarkable knowledge transfer and collaboration with partners from school milieu including colleges (CEGEPs)
- Remarkable quality of learning enhancement computer tools developed by the CSLP/CEAP researchers and professional staff
- Excellent overall competitiveness

The review committee also gave us some suggestions for areas to improve: increasing member involvement and cross-fertilization with our themes, greater involvement of students in administrative decision-making, a greater number of post-docs, and increased activity and involvement of the CSLP/CEAP internationally.

We are thankful to the members, staff, students, collaborators and partners who contribute to our successes and with whom we will work to build further on our strengths. Congratulations to everyone for a job well done – now let's collaborate in meeting the challenges ahead.

There have been many scientific achievements by members and theme groups of the CSLP/CEAP in the past year. Even the Annual Report as a whole does not do justice to these achievements including basic research, applied research, tool development and testing, and knowledge transfer and partnerships.

But I did want to exercise my prerogative as Centre director and single out one emerging team for their success in obtaining funding from the FQRSC équipe programme: congratulations to Laura Collins and her colleagues for their fantastic work. This brings to three the number of équipe grants CSLP/CEAP members have been awarded, a very solid accomplishment which bodes well for the future.

The other note I wanted to sound is about the growing movement towards knowledge utilization, transfer, and evidence-based practice. As a Centre, we are increasingly realizing how important research becomes when the knowledge we generate has some place outside the walls of academia. Furthermore, we are learning that there is scholarship in both knowledge generation and knowledge utilization. There is truly the science of the applied.

Active collaboration is an ongoing challenge. Here at the CSLP/CEAP, we have increased our commitment to seeing our partnerships succeed, with new and larger successes each year. We enjoy and profit immensely from working actively with those engaged in improving learning and performance.

Message du directeur, Philip C. Abrami

Bienvenue au Rapport Annuel 2005-2006 du Centre for the Study of Learning and Performance/Centre d'études sur l'apprentissage et la performance (CSLP/CEAP). Ceci est notre troisième année en tant que Centre d'excellence reconnu provincialement et subventionné dans le cadre du programme Regroupements Stratégiques de FQRSC. Elle marque aussi la mi-parcours de cette subvention d'infrastructure.

L'évaluation d'avancement à mi-parcours a eu lieu cette année et les résultats de cette évaluation et de la visite au Centre du comité étaient des plus positifs. Le comité d'évaluation a signalé comme nos points forts :

- la qualité scientifique remarquable du Centre
- le rapport exceptionnel avec l'établissement de rattachement
- l'excellente valeur ajoutée dans la formation en recherche universitaire des étudiants
- l'excellence de la gestion et la direction de la part du directeur et des responsables des volets thématiques
- la dissémination importante des résultats de recherche
- la haute qualité du transfert des connaissances et de la collaboration avec des partenaires du milieu scolaire et collégial (cégep)
- la qualité remarquable des outils informatiques pour faciliter l'apprentissage conçus par les chercheurs et le personnel professionnel du CSLP/CEAP
- l'excellence de la compétitivité vue dans son ensemble

Le comité d'évaluation a aussi suggéré des domaines où nous pouvons apporter des améliorations : accroître l'implication des membres dans d'autres volets thématiques et la fécondation réciproque entre thèmes, augmenter l'implication des étudiants dans la prise de décisions administratives, accroître le nombre de boursiers de recherche postdoctorale, et faire progresser l'activité et l'implication du CSLP/CEAP sur le plan international.

Nous remercions les membres, le personnel, les étudiants, les collaborateurs et les partenaires qui ont contribué à nos succès et avec qui nous travaillerons à bâtir sur nos forces. Félicitations à tous pour ce beau travail. Collaborons maintenant à relever les défis qui nous attendent.

Les membres et les groupes thématiques du CSLP/CEAP peuvent se vanter de nombreuses réalisations scientifiques cette année. Même le Rapport Annuel ne peut guère rendre justice à ces réalisations en recherche fondamentale, en recherche appliquée, en création et mise à l'essai d'outils, en transfert de connaissances, et en partenariats.

Cependant, j'aimerais en ma capacité du directeur du Centre exercer ma prérogative pour mentionner tout particulièrement une équipe en émergence pour souligner sa réussite auprès du programme de subvention aux équipes de recherche de FQRSC. Félicitations à Laura Collins et ses co-équipiers pour cet accomplissement exceptionnel. Cet octroi élève à trois le nombre de subventions aux équipes de recherche reçues par les membres du CSLP/CEAP. Tout compte fait, ce sont des bases solides qui annoncent un avenir prometteur.

Une autre note que je voudrais faire sonner est celle de la tendance grandissante vers l'utilisation des connaissances, le transfert des connaissances, et les pratiques fondées sur des données probantes. Comme Centre, nous nous rendons de plus en plus compte de combien la recherche devient importante quand les connaissances que nous produisons s'avèrent utiles en dehors du milieu universitaire. Par ailleurs, nous découvrons que le savoir comprend et la génération des connaissances et l'utilisation des connaissances. Voilà la science réellement appliquée.

La collaboration active est un défi permanent. Au CSLP/CEAP, notre engagement à faire réussir nos partenariats continue à grandir, avec de nouvelles et de plus belles réussites chaque année. Nous tirons grandement profit et également plaisir de nos activités communes avec ceux qui sont impliqués dans l'amélioration de l'apprentissage et de la performance.

A Message from the Associate Director, Norman Segalowitz

In 2005–2006, the CSLP/CEAP continued to be very active with research groups across Québec and Canada, including Développement, intégration et évaluation des technologies de formation et d'apprentissage (DIVA), the Centre de transfert pour la réussite éducative du Québec (CTREQ), the SIAA/NANS project, the International Campbell Collaboration, and the Canadian Language and Literacy Network (CLLRNET).

The CSLP/CEAP is proud of its involvement with important Québec-based research groups. DIVA is a consortium of four large research teams from different Québec institutions that works on applications of technology to education, and this year, as DIVA's funding from Valorisation-Recherche Québec drew to a close, the group published a volume summarizing the accomplishments of its many teams. The CTREQ (also funded by Valorisation-Recherche Québec) is involved in facilitating the transfer of education-based research to activities directly engaged in improving school success and school retention in Québec. The CSLP/CEAP is a charter member of CTREQ and, because of our position within Québec's educational research community, we are among those who nominate individuals for the Board of Directors. The SIAA/NANS project, based at the Université de Montréal but involving researchers from around the province, involves a province-wide multi-million dollar study aimed at assessing school reform. As well as our continued involvement with these various Québec-based groups, the CSLP/CEAP continues lobbying efforts with a working group of directors and their representatives from all FQRSC-funded research centres on behalf of the research centre community.

The CSLP/CEAP also continues to be involved in the development of an SSHRC-funded pan-Canadian Strategic Research Cluster network, aimed at promoting links between researchers and users in the field on the theme of "language performance in real time".

As well as the CSLP/CEAP's continued involvement in the International Campbell Collaboration, an international group that establishes guidelines for conducting systematic reviews in the social sciences, the Centre is also active in establishing CanKnow, a related Canada-based network. Finally, many individual members of the CSLP/CEAP also maintain international collaborations at various levels, including the mounting of symposia at international conferences, and direct collaboration on joint research projects. Through these many and varied external links, the CSLP/CEAP remains one of the most visible and active educational research centres in Québec and Canada.

Un message du directeur adjoint, Norman Segalowitz

En 2005-2006, le CSLP/CEAP a encore tenu des liens très actifs avec des groupes de recherche à travers le Québec et le Canada, tels que Développement, intégration et évaluation des technologies de formation et d'apprentissage (DIVA), le Centre de transfert pour la réussite éducative du Québec (CTREQ), le projet SIAA/NANS, la International Campbell Collaboration, et le Réseau canadien de recherche sur la langue et l'alphabétisation (CLLRNET).

Le CSLP/CEAP est fier de sa participation dans d'importants groupes de recherche au Québec. DIVA est un regroupement de quatre grandes équipes venant de différents établissements au Québec qui oeuvrent dans le domaine des applications des technologies à l'instruction. Cette année, puisque la subvention octroyée par Valorisation-Recherche Québec à DIVA prenait fin, le regroupement a publié un livre résumant les résultats des recherches effectuées par ses différentes équipes. Le CTREQ (aussi subventionné par Valorisation-Recherche Québec) oeuvre à faciliter le transfert de la recherche sur l'instruction aux activités conçues spécifiquement pour améliorer la réussite et la persévérance scolaire au Québec. Le CSLP/CEAP est membre fondateur du CTREQ et, à cause de sa place dans le milieu de recherche en éducation au Québec, nous sommes parmi ceux qui nomment les membres de son conseil d'administration. Le projet SIAA/NANS, rattaché à l'Université de Montréal mais regroupant des chercheurs de partout au Québec, dont le financement s'élève à des millions de dollars, a pour but d'évaluer la réforme scolaire à travers la province. En plus de ces engagements auprès des groupes situés au Québec, le CSLP/CEAP continue, en collaboration avec un groupe de travail composé de directeurs et de leurs représentants venant de tous les centres subventionnés par FQRSC, à défendre les intérêts du milieu des centres de recherche. Le CSLP/CEAP continue aussi à travailler au développement d'un Réseau stratégique de connaissances subventionné par CRSHC, qui vise à encourager la création de liens entre chercheurs et utilisateurs sur le terrain et dont le thème est « Les langues en action ».

En plus de l'implication du CSLP/CEAP dans la International Campbell Collaboration, un groupe international qui établit des lignes directrices pour mener des études méthodiques dans les sciences sociales, le Centre participe activement dans la mise sur pied de CanKnow, un réseau connexe situé au Canada. Finalement, de nombreux membres du CSLP/CEAP entretiennent à titre individuel des collaborations internationales à plusieurs niveaux, telles que la préparation de colloques pour des congrès internationaux ou la participation directe dans des projets conjoints de recherche. Par ces liens nombreux et variés, le CSLP/CEAP reste un des centres de recherche en éducation le plus actif et le plus en vue au Québec et au Canada.

Richard Norman Philip
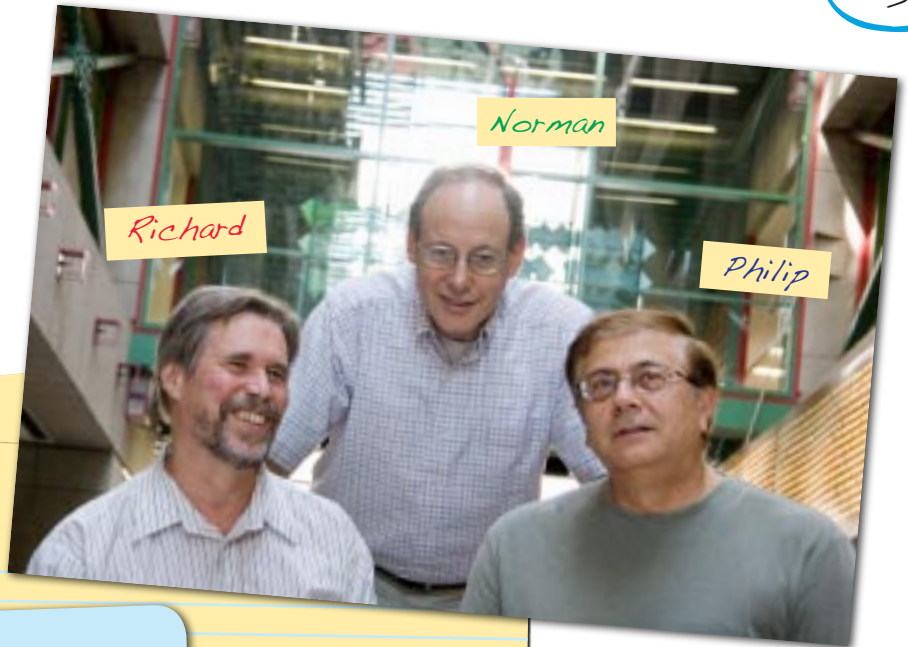
A Message from the Associate Director, Richard Schmid

The evolution of the CSLP/CEAP as an FQRSC Centre of Excellence has enabled our researchers to expand their activities in new directions. This has allowed for increased participation for students and partners. Currently, we anxiously await word from the Canadian Funds for Innovation regarding the creation of new and expanded research facilities, which would greatly enhance our outreach efforts.

We provide a variety of research and development opportunities in basic and applied research, across several fields and disciplines (e.g. educational technology, elementary, secondary and post-secondary education, psychology). For example, basic research projects include applications of cognitive process and their impact on early literacy. Working with instructional designers and software developers, we work to develop technologies that will promote effective instruction and help students learn. Our projects involve all sectors of society, including schools, industry, government, and not-for-profit organizations. We place particular emphasis on mentoring students in community activities that promote the transfer of knowledge into best practices, and continue to focus on our responsibility to train the next generation of Québec and Canadian scholars and practitioners.

Un message du directeur adjoint, Richard Schmid

L'évolution du CSLP/CEAP comme Centre d'excellence de FQRSC a permis aux chercheurs de s'étendre à de nouveaux champs d'activité. Ce qui a augmenté la participation chez les étudiants et chez les partenaires. À présent, nous attendons impatiemment la réponse du Fonds canadien pour l'innovation à notre demande pour la création de nouvelles installations de recherche élargies, qui accroîtront nos activités de rayonnement.

Nous offrons une gamme de possibilités de recherche et de développement en recherche fondamentale et appliquée, à travers plusieurs domaines et disciplines (par ex. : technologie pédagogique, enseignement primaire, secondaire et postsecondaire, psychologie). Des projets en recherche fondamentale, par exemple, mettent en jeu des applications de processus cognitifs et l'incidence de ceux-ci sur la littératie précoce. En collaboration avec des concepteurs de matériel pédagogique et de logiciels, nous développons des technologies qui favoriseront un enseignement efficace et aideront les élèves dans leur apprentissage. Nos projets touchent tous les secteurs de la société : les écoles, l'industrie, le gouvernement et les organismes sans but lucratif. Nous mettons un accent particulier sur des activités en collectivités où nous pouvons guider les étudiants à privilégier le transfert des connaissances selon les meilleures pratiques, et nous continuons à nous concentrer sur notre responsabilité de former la relève québécoise et canadienne de professeurs, chercheurs, enseignants, et autres intervenants.

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CSLP / CEAP

CENTRE FOR THE STUDY OF LEARNING AND PERFORMANCE
CENTRE D'ÉTUDES SUR L'APPRENTISSAGE ET LA PERFORMANCE

Our Mission and Goals

The CSLP/CEAP's mission is to improve core skills in order to meet personal and employment challenges that Canadians face due to rapidly changing technology, and the globalization of knowledge creation/transfer and economic activity. We hope to develop strategies and tools to facilitate students' and employees' acquisition of general competencies that foster communication, literacy, numeracy, and employability skills for creative use in educational and workplace settings.

Our general goals are: to increase the theoretical and practical understanding of the factors that promote and hinder the learning and performance of complex skills; to provide training and support to educators and administrators; to provide the educational community with material and intellectual resources regarding new ideas in education; and to train students who have an interest in learning and performance and who are enrolled in graduate studies within the departments with which the centre and its members are affiliated.

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Reflecting on the Past Year

Our Accomplishments

This past year we have attempted to meet our goals by conducting a variety of basic and applied research and development projects and have enthusiastically pursued the dissemination of our findings in a variety of forms. We actively published the results of our projects in scholarly and practitioner periodicals, presented at scholarly and practitioner conferences, and conducted workshops in the field.

Under *Scholarly Productivity* is the number of publications, workshops and conferences presentations by full members, professional staff and graduate students. The number of students supervised by full members, fellowships received by centre members, and students hired as research assistants is also included. Under *External Funding* is a summary of the grants and contracts awarded to CSLP/CEAP Faculty (Full members) and their value for the period 2005–2006.

For an itemized list of grants, publications, presentations, training, transfer and professional activities, supervised students, fellowships and awards, please consult the document CSLP/CEAP *Annual Report 2005–2006: Productivity Section* located on our website at:

http://education.concordia.ca/cslp/CSLP-AnnualReport.php

Scholarly Productivity

Publications

Journal articles & Manuscripts: 176
Books/Chapters/Proceedings: 60
Other: 22
Total Publications: 258

Other Dissemination Activities

Conference presentations: 215
Training and Instruction: 22
Technology-based tools and other transfer activities: 11

Training of Students

M.A. theses and internships: 70
Ph.D. dissertations: 70
Fellowships: 10
Research Assistants: 50

External Funding

Total number of grants and contracts awarded to full faculty members is 80. Estimated total value held by CSLP/CEAP members only, for the period 2005-2006 (i.e. one year of multi-year grants) is $4,000,000.

Grants and Contracts: SSHRC (22); FQRSC (15); CCL (6); NSERC (5); PAREA (4); MELS (3); VRQ (2); US Department of Education (2); CAQC (2); Health Canada (2); Heritage Canada (2); IERI (2); The Center for Research on Language Brain and Mind (1); Tier II; CRC (1); CFI (1); UN Secretariat for the Convention of Biodiversity (1); INUKSHUK (1); Quebec Ministry of Education (1); ETSB (1); OPHQ (1); TESOL International Research Foundation (1); LILLY II GRANT (1); Industry Canada (1); Canada-European Community Program (1); American Psychological Foundation (1).

Some Highlights from the Year

New CSLP Faculty Members

Dr. **Johannes Strobel** is Assistant Professor in the Dept. of Education at Concordia University. His research centers   two questions: (1) How can we foster learning – especially in ill-structured and complex domains? He researches engineers and their problem solving in everyday workplaces, reasoning processes of historians, and instructional design of teachers. Through qualitative, mixed-method, and design-based research studies, he tries to describe the richness of learning as socio-cognitive processes and performance of identities in authentic roles. His UN environment programme sponsored children's web site on biodiversity http://kids.biodiv.org and a generic problem-based learning engine are examples of development in this area; and (2) "Learning in the wild". How do people learn, when they are not in any formal educational environments – when they pursue a hobby, when they engage with others, when they read the newspapers and inform themselves. The role of social computing tools, like social bookmarking, blogging etc. is a primary factor in this research. His FQRSC funded comparison between blogging, epistemological beliefs, and conceptual change 'in the wild' and in schooling is an example in this area. With backgrounds in philosophy, religious studies, and information science, he approaches these questions in a multi-dimensional and interdisciplinary manner.

Dr. **Emery Hyslop-Margison** was recently awarded a Tier II Canada Research Chair in Education and funding from the Canadian Foundation for Innovation to help develop the Institute for Democratic Learning in Career Education (IDLCE). The IDLCE will bring a significantly enhanced profile to the Tier II Canada Research Chair research program of Dr. Hyslop-Margison. This increased profile will facilitate greater participation from business, government, scholars, graduate students and teachers interested in the areas of career education and democratic learning. The IDLCE will also disseminate the practical outcomes of this research in the form of career education programs and e-learning tools among a wide range of private and public sector stakeholders.

Some Newsworthy Items

{15.04.2005}
CSLP/CEAP member **Lynn McAlpine** (McGill University) received the 2005 SIGFTED McKeachie Career Achievement Award.

{28.06.2005}
The preliminary findings were published for *ABRACADABRA: Evaluation of a Balanced Text and Word-level Reading Intervention*, by **Robert Savage**, **Geoffrey Hipps** and **Phil Abrami**.

{05.07.2005}
The *ETSB-CSLP Laptop Research Partnership SchoolNet Report: Preliminary study*, by **Jennifer Sclater**, **Fiore Sicoly**, **Aline Grenier**, **Phil Abrami**, and **Anne Wade**, was released.

{24.10.2005}
It was announced that **Robert M. Bernard** was elected to the Editorial Board of the *Educational Technology Research and Development* journal, a bi-monthly publication of the Association for Educational Communications & Technology.

{09.01.2006}
An article (*Sensitivity to prosodic structure in left- and right-hemisphere-damaged individuals*) by CSLP/CEAP post-doctoral research associate **Veena Dwivedi** ranked #1 in the top 25 in the journal *Brain and Language*. Another article (*Semantic priming in a first and second language: evidence from reaction time variability and event-related brain potentials*) by CSLP/CEAP members **Natalie Phillips**, **Norman Segalowitz**, **Irene O'Brien** and **Naomi Yamasaki** ranked #13 out of the top 25 in the *Journal of Neurolinguistics*.

{12.01.2006}
Anne Wade's article on the role of the information specialist in conducting systematic reviews published in *Evidence and Policy*.

:)

Norman   Johannes   Robert   Philip

Looking Ahead

Each year CSLP/CEAP members meet at an annual retreat to reflect on the year's activities in relation to the centre's mission and goals. This year the focus of the retreat was to reflect on strategies to encourage stronger collaboration amongst centre members. In this regard, Associate Director, **Norman Segalowitz** presented the SAVOIR framework.

As mentioned in the Director's Message, the provincial funding agency FQRSC, which provides infrastructure funding to the centre, completed their midterm review and we were very pleased to receive such a tremendously positive evaluation. Initiatives such as refinement of the SAVOIR framework, the expansion of our CSLP/CEAP Advisory Board to include international members, and the encouragement of student involvement will address their recommendations for continued improvement of our centre.

SAVOIR

The SAVOIR framework was developed by **Norman Segalowitz** to provide a common language for researchers from different backgrounds to talk to each other. It is a framework for thinking about complex learning and performance problems, such that the multidimensional character of human learning and performance is never overlooked. We hope SAVOIR will allow for increased communication and collaboration across the CSLP/CEAP theme research groups – a goal we have emphasized a lot this past year – because we believe it will lead to more successful research, more successful outcomes in applications and transfer, and faster and easier sharing of expertise. Moreover, the very process of developing SAVOIR through internal consultation within the CSLP/CEAP is itself fostering communication across theme areas.

Social
Agency
Variability
Organism
Interrelation
Reciprocal Causation
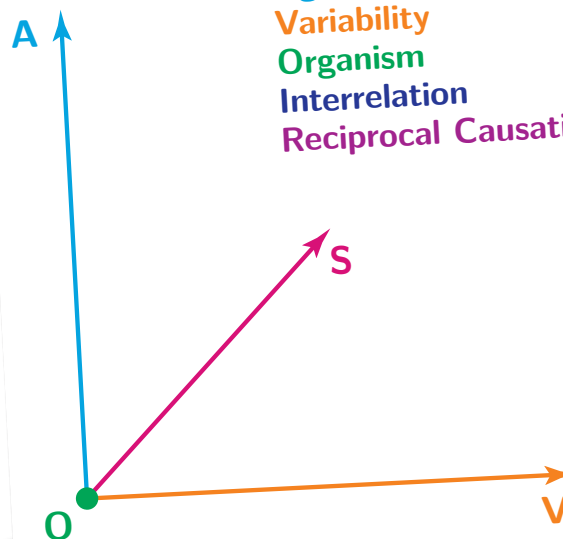
"**S**" = *Social Environment*
Intentions of others

"**A**" = *Agency*
Learner as agent. Repetition of physical/cognitive action or action to change the environment.

"**V**" = *Variability*
Aim of learning is to make the environment predictable. Limiting variability is necessary for successful performance. Predictability relates to affordances.

"**O**" = *Organism* (point of Origin of the SAVOIR cube)
The learner—or organism—operates within this space.

"**I**" = *Temporal Interrelationship*
The organism-plus-environment forms a complex. This complex changes over time.

"**R**" = *Reciprocal Causation*

Accessibility and Students with Disabilities

Members:

Catherine Fichten (Theme Leader), Rhonda Amsel, Phil Abrami, Richard Schmid, Maria Barile, Jennison Asuncion, Alice Havel, Shirley Jorgensen, and Rajesh Malik

Current estimates suggest that 10–11% of postsecondary students are affected by some form of disability (*e.g.* visual, hearing, neurological, mobility, psychiatric, learning or health related impairment) and the numbers are increasing in most colleges and universities. The Accessibility and Students with Disabilities theme group focuses on the vital role that higher education and new computer and information technologies play in allowing individuals with disabilities to participate fully in the Canadian mainstream. We examine obstacles and facilitators, determine good practices, and raise the issue of universal instructional design. A large part of our undertaking is to widely communicate the fact that students with disabilities succeed in postsecondary education at the same rate as their non-disabled peers, that they can effectively use computers and the new information technologies, and that such technologies can create more equitable learning conditions. We also believe that greater attention to accessibility in educational materials and practices will improve education for all learners, whether they have a disability or not.

Through the use of bilingual questionnaires, focus groups, structured interviews, and archival and qualitative methods, researchers in this theme develop appropriate testing instruments for collecting and analyzing user data. They then disseminate the research findings to a community of end-users: educators, students with disabilities, disability service providers, policy-makers, faculty, and others. The past year saw intensive research and progress on three main projects. The first – a study funded by FQRSC and the Ministère de l'Éducation, du Loisir et du Sport – explored the personal, college and community-based obstacles and facilitators that affect college success, and explored employment and post graduation activities of college graduates with and

"Greater attention to accessibility in educational materials and practices will improve education for all learners, whether they have a disability or not."

without disabilities. A second study has the team working on several projects about the accessibility of eLearning and on adaptive and assistive technologies for postsecondary learners with disabilities. Participants in these investigations include members of the following postsecondary communities: students with disabilities, disability service providers, professors, eLearning specialists, and ePublishers. In the third project, funded by Heritage Canada, members of the team are working within the context of the CulturAll Network (based at U. of Toronto) to develop technologies to aid in the accessible delivery of bilingual cultural content.

The college and university focus of this theme offers clear collaborative connections with the Postsecondary Education theme. To better fulfil its role as sensitizer for the research efforts of other theme groups, members of the Accessibility and Students with Disabilities theme have participated in CSLP/CEAP meetings, Research Fair activities, and retreats. They have also presented at meetings of other themes, such as Second Language Proficiency. Ensuring that CSLP/CEAP researchers are sensitive to the issues surrounding accessibility – the importance of representing accessibility issues in their research efforts, the abilities of learners with disabilities and the tools and accommodations that can assist them, and the importance of including participants with disabilities in their research, both as assistants and participants – continues to be a vital part of this theme's mandate.

Basic Processes

The Basic Processes research theme uses the multidisciplinary approach of cognitive science to study such problems as how language is acquired, how various types of perceptual information are processed, and how tasks are learned and performed. Specifically, we study brain mechanisms such as the low-level processes responsible for the recognition of attributes (*e.g.* motion, texture, or syntactic parsing), attentional and automatic processes in visual and linguistic tasks (*e.g.* visual search, reading, or second language learning) and processes involved in the learning and performing of complex tasks (*e.g.* concept formation, linguistic/visual interactions, and the achievement of superior performance). Our research also provides a basis for more applied research into the assessment, teaching and evaluation of cognitive tasks and abilities. We believe our research stands to benefit the educational community as a whole by aiding in the development of tools and technologies that will help detect and address learning problems and disorders.

Development and evaluation of a technology-enhanced adaptation of the Success for All reading program. Under the leadership of post-doctoral researcher **Guy Lacroix**, **Michael von Grünau**, **Roberto de Almeida**, **Norman Segalowitz**, **Denis Cousineau**, **Rick Gurnsey**, and their graduate students, have investigated the diagnostic and predictive abilities of cognitive and perceptual tests (naming fluency, motion coherence, and the attentional blink) in relation to the ability to learn to read and to read fluently. Some new perceptual tests have recently been incorporated into the program, which should help us in determining the disputed relationship between these low-level tasks and development and fluency of reading. Many other basic perceptual and cognitive processes were studied by the members of the theme group (perception of motion and locomotion, texture and luminance, and visual search and working memory, among others).
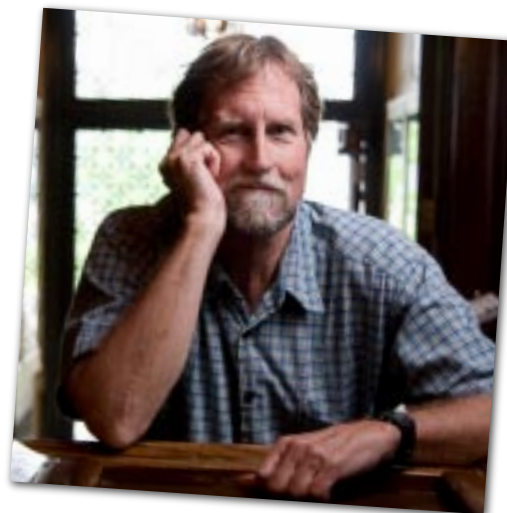
categorization. **Segalowitz** and **Lacroix** are working on the semantic attentional blink in bilinguals and on the underlying characteristics of the RAN task. **Segalowitz** and **Elizabeth Gatbonton** collaborate on the development of language teaching skills. Further collaborations exist with Natalie Phillips (Concordia University, Psychology), Philip Cohen (Concordia University, Leonardo Project), Helen Osana (Concordia University, Education), and Laura Collins (Concordia University, Education/TESL). **Gurnsey** and **Cousineau** are starting a collaboration on statistical representations of the visual search task. For the future, we would like to work on increasing these types of collaborations, and especially on establishing more contacts and collaborations between our members and those of different themes.
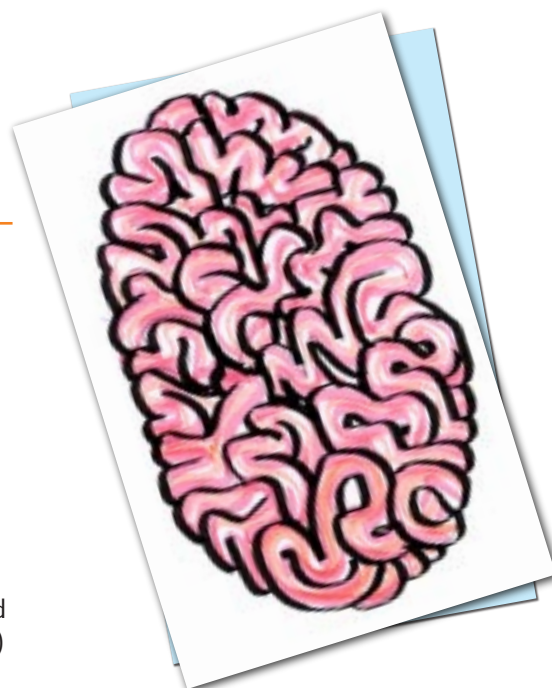
> "We believe our research stands to benefit the educational community as a whole by aiding in the development of tools and technologies that will help detect and address learning problems and disorders."

Over the past several years, the Basic Processes theme group has conducted research related to a major project, originally funded by IERI, entitled

Having the individual members grouped together in the Basic Processes Team has provided us with the opportunity for fruitful collaboration. Specifically, an ongoing collaboration between the psycholinguistics lab of **de Almeida** and the visual perception lab of **von Grünau** has taken shape, studying the interaction between visual information and the processing of linguistic representations (different verb classes, object presence or disappearance). **Cousineau**, **Lacroix**, and **Segalowitz** (and their graduate students) have explored connectionist models of

Members:

Michael von Grünau (Theme Leader), Philip Abrami, Denis Cousineau, Roberto de Almeida, Rick Gurnsey, Guy Lacroix, Zohra Mimouni, and Norman Segalowitz

Early Literacy

Members:
Robert Savage (Theme Leader), Philip C. Abrami, Henri Cohen, Denis Cousineau, Roberto de Almeida, Rick Gurnsey, Helena Osana, Richard Schmid, Norman Segalowitz, and Michael von Grünau.

Coordinator:
Geoffrey Hipps

International comparisons of literacy ability show that a worrying 20% of Canadians are unable to make basic inferences and retrieve appropriate information from text (Canadian Council on Learning, 2005). Research in Canada and across the world shows that early literacy is fundamental to school success: students who do not learn to read by grade three risk academic failure, and subsequently risk failure in high school and decreased employment opportunities. Yet readily-available, scalable and *evidence-based* technology systems to support literacy simply do not exist. Thus, the ongoing focus of the Early Literacy theme area is to develop software and tools to help as diverse a group of young children learn to read and write as possible across the whole of Canada.

The work of our theme is three-part: we make use of the best available evidence in the design of software, we apply prototypes in the field (iterative testing), and we then use the tools we develop as a platform for conducting further research into how young children learn to read, and for investigating instructional uses of technology and professional development materials.

Over 2005–2006, we made significant advances on two large-scale projects. The ABRACADABRA project – a highly interactive, flexible, web-based literacy resource for the elementary classroom developed under the supervision of **Geoff Hipps** and **Rob Savage** – is an excellent example, having been significantly developed and expanded. Several evaluations of the program in the past year (involving around 300 children in kindergarten and Grade 1 across three Québec school boards) proved highly successful, and provided valuable feedback to guide further development of the tool. In the coming year we intend to continue to re-design the interface and layout, and perform further evaluations of ABRACADABRA as a teaching tool. This project has enjoyed funding to aid development and major field-testing from diverse sources: Industry Canada, IERI, Valorisation-Recherche Québec (VRQ), the Chawkers foundation, FQRSC, and Inukshuk among others.

> "The ongoing focus is to develop software and tools to help as diverse a group of young children learn to read and write as possible across the whole of Canada."

Our second major research effort, in collaboration with the Interagency Educational Research Initiative (IERI) and the Success For All Foundation, was the continuation of a five-year project: the Alphie's Alley literacy tutoring software. The past year witnessed formal experimentation with Alphie's Alley in a host of North American schools to determine its impact on the reading achievement of young children. Members were pleased to learn that high-implementation classes were approximately doubling the gains of existing Success For All programs. Findings are being used to refine the software, and the fifth year of this project will see general scaling up for wider deployment and study in several hundred schools. With funding from the U.S. Dept. of Education, the team is currently developing a team-based version of Alphie's Alley. The beta version of Team Alphie will be piloted in some local and U.S. schools in the coming year.

For projects of this scale and scope, active collaboration at all stages is essential for drawing upon the diversity of perspectives, expertise, and skills. We have enjoyed intense collaborations both among members and with our many partners in the field, including the Directors General, Directors of Pedagogical Services and the Information Technology departments, and ICT consultants from our partner school boards. Moreover, we have found clear opportunities to work with other CSLP/CEAP themes, such as the Accessibility and Students with Disabilities, Second Language Proficiency, and Research and Development on ICT themes. We look forward to more such collaborations in the future.

Numeracy, Scientific Reasoning and Inquiry

"...promote student attraction to, and perseverance towards, eventual careers in the sciences, engineering, or science education."

The Numeracy, Scientific Reasoning and Inquiry theme comprises two complementary areas of investigation: science and mathematics instruction in secondary and post-secondary schooling, and processes and conditions associated with inquiry-oriented learning in general. Members of the team have been busy this year, analyzing data, and publishing and presenting findings both at home and internationally.

Submission of a final report signalled the completion of a five-year FQRSC Action Concertée Grant project, conducted by **Steven Rosenfield**, **Helena Dedic**, and **Mark Aulls** (along with others, including **Leslie Dickie** and **Richard Koestner**). Entitled *Étude des Facteurs aptes à influencer la réussite et la rétention dans les programmes de science aux cégeps Anglophones*, the project included eight empirical studies examining the ecology of math and science instruction in highschools and CEGEPs, from the perspective of both educators and students. This project aimed to help professors, administrators and the Ministry of Education promote student attraction to, and perseverance towards, eventual careers in the sciences, engineering, or science education.

Bruce Shore, **Calvin Kalman** and **Aulls** submitted a final report for a three-year project, *The interaction of inquiry instruction and learning: context and process*. As well, two qualitative case studies were undertaken to determine pre-service teacher perception of what constitutes effective and ineffective instruction, both in universities (**Aulls**) and CEGEPs (**Kimberly Wolfe**). Each study produced new findings regarding the affective impact of teacher practices on student learning, and the way in which context alters student perception of the efficacy of teacher practices. **Aulls** and **Krista Redden** submitted a review of qualitative research on self-regulated learning for inclusion in an AERA-sponsored publication, and **Aulls** and **Shore** completed two books with Erlbaum press, *Inquiry in Education* volumes I and II.

We also benefited from the contributions of students. **Redden** analyzed the differential influence of how students are involved in large lecture halls and standard classrooms at different levels of academic learning (as defined by the new Bloom's taxonomy of higher order learning objectives). **Judy McBride** successfully defended her PhD dissertation, *How do I as a teacher-researcher contribute to the knowledge of teacher learning and practice in teacher-education as I explore my values through self-study?*

In the coming year, members of the team will further analyze the rich longitudinal data obtained over the last three years. **Nathanial Lasry**, a recent addition to the team, is currently spearheading the development of a new line of research on FCI measures with another new member, **Johannes Strobel** (Research and Development on ICT theme), and **Dedic**, **Dickie**, **Aulls**, and **Eric Mazur**. **Sylvia d'Apollonia** continues her study of the difficulty experienced by many biology students in constructing and manipulating verbal scientific models, working to develop technology-assisted interventions. **Rosenfield** and **Helena Osana** continue to work on an evaluation of educational science texts. We look forward to disseminating the results of our research for use by teachers and administrators in Québec through workshops devoted to teaching and the processes of engaging in inquiry in science, mathematics and social sciences.

Members:

Mark Aulls (Theme Leader), Helena Dedic, Sylvia d'Apollonia, Nathanial Lasry, Helena Osana, Steven Rosenfield, Bruce Shore, and Johannes Strobel.

Postsecondary Education

Academic success is a key element of individuals' ability to contribute as successful citizens, and it consequently has a crucial impact on Québec's economic growth and global competitiveness. The goal of this theme's research efforts is to better understand the broad range of factors involved in the creation of effective postsecondary learning environments, in order to foster and enhance academic success and reduce failure. This goal requires looking at the relevant issues from a wide variety of perspectives, with ongoing consideration for the many facets of learning and teaching, and the tools available to support these processes. To this end the Postsecondary Education group's membership reflects a multidisciplinary approach to learning and draws on the insights and expertise of researchers in psychology, mathematics, the sciences, and education.

Members:

Lynn McAlpine (Theme Leader), Phil Abrami, Mark Aulls, Robert Bernard, Sylvia d'Apollonia, Helena Dedic, Steven Rosenfield, Richard Schmid, Cynthia Weston, and Laura Winer

A number of SSHRC-funded initiatives came to an end this year, notably *The what and why of faculty development in higher education: A synthesis of the literature* (**Cheryl Amundsen**, **Phil Abrami**, **Lynn McAlpine**, **Cynthia Weston**, **Marie Krbavac**, **Amrit Mundy**, and **Marilyn Wilson**) and *How do professors explain their thinking when planning and teaching?* (**McAlpine** & **Weston**). As well, **Mark Aulls** and **Bruce Shore** completed two books this year synthesizing and integrating the results of their decade-long program of research into inquiry. Among the new

research proposals that are currently being developed are one that **Aulls** et al. will be submitting an FQRSC Team Infrastructure grant this fall. **Steven Rosenfield** et al. and **McAlpine** et al. will shortly be submitting full proposals for Action Concertée: *Les perceptions des environnement scolaire et leur impact sur la réussite et la persévérance dans les programmes de mathématique, de la science et d'ingénierie* and *L'influence des pratiques d'acquisition de connaissances par discipline surl'achèvement du doctorat: une étude des domaines du génie et des sciences*, respectively.

We also believe it is beneficial to network with other themes, in order to explore places of intersection in our thinking and research. We benefit in this way both through our members' concurrent membership in other themes and through our practice of meeting several times a year with members of the Numeracy, Scientific Reasoning, and Inquiry team to discuss draft papers. This year, our team members were successful in receiving funding for several research programs that will start up this year, and they often include CSLP/CEAP members from other themes. These new programs incorporate a range of disciplinary perspectives and levels of education.

"Academic success is a key element of individuals' ability to contribute as successful citizens, and it consequently has a crucial impact on Québec's economic growth and global competitiveness."

Research and Development on Information and Communication Technologies (ICT)

This theme deals with researching and developing the technologies that will improve student acquisition of the general competencies that foster communication, literacy, numeracy, creativity and inquiry skills in educational and workplace settings. Our Design and Development team, under the direction of **Catherine LeBel**, works with CSLP/CEAP researchers to design innovative tools for the classroom.

Ongoing meta-analyses examine the broader purview of technology integration in blended learning and on-site teaching environments, a process that involves a large team of faculty (including **Richard Schmid**) and approximately 10 students (the latter group supervised by **Evgueni Borokhovski**, a doctoral student in Psychology). These meta-analyses have yielded a theoretical model that will be the subject of our 2007 AERA proposals entitled *Beyond the Obvious in the "What Works in Distance Education" Question*. By April of 2007, we expect to present preliminary results for a series of meta-analyses of the methodological and substantive factors that distinguish different DE conditions.

We have also made strides in the development and implementation of e-portfolio, web-based, bilingual, process-oriented digital portfolio software for use in elementary and secondary schools. This past year, in an attempt to increase our
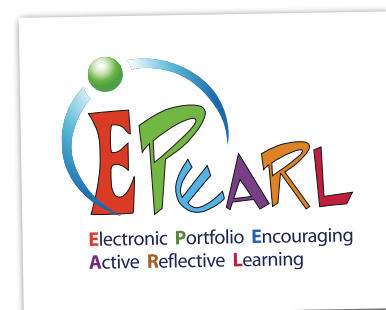
"...researching and developing the technologies that foster communication, literacy, numeracy, creativity and inquiry skills"

understanding of the tool's applicability, we supported an e-portfolio program for teachers in various research schools in six of the English school boards, a feat made possible through the collaborative efforts of our digital portfolio team, **Beverley White** (Director, LEARN-RECIT) and the provincial RECIT. We also worked to design a suite of tools that better articulate e-portfolio's key processes, in order to encourage more active, meaningful learning rather than mere surface-processing. Led by **Anne Wade**, a team comprising **Phil Abrami**, **Bev White**, **Lebel**, **Vladimir Severgine**, **Lindsay Bernath**, **Kelly Morris**, **Ane Jorgensen** and **Thomas Stenzel** (RECIT, Riverside School Board) is working on a new version of the software, entitled ePEARL (Electronic Portfolio Encouraging Active Reflective Learning), due out at the end of the summer. Funding received from the Canadian Council on Learning has enabled the research team of **Abrami**, **Denise Silverstone**, **Iolie Nicolaidou**, **Wade**, and **Cher Jacek** to collect data on teachers' attitudes towards the use of e-portfolio and on an analysis of students' portfolios. Articles on our project have appeared in a special issue of the *Canadian Journal of Learning Technology*, as well as in a published collection of papers on the VRQ DIVA projects and in the edited book entitled *Children's Learning in a Digital World* published by Blackwell Publishing,

In the area of PedTech, **Gretchen Lowerison**, **Schmid**, **Abrami**, **Rana Tamim** and **Nicolaidou** continued to explore issues surrounding the techniques and resources that

complement student learning preferences and the role that computer technology plays in facilitating learning. **Lowerison** is presently gathering data associated with her doctoral research, examining how publicly available tools such as Moodle and Wikis can be used to promote self-regulation in a business school setting.

ePEARL
Electronic **P**ortfolio **E**ncouraging
Active **R**eflective **L**earning

Coordinator:
Denise Silverstone

Members:
Richard Schmid (Theme Leader), Phil Abrami, Robert Bernard, Saul Carliner, Johannes Strobel, Catherine LeBel, and Anne Wade

Second Language Proficiency

Second language literacy is increasingly necessary as a result of rapid globalization and regional integration. This is particularly true for the educational and professional communities of Québec, as they attempt to engage both the wider population and the world. The goal of the Second Language Proficiency theme area is to find the best way to promote second language acquisition and performance. In particular, we focus on facilitating second language learning at the micro-level of teaching and learning practices and the macro-level of institutional policy related to second language instruction. We also aim to develop supportive instructional materials and testing instruments, for use in a variety of learning contexts.

This year has seen continued research and new initiatives: efficiency and learning in second language classrooms (**Laura Collins** et al.); time distribution in classroom teaching of a second language, linguistic models of second language phonology development, and social aspects of second language learning and fluency (**Elizabeth Gatbonton** and **Pavel Trofimovich**); on-line concordancing and instructional activities, and their role in vocabulary acquisition (**Marlise Horst**, **Tom Cobb**); dual immersion programs (**Roy Lyster** and **Laura Collins**); the cognitive underpinnings of second language oral fluency (**Norman Segalowitz**, **Pavel Trofimovich**, and **Gatbonton**); the impact of second language learning on first language proficiency (**Joanna White**); closing the gap between first and second language instruction in the area of grammar, vocabulary and discourse (**White**, **Horst**); phonological and sociolinguistic processes in second language acquisition (**Walcir Cordoso**); and literacy issues among CEGEP students (**Zohra Mimouni**); among others.

> *"Second language literacy is increasingly necessary as a result of rapid globalization and regional integration."*

The umbrella provided by the CSLP/CEAP also affords group members a great opportunity to engage with researchers from other themes. Currently, we collaborate with the Basic Processes theme – investigating literacy, perceptual, and cognitive issues in first language literacy and second language acquisition – as well as the Numeracy, Scientific Reasoning and Inquiry theme. We also have a number of research partners at external academic institutions in western Canada, the U.S., the U.K., Spain, and Brazil, as well as at non-academic institutions (for example, the applied linguists in the theme group work regularly with the Tyndale-St-Georges Community Centre and SPEAQ). The newly established pan-Canadian SSHRC Cluster group (of which **Segalowitz** was a co-founder) will address language performance in Canada, drawing upon considerable existing linguistic expertise and resources to establish partnerships between professionals in the target sectors and researchers with expertise in the language sciences, in order to provide practical, evidence-based solutions to problems of language performance in real-time communication.

Collectively, our activities contribute new knowledge to the field, making possible the transfer of knowledge and generating visibility for the theme's researchers, as well as contributing trained highly-qualified personnel for second language research and instruction. The coming year will see three primary trajectories for development of the Second Language Proficiency theme area: theme-wide team research on efficiency and L2 classroom learning (**Collins** et al.), research on *Perceptual and cognitive factors underlying the acquisition of reading in a first language and the acquisition of a second language* (**Segalowitz**, **Gatbonton**), and a pan-Canadian strategic research project on language performance in real time. Finally, three members of this theme group are involved in research related to health care access for linguistic minorities, a project involving four universities in Montréal.

Research Associate:
Randall Halter

Members:
Norman Segalowitz (Theme Leader), Walcir Cardoso, Tom Cobb, Laura Collins, Roberto de Almeida, Elizabeth Gatbonton, Marlise Horst, Joanna (London) White, Roy Lyster, Zohra Mimouni, and Pavel Trofimovich

Systematic Review and Meta-Analysis

Members:
Robert Bernard (Theme leader), Phil Abrami, Anne Wade, Richard Schmid

There is a tradition in the social sciences of periodically synthesizing the results of individual studies to promote the development of theory and to suggest to practitioners and policy makers how to make practical decisions about various questions. We take the position that this is only useful when a systematic approach is used, by which we mean an approach that is objective, repeatable, transparent, systematic, comprehensive, and integrative. A systematic review, then, involves developing a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant research, and collect and analyze data from the studies that are included in the review.

"A systematic approach is objective, repeatable, transparent, systematic, comprehensive, and integrative."

Employing statistical methods (meta-analysis) is a prime example of a systematic approach to analyzing and summarizing the results of studies. The CSLP/CEAP has a long history of conducting and publishing meta-analyses in the area of Education. A meta-analysis is a particular form of systematic review that represents the findings of studies in quantitative terms, usually in the form of an effect size (*i.e.* the standardized difference between group means). Other examples of the systematic approach include narrative reviews, qualitative reviews, vote counts, and meta-syntheses. Over the past few years, members of this theme area have been involved in three levels of activity regarding systematic reviews and, more specifically, meta-analysis: producing reviews, developing methodologies, and training.

This year, we have been involved in several major projects, and we have more in development. We are working on developing methodologies for creating an Argument Catalogue, a systematic review that covers the literatures of print media outlets, practitioners, policy makers, primary researchers and reviewers, in order to examine how these perspectives are similar or different. We recently produced an Argument Catalogue on the subject of e-learning for the Canadian Council on Learning in Vancouver, B.C. In addition, our work to produce a follow-up to 2004's *A methodological morass: How can we improve the quality of quantitative research in distance education?* (**Robert Bernard**, **Phil Abrami**, **Yiping Lou**, and **Evgueni Borokhovski**) involves contrasting different instructional interventions within different distance education groups. Our involvement in systematic review training activities includes conducting sessions at AERA, at the Campbell Collaboration's Annual Colloquium, and for the CSLP/CEAP community at Concordia. There are plans in the works for our involvement in training sessions at UCLA in the winter of 2007.

Often our work is informed by collaboration with members of other themes. An ongoing collaboration on a meta-analysis of instructional interventions affecting critical thinking skills and dispositions – between **Abrami**, **Bernard**, **Anne Wade**, **Borokhovski**, **Mike Surkes**, and **Dai Zhang** – yielded preliminary results that were accepted for presentation to the American Educational Research Association in San Francisco in April, 2006. A collaboration between **Bernard**, **Abrami** and **Zhang** that explored the psychometric structure of the Watson-Glaser Critical Thinking Appraisal was also accepted for presentation at the same event. We have also just begun a meta-analysis of the effectiveness of media and technology use in Postsecondary education.
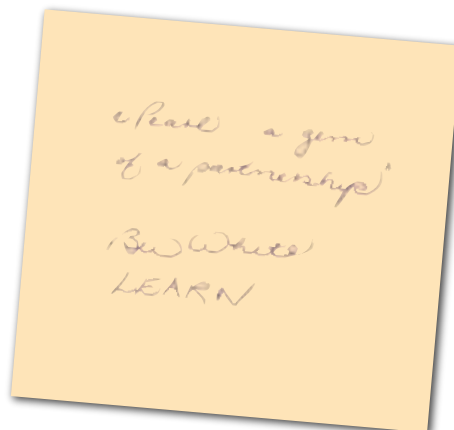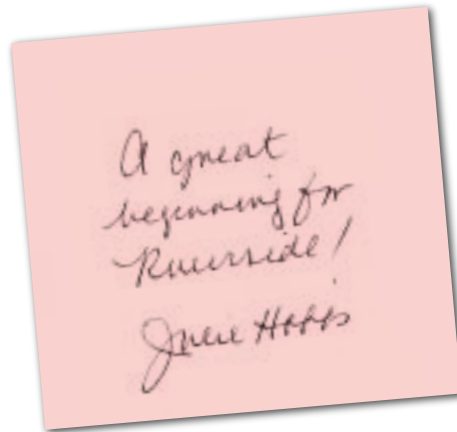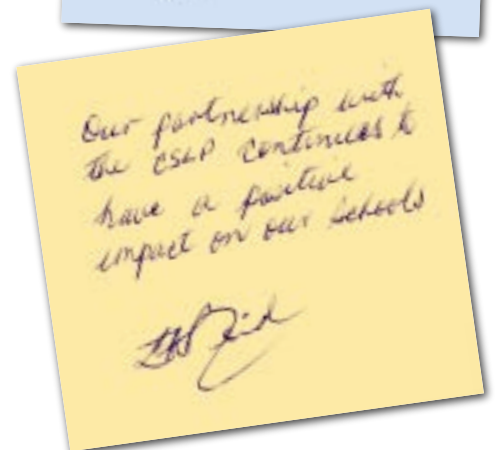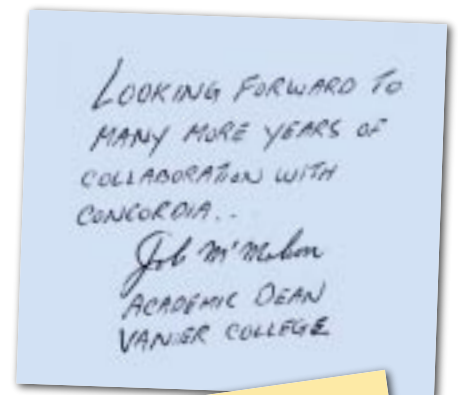
Partnerships

An important aim of the CSLP/CEAP is to serve as the intellectual and support centre for a multi-disciplinary group of researchers, collaborators, associates, and partners. The CSLP/CEAP is uniquely advantaged by the scope of our network. Existing partnerships include Québec-based research networks and bodies such as Adaptech Research Network; Association québécoise des étudiants ayant des incapacités au postsecondaire (AQEIPS); Association Québécoise Inter-universitaire des Conseillers aux Étudiants ayant des Besoins Spéciaux (AQICEBS); CRIRES; CTREQ; DIVA; NANS/SIAA; and newly emerging collaborations with the Faculty of Education at the Université de Montréal. CSLP/CEAP researchers have also strengthened relationships with a variety of national research groups, such as: ATRC; CADE; LIFIA; LORNET; Alberta's Supernet Alliance in Canada; and international groups: EIFEL; EdMedia; and the Success for All Foundation. We are associated with two SSHRC-funded pan-Canadian Cluster groups entitled Language in real time/Les langues en action and are also members of the International Mental Lexicon Group and Disability-related policy and research cluster.

Our Québec-based partnerships include: the Ministry of Education, Sport & Recreation (Anglophone Services); the Leading English and Education Resource Network (LEARN); the LEARNing Communities-RECIT; Societé pour la promotion de l'enseignement de l'anglais (langue seconde) au Québec; Tyndale-St. Georges Community Centre; and all of the English language school boards, along with some French school boards.

We also have active partnerships outside Québec with such organizations as: Apple Canada; Canadian Association of School Administrators; Canadian Language and Literacy Network; Campbell Collaboration; Canadian Association of Disability Service Providers in Post-secondary Education; Canadian Cochrane Collaboration; Canadian Council on Learning; Conference Board of Canada, EPPI Centre; Evidence Network; and the National Educational Association of Disabled Students.

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LEARN

"Pearl a gem of a partnership"
Bev White
LEARN

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Transfer Activities

In November 2005 members of the CSLP/CEAP participated in their fifth biennial Research and Technology Fair. The Fair began with theme leaders presenting an overview of the research conducted within their theme area, and a summary of the goals and research questions they hoped to address in the coming year. This event, attended by CSLP/CEAP members and partners, Concordia administrators, and the general public, helped to set the stage for the exhibits presented at the Fair. Over 50 education-related research projects and demonstrations were exhibited. In addition, teachers and students from one of our partner schools, John F. Kennedy High School were on hand to display their technology-based classroom projects. To view one minute video clips describing our various research projects please visit: http://education.concordia.ca/cslp/ RA-ResearchFair.php

In addition to the CSLP/CEAP Advisory Board, all major CSLP/CEAP projects also draw upon pan-Canadian Steering Committees populated by the key stakeholders. We communicate with our partners via meetings, in-service workshops, publications, and our website. We are also implementing and evaluating ways to increase the scale and impact of our innovative educational tools and techniques in partnership with the community.

The **Canadian Network for Knowledge Utilization** (CanKnow), based at the CSLP/CEAP, is dedicated to collecting and disseminating evidence in the social sciences to inform and improve Canadian policy-making and practice. This past year members of CanKnow completed a review on e-Learning conducted for the Canadian Council on Learning (CCL); see http://www.ccl-cca.ca/CCL/ Reports/StateofTheFieldReview/ ?Language=EN. This experience provided us with the opportunity to pilot a newly developed methodology called the **Argument Catalogue** and a dissemination document entitled the *Knowledge Link*.

Diane Fyfe
"Great minds have purposes, others have wishes"

Partnerships & Knowledge Transfer

- An Argument Catalogue represents a means for analysing and characterising documents from multiple sources, including the print media (a reflection of current public opinion), practitioners, policy makers, reviewers of research and primary researchers.

- The *Knowledge Link* is a newsletter designed to highlight the significant findings of a specific research project, along with implications for researchers, practitioners, and policy makers.

There is a growing worldwide movement to use research evidence in policy making and practice in domains such as health and social services, education and criminal justice. There is a desire among stakeholders to increase the use of evidence in practice through the application of both primary research and systematic reviews of research. We believe that by giving voice to the various constituencies that we are trying to influence in the form of something like an Argument Catalogue, we will increase the chance that debate – or at least critical conversation – will emerge as the gaps (or overlaps) between various perspectives are examined. An important follow-up activity for us will be to evaluate the impact of our knowledge dissemination strategies, to learn about the conditions for successful transfer of the results of each type of review so that they have maximum effect in the field and on decision-making.

Knowledge Link ›››

Congratulations to CSLP on another great year.

CQSB is pleased to be a partner in leverage along with Concordia and other English School Boards throughout the Province

Ron Cerrigan

Partnering for success #1 Canada

Congratulations to CSLP/ CEAP for another great year making a difference not only by generating new knowledge but ensuring it makes a difference with research synthesis through CanKnow.

David Gough.

We look forward to your participation in our Symposium

QAIS

For further information please visit our centre website at
http://education.concordia.ca/cslp

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