

# Annual Report

Centre for the Study of Learning and Performance  
Centre d'études sur l'apprentissage et la performance

2010-2011





## Contents

• Director's Message	3
• Message du directeur	4
• Accessibility	5
• Educational Technology	6
• Fluency and Cognitive Efficiency	7
• Inquiry Teaching and Learning	8
• Language and Literacy	9
• Systematic Reviews	10
• Productivity	11
• Other Highlights of the Year	12
• Partnerships	12

# The CSLP/CEAP Annual Report 2010-2011

*Who says that academia is not exciting? This past year marked one of the most exciting periods in the history of the CSLP.*

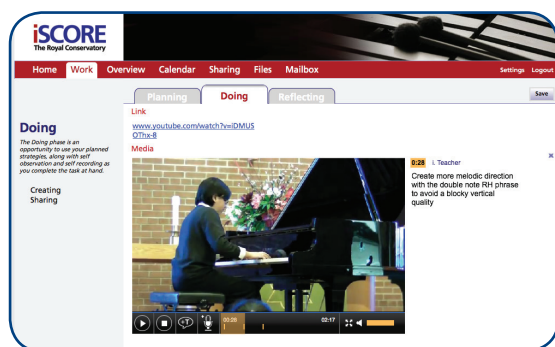


*iSCORE team: reps from the RCM, Queen's, CSLP*

## Director's Message

Who says that academia is not exciting? This past year marked one of the most exciting periods in the history of the CSLP.

We expanded our partnership with Queen's University and The Royal Conservatory via a major grant from the Canadian Interactive Fund to develop a version of our existing portfolio software, ePEARL, for use by studio music teachers and their students across Canada and in the United States. The new tool will be called



*iSCORE*

iSCORE and is packed with wonderful features including a complex calendar function and the ability to annotate video and audio files.

Two of our research strands – *Language and Literacy* and *Inquiry Teaching and Learning* – were awarded highly competitive team grants from FQRSC, a provincial granting agency, and along with the existing FQRSC funding to the Educational Technology strand, marks the largest number of team grants held in a provincial centre of research excellence. What wonderful and important accomplishments!

We did get some disappointing news, however. Our application to FQRSC for renewal as a centre was recommended for funding but funding was not awarded. As a consequence, we have had to curtail some of our infrastructure activities but have found ways to maintain our key activities into the future. As one consequence and for other good reasons, the CSLP is going green, so this *Annual Report* will be distributed electronically and not in print form.

*(continued on next page)*

The CSLP is also constantly evolving and changing as new research results are generated and knowledge is mobilized with our partners in Quebec, Canada, and around the world. The CSLP is pleased to welcome several new members, including two outstanding Canada Research Chairs – **Kim McDonough** (Applied Linguistics) and **Roger Azevedo** (Cognitive Sciences & Educational Technology) – and a brilliant educational philosopher, **David Waddington**.

The problem with writing these messages is not what to include but what to exclude. There is so much done among the research strands and in outreach activities to the educational community at large. I urge you to look elsewhere in the *Annual Report* to learn more about our activities and accomplishments this past year. If something interests you, please do not hesitate to contact me or other CSLP members.

For me, the fun of research goes beyond the challenges of doing things that are difficult and new. The fun of research lies also in the collaboration with others who bring multiple and new perspectives to inquiry, and in getting to work with the folks whom I admire and whose company I enjoy. That to me is what makes the CSLP into a centre.

**Phil Abrami**, Director

*Centre for the Study of Learning and Performance*



*Phil Abrami*

## Message du directeur

*Qui donc a dit que le milieu universitaire n'était pas excitant?  
L'année qui vient de s'écouler fut sans contredit l'une des  
périodes les plus excitantes de l'existence du CEAP.*

Nous avons élargi notre réseau de partenaires auprès de l'Université Queen's et du Royal Conservatory of Music grâce à une importante subvention du Fonds interactif du Canada pour le développement d'une version de notre logiciel de portfolio existant, PERLE, lequel fut adapté pour une utilisation par des enseignants de musique en studio et leurs élèves de partout au Canada et aux États-Unis. Le nouvel outil s'appellera iSCORE et offrira une panoplie de fonctions fort utiles comme un calendrier avancé et la possibilité d'annoter les fichiers vidéo et audio.

Deux de nos thématiques de recherches – Langue et littératie et Enseignement et apprentissage de la méthode des enquêtes – ont reçu des subventions d'équipe pour lesquelles la compétition est très forte de la part du FQRSC, un organisme provincial d'octroi de subventions. En prenant en considération le

financement actuel reçu par notre thématique Technologie éducative du FQRSC, cette année marque le plus grand nombre de subventions d'équipes détenues par un même centre provincial d'excellence en recherche. Quelles réalisations remarquables et importantes!

Nous avons toutefois reçu quelques nouvelles décevantes. Notre demande au FQRSC pour le renouvellement de notre subvention en tant que centre de recherche n'a pas été acceptée. En conséquence, nous avons dû restreindre certaines de nos activités d'infrastructure, mais nous avons trouvé des solutions afin de maintenir nos principales activités dans le futur. D'ailleurs, c'est l'une des raisons pour laquelle ce rapport annuel sera distribué électroniquement cette année et non sous forme imprimée. Ceci correspond également à un virage vert du CEAP.

*(continue sur la page suivante)*



Le CEAP évolue et se transforme constamment au fur et à mesure que de nouveaux résultats de recherche sont produits et que des connaissances sont mobilisées en collaboration avec nos partenaires du Québec, du Canada et de partout dans le monde. Le CEAP a le plaisir d'accueillir plusieurs nouveaux membres, dont deux Chaires de recherche du Canada exceptionnelles dirigées par **Kim McDonough** (linguistique appliquée) et **Roger Azevedo** (Sciences cognitives et technologie éducative), de même qu'un brillant philosophe de l'éducation, **David Waddington**.

Le problème lorsque l'on rédige un message comme celui-ci, ce n'est pas tant choisir ce qu'il faut mentionner, mais bien plutôt décider ce que l'on doit laisser de côté. Tant de travail a été accompli par nos diverses thématiques de recherches et par les activités de sensibilisation à la communauté éducative au sens large. Je vous invite à fouiner à l'intérieur de notre

rapport annuel afin d'en apprendre davantage sur nos activités et nos réalisations de la dernière année. Si un sujet en particulier retient votre attention, n'hésitez pas à communiquer avec moi ou d'autres membres du CEAP.

Pour moi, le plaisir de la recherche s'étend bien au-delà des défis liés à la réalisation de choses à la fois difficiles et nouvelles. Le plaisir de la recherche réside aussi dans la collaboration avec d'autres personnes qui apportent des perspectives multiples et nouvelles à nos questionnements. Et aussi dans le bonheur d'en venir à travailler avec des gens que j'admire et dont la compagnie me plaît. Voilà ce qui, selon moi, transforme le CEAP en véritable centre de recherche.

**Phil Abrami**, directeur

*Centre d'études sur l'apprentissage et la performance*

## Accessibility

(Catherine Fichten, Norman Segalowitz, Phil Abrami, Tara Flanagan, Richard Schmid)

Led by **Catherine Fichten** the Adaptech Research Network (ARN) serves as both a Ministère de l'Éducation, du Loisir et du Sport (MELS) College Centre for Technology Transfer in Innovative Social Practices, as well as a Centre de recherche pour l'inclusion scolaire et professionnelle des étudiants en situation de handicap.

Members of ARN were awarded several new grants, including one to study the use of the Alexis Nihon mall, which is joined to Dawson College at our metro level, to investigate the uses and utility of the mall for individuals with different disabilities. They also received a \$150,000 equipment grant from NSERC/SSHRC to build a training and research lab comprised of information and communication technologies for students with disabilities. One of our more interesting summer projects was the evaluation of free and inexpensive iPad, iPhone and iPod Touch apps that could be of use to students with disabilities.

In the winter the Adaptech Research Network announced the launch of their redesigned website. The site provides an updated look and feel, along with enhanced accessibility and a streamlined list of free and inexpensive software in our Downloads section.



*Catherine Fichten*



*Classrooms where both ABRA and ePEARL were strongly implemented students' reading comprehension scores improved by 8.7 percentile points.*

## Educational Technology

(Richard Schmid, Phil Abrami, Roger Azevedo, Robert Bernard, Monique Brodeur, Eva Bures, Walcir Cardoso, Helena Dedic, Catherine Fichten, Tara Flanagan, Marlise Horst, Nathaniel Lasry, Steven Rosenfield, Robert Savage, Norman Segalowitz, Pavel Trofimovich, Vivek Venkatesh, Bev White; **LTK Coordinator:** Anne Wade, **LTK Research Coordinator:** Larysa Lysenko)



*Richard Schmid*

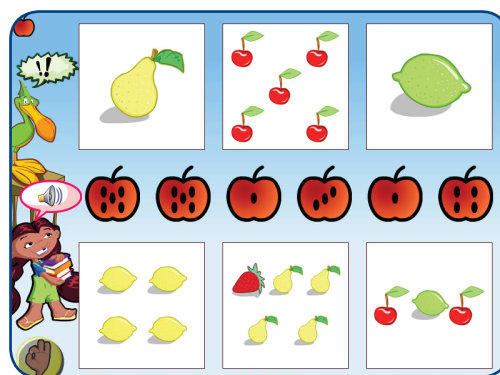


*Bev White*

Members of this team continued to work on research and development projects associated with the Learning Toolkit (LTK). In the 2010-2011 school year, over seven hundred students from forty grade one and grade two classrooms from seven English school boards in Quebec participated in a study. Monitoring the use of the software revealed that in the experimental classrooms the use of ABRACADABRA and ePEARL varied considerably and ranged from very low to approximately two hours a week per student. It was found that in the classrooms where both ABRA and ePEARL were strongly implemented students' reading comprehension scores improved by 8.7 percentile points...very encouraging findings.

Currently the LTK assists students in developing foundational skills for reading, writing and self-regulatory learning strategies, however it is missing the fourth pillar of early childhood learning, development of numeracy. So, in partnership with LEARN, the EMSB, and two French school boards, CSRDN and CSDM, work has begun on the development of an evidence-based

bilingual tool entitled *Emergent Literacy In Mathematics (ELM)/Orienter la réussite des mathématiques émergentes (ORME)* which will be designed to develop foundational skills in mathematics. Eventually ELM/ORME will be integrated into the LTK. A prototype of the ELM/ORME software will be available for pilot testing in January 2012. A proposal has been submitted to MDEIE and if successful, development on the full-scale version will begin in early 2012.



*ELM/ORME*

Members of the CSLP have been working with the French Language Arts team at UQAM in the development of a French adaptation of ABRACADABRA. Under the leadership of **Drs. Philip Abrami** and **Monique Brodeur** and with funding from MELS, MDEIE, CSDM and CSRN, this multi-year project will see the adaptation of the ABRA Instructional module with numerous activities and digital stories. Further funding is being solicited for adaptation of the Teacher, Parent and Assessment modules. Stay tuned for the release of the Instructional module prototype in 2012.

*(continued on next page)*



**International Partnerships** include the submission of multiple US Institute for Educational Sciences grants including one for \$1.5 million partnering with three States in the use of the ISIS-21 tool. Finally, we are working on a research project with Hong Kong researchers to improve the English skills of children in Hong Kong schools through the use of ABRA.

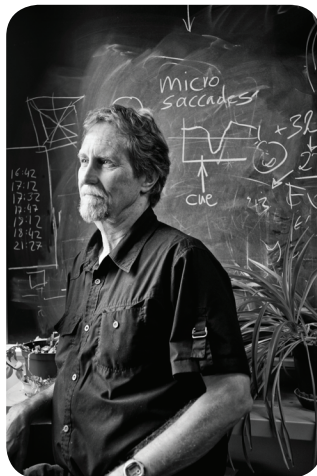


*ABRA french adaptation*

## Fluency and Cognitive Efficiency

(Michael von Grünau, Norman Segalowitz, Carolyn Turner, Ahlem Ammar, Mark Aulls, Monique Brodeur, Tom Cobb, Daniel Daigle, Roberto De Almeida, Leif French, Elizabeth Gatbonton, Marlise Horst, Aaron Johnson, Joanna White, Kim McDonough, Bruce Shore, Pavel Trofimovich, Denis Cousineau; **Research Associate:** Randall Halter)

*Members of this strand are working on an array of research projects.*



*Michael von Grünau*



*Norman Segalowitz*

**Michael von Grünau's** work concentrated on visual attention and motion. In attention, we investigated the premise that the area where attention can be focused is divisible, i.e. there can simultaneously be separate 'hotspots' with an unattended area in between, and found this to be possible. Furthermore, other studies have shown that visual search with attention is influenced by the amount and probability of reward associated with finding the target. In motion, we studied how the two constituent components (local and global motion) of the curveball illusion interact and change with eccentricity. We found that, as eccentricity increases the illusion strength also increases, but this brings it closer to the prediction by a linear summation model. This is either due to less defined spatial localization or misperceived velocity in the periphery.

**Norman Segalowitz** continued to conduct studies of the cognitive mechanisms that underlie second language oral fluency, and that might be implicated in barriers to fluency. In particular, the following topics were explored: (a) reaction time variability in simple word recognition tasks that can reflect language proficiency, (b) the features of second language speech that truly reflect proficiency (e.g., speech rate, pausing phenomena) and that correlate with cognitive processing in non-speech performance (e.g., word recognition), (c) the ability of second language speakers to handle correctly subtle nuances of words that are significant in health care communication (e.g., words that describe pain), and (d) ways to measure the size or extent of a person's second language vocabulary.

**Aaron Johnson's** recent work has explored the sensitivity of human perception to natural images, in particular the sensitivity of the visual system to discriminate changes in the amplitude spectrum slope. We have shown that sensitivity to amplitude slope discrimination is greatly reduced (i.e., flat) when the stimulus is viewed in isolation. However, when the stimulus is placed within a surround containing another amplitude spectrum slope, as we see in the natural world, then we see significant facilitation in detecting variations in the slope of the amplitude spectrum. Further, we have also shown using visual evoked

potentials (VEPs) that humans encode this property of scenes early in the visual pathway. These findings support the theory that the human visual system has adapted to become sensitive to the input it receives on a daily basis.

**Denis Cousineau** found unbiased and hyper-efficient estimators for the three-parameter Weibull distribution. With such estimators, it was determined that the co-activation model is wrong. He also published his second textbook, *Panorama des statistiques* in Belgium.

---

## Inquiry Teaching and Learning

(Mark Aulls, Phil Abrami, Ahlem Ammar, Roger Azevedo, Robert Bernard, Robert Bracewell, Monique Brodeur, Helena Dedic, Leif French, Elizabeth Gatbonton, Nathaniel Lasry, Steven Rosenfield, Annie Savard, Richard Schmid, Norman Segalowitz, Bruce Shore, Carolyn Turner, Vivek Venkatesh, David Waddington, Bev White; **Research Associate:** Diana Tabatabai)

High Ability and Inquiry Research (HAIR) full team members, collaborators (**Krista Muis, Ron Stringer, Calvin Kalman, Marcia Delcourt, and Frank LaBanca**), research associate, and their students are involved with two studies that are based on a sample of 600 undergraduate students drawn from three universities. The first study looks at what happens during Inquiry Instruction in three higher education universities in the fields of Science and Education. The second one is a series of quantitative studies designed to study the interrelationship between the value placed on inquiry instruction, self efficacy of a learner as an inquirer and as an inquiry teacher, conception of inquiry, epistemic beliefs, approaches to learning, and beliefs about the nature of science. In another study, they are looking at Professional Development as a Catalyst for Creating an Inquiry School. Some of the research questions these studies will pose are:

### 1. Inquiry Alignment at the Interface between Learners and Teachers:

- Setting Goals and Planning Outcomes in Inquiry Instruction that includes what teachers and learners understand to be the intended curriculum, which anticipated and relevant outcomes actually

occur, how awareness is encouraged within classrooms, and what are teacher and student beliefs, expectations, and enactments about curricular alignment.

- Personal Identity as an Inquirer, Inquiry Learner, or Inquiry Teacher that includes what knowledge, skills, dispositions, and beliefs pre-service teachers perceive as forming their identities as inquirers and inquiry teachers as they advance in their programs, the reason behind their perception, and what expertise means to teachers and students.
- Inquiry and the Transition from Teacher Education to Practice poses the following research questions:
  - (i) What knowledge, skills, dispositions, beliefs, and instructional process variables contribute to pre-service teachers committing or not to an inquiry-based approach to instruction as beginning teachers? Which of these variables contribute importantly to pre-service and new teacher's understanding of inquiry teaching and learning?
  - (iii) What barriers do these teachers perceive to implementing effective inquiry instruction?

*(continued on next page)*

Bruce Shore



Mark Aulls





## 2. Becoming an Aligned Inquiry School: Professional Development as a Catalyst for Creating an Inquiry School:

- What defines an inquiry school? (i) Over time, what PD do schools seek and obtain as they commit to, initiate, build, and sustain inquiry? (ii) How do teacher beliefs about inquiry, behavior, and evaluation alignment in inquiry instruction respond to engagement in self-directed or collaborative PD processes, and how does collaboration with partners catalyze the process? (iii) How does a school prioritize where to begin improving alignment? (iv) What pedagogical and didactic contracts are implicitly or explicitly in place as schools implement inquiry?
- The Language of Inquiry and an Evolving Inquiry School: A lexicon of inquiry terms opens doors to discourse across languages. It can also be a tool to initiate PD. (i) What are the inquiry words used in schools? Are they the same for different participants at different stages? Are they accurate, consistent, and indicative of misconceptions or multiple meanings? (ii) We have drafted our first French-English lexicon of 10 core terms, but what do our school colleagues advice should be the next 10 terms? Do these vary with the stage of inquiry in individuals or a school? How might additional languages be useful? How can a lexicon contribute to creating a taxonomy of overall progress creating an inquiry school and achieving alignment? These Lexicon products will all be available in French and English.

---

## Language and Literacy

(Laura Collins, Michael von Grünau, Philip Abrami, Ahlem Ammar, Monique Brodeur, Eva Bures, Walcir Cardoso, Tom Cobb, Daniel Daigle, Roberto De Almeida, Catherine Fichten, Tara Flanagan, Leif French, Elizabeth Gatbonton, Marlise Horst, Kim McDonough, Robert Savage, Annie Savard, Richard Schmid, Norman Segalowitz, Pavel Trofimovich, Carolyn Turner, Bev White; **Research Associate:** Randall Halter)

### *Members of this strand have had an active year.*

The *Paul Pimsleur Award for Research in Foreign Language Education* was presented in Boston in November to: **Laura Collins, Pavel Trofimovich, Joanna White, Walcir Cardoso, and Marlise Horst** for their article published in the *Modern Language Journal*, 93(3), 336-353: "Some input on the easy/difficult grammar question: An Empirical Question" Excerpt from award:

*"The paper ... was unanimously selected as the clear winner... We are very pleased to bestow the Pimsleur award on the five co-authors of this important and innovative study which, in addition to its high academic quality, is a great tribute to the virtue of collaborative inquiry."*

**Laura Collins** was invited by a SPEAQ (Société pour la promotion de l'enseignement de l'anglais, langue seconde, au Québec) delegation to participate in a private meeting with Mme Line Beauchamp, Minister of Education of Quebec, to discuss changes and challenges to ESL education in Quebec.



Laura Collins

**Leif French** and **Laura Collins** completed the first ever pan-Canadian survey of ESL teachers and their views about their profession (commissioned by The Canadian Association of Second Language Teaching). Key findings included QC teachers' low job satisfaction (nearly 50% wanted to leave the ESL profession), a reflection of the insufficient time allotted to language instruction in the schools, and the number of classes taught by each teacher (far above the national average at the elementary school level).

**Walcir Cardoso**, in collaboration with graduate students examined clickers and TTS in L2 teaching finding that these two technologies are beneficial for L2 learning (e.g., compared with control groups). He, along with the ALERT team, is also exploring the use of text-to-speech synthesis (TTS) as a tool to enhance second language input.



Walcir Cardoso



Pavel Trofimovich

**Other Tidbits:** **Pavel Trofimovich** and **Kim McDonough** published their second co-authored book: Trofimovich, P., & McDonough, K. (Eds.) (2011). *Applying priming methods to L2 learning, teaching, and research: Insights from psycholinguistics*. Amsterdam: John Benjamins. Joanna White (along with Sarita Kennedy) are the organizers for the next Conference of the Association for Language Awareness, to be held at Concordia July 8-11, 2012. Tom Cobb was an invited speaker at Teachers College, Columbia University, New York 2011 "APPLE" Lecture (Applied Linguistics & Language Education) and he spoke on "How the language teachers of the world built a data-driven, web based learning tool".

---

## Systematic Reviews

(Robert Bernard, Phil Abrami, Richard Schmid, Anne Wade, David Waddington; **Coordinator:** Eugene Borokhovski)

This team continued work on two major meta-analyses, one concerned with instructional interventions affecting critical thinking skills and the other a meta-analysis of the effects of the application of learning technologies in postsecondary education. At this time, each meta-analysis has been populated with more than 1,000 effect sizes.

**Rana Tamim**, who received her Ph.D. in Educational Technology in 2009 and served as a Research Assistant with CSLP/CEAP, published her dissertation in one of the most prestigious journals in education, the *Review of Educational Research*. **Bob Bernard**, **Eugene Borokhovski**, **Phil Abrami** and **Richard Schmid** were co-authors.

In the introduction to the March 2011 issue of *RER*, Dr. Gaea Leinhardt, Editor of the journal, said this about the research study:

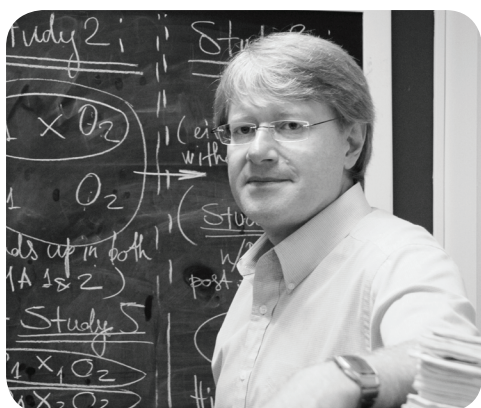
*"The first RER issue of 2011 opens with a look backward over forty years of research on the role of technology in learning. Tamim and her colleagues make a number of very significant contributions. The major one is that they show the positive impact of technology and computers on learning. But they also show the importance of face-to-face or melded instruction and press us to move on to the deeper questions of what it is that matters instructionally. Methodologically, they set a very high bar. Not only do they review previous meta-analyses—thus, presenting a new second order analysis—but they support that by doing a random reanalysis of original data. The consistency of the findings under both analyses is convincing and suggestive of an important analytic approach."* (p. 3)



We looked at the value of interaction treatments in distance education.



Bob Bernard



Eugene Borokhovski

In 2010, **Bob Bernard** and **Phil Abrami** received and completed a Social Science and Humanities Research Council of Canada Presidential Grant on the Digital Economy entitled: *An Extended Systematic Review of Canadian Policy Documents on E-Learning* (2000-2010). This effort was a follow up to a study conducted under contract from the Canadian Council on Learning in 2008. The team, led by **Eugene Borokhovski**, plans to publish an article based on the findings.

The team continued to publish articles and book chapters related to previous work: 1) **Eddie Bethel** and **Bob Bernard** published an article in *Distance Education* on synthesizing diverse forms of evidence; 2) **Rana Tamim**, **Bob Bernard** and colleagues published a book chapter on the value of interaction treatments in distance education; and 3) **Phil Abrami**, **Bob Bernard** and colleagues published an article and book chapter about using evidence and theory to improve interaction in distance education.

In the way of development work, **Eugene Borokhovski** and **Bob Bernard** traveled to the State University of Belgorod in Russia to discuss progress being made

on new web-based systematic review software that is under development. This multi-user software will greatly facilitate our team's ability to review and code research manuscripts for a systematic review. This software should be ready for beta testing in late 2011.



Rana Tamim

## Productivity

**For the period April 1, 2010 and March 31, 2011, the CSLP/CEAP had the following productivity:**

**Funding:** The total number of grants and contracts awarded to the CSLP/CEAP's 34 full faculty members is 95. The estimated total value held for the 2010-2011 period (i.e. one year of multi-year grants) is over \$3,000,000.

PUBLICATIONS:		TRAINING OF STUDENTS:		OTHER DISSEMINATION ACTIVITIES:	
Journal Articles & Manuscripts	124	M.A. Theses and Internships	94	Presentations and Seminars	128
Books/ Chapters/ Proceedings	72	PhD supervision	66	Training and Instruction	30
Other	27	Research Assistants	44	Technology Based Tools and Other Transfer Activities	24
<b>Total Publications</b>	<b>223</b>	Post Docs	6	<b>Total Dissemination</b>	<b>182</b>
		<b>Total Students</b>	<b>210</b>		

Please refer to the *CSLP/CEAP Annual Report: Part 2* on our website for a full breakdown of grants, publications, presentations and workshops, and supervision of students, available at <http://doe.concordia.ca/cslp/ar>.

## Other Highlights of the Year

The Canadian Education Association recognized our Director, **Phil Abrami** for his sustained contribution to improving educational research and practice in schools, stating that “much of Dr. Abrami’s success can be attributed to his drive to make a difference in children’s lives – not simply the children within a specific school, or school board, but all children.”

**Tanya Beccat**, a cycle one teacher from Leonardo da Vinci Academy (EMSB) was the very first recipient of the CSLP/CEAP’s **Learning Toolkit (LTK) Award of Excellence**.

The CSLP/CEAP appeared in the news media frequently this past year. **Anne Wade** discussed ABRACADABRA on RCI’s radio show, The Link, “Reading at a young age”, an interview with **Phil Abrami** and **Anne Wade** appeared on CTV News, “They’re excited about learning” and “Cultivating the magic of reading” articles on ABRACADABRA appeared in the *Montreal Gazette*, and “ABRACADABRA: Screen time can be part of teaching kids to read” appeared in the *Vancouver Observer*.



*Tanya Beccat receives LTK award*

## Partnerships

The CSLP/CEAP continues to rely on the expertise and wisdom of the members of the educational community. Populated by our key stakeholders, the *CSLP/CEAP Learning Toolkit Advisory Board*’s purpose is to guide our research and development projects, primarily in the K-11 sector. This past year, a very successful and informative full day LTK Advisory Board/Swap and Share meeting

was held in the spring with representatives from our partner organizations from across the province. Discussions centred on the planning of a multi-year research project related to the *Learning Toolkit* that is unfolding in the following seven Quebec English schools boards during the 2010-2011 school year, **CQSB, EMSB, ESSB, ETSB, LBPSB, RSB, and SWLSB**.







LB-581, 1400 de Maisonneuve Boulevard West,  
Montréal, Québec H3G 1M8

Tel: 514 848-2424, Loc. 2020  
Fax: 514 848-4520

<http://education.concordia.ca/cs1p>



UQAC



DAWSON  
COLLEGE

Université  
de Montréal

UQÀM

Lakeside View Global Vision  
CEGEP JOHN ABBOTT COLLEGE