



CSLP Learning Toolkit Newsletter

Spring 2014



Stay tuned
for the
release
of an
expanded
LTK in
August 2014



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Welcome to the latest
issue of the *LTK Newsletter*
which provides an update
on the research and
development activities
related to the Learning
Toolkit (LTK) suite of tools.

Thank you to all of the senior administrators,
in-school administrators, pedagogical consultants,
teachers and students from LEARN and CTREQ
and our partner school boards — CSRDN, CSPI,
CQSB, EMSB, ESSB, LBPSB, RSB, SWLSB — who have
contributed their time and effort to all of the LTK
research and development projects.



Vivek Venkatesh
will serve as Acting
Director of the CSLP
from June 1, 2014 -
May 31, 2015 while
Philip Abrami is on
sabbatical.



Emerging Literacy in Mathematics

Orienter la réussite des mathématiques émergentes



Thanks to funding from the **Ministère de l'Économie, de l'Innovation et de l'Exportations** the latest bilingual addition to the Learning Toolkit, ELM/ORME, has bloomed into five core ideas, each exploring a different aspect in the theme of Number Concept. Several activities gradually develop students' understanding of counting, number comparison, addition, subtraction and decomposition of numbers. Students will enjoy completing puzzles as they progress through the activities. The completion of each puzzle will award the student with a new animal "friend". As the student continues to engage with the software the friends collected will be available in a friends gallery with accurate geographical and biological information.

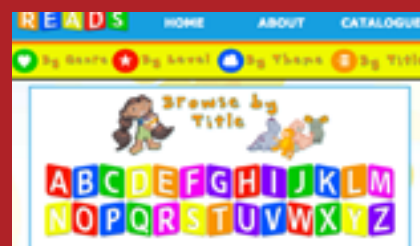
We have been constantly refining the feedback the software provides for errors made in order to quickly address miscomprehensions and to support students' autonomy in problem solving. At the same time, we are building the first version of a report feature that will focus on using graphics to demonstrate the sequence of progression of individual students and alert teachers when progress has stalled.

Teachers will also enjoy the ability to deviate from the default plan set by the software and adjust some of the features for individual students. For example, a teacher will be able to choose to let some students move more quickly through some activities, while providing more repetitions to those students they feel need more practice.

Activity	PP	Reps
Counting	1	15
Comparing	2	15
Adding	3	15
Subtracting	4	15
Decomposing	5	15



READS



The CSLP has witnessed the severe lack of access to English reading material for children in under developed countries as a result of our international research and development efforts in early literacy. Consequently we have created a **Repository of Ebooks And Digital Stories (READS)**. This is an organized and searchable repository of free children's digital books that is being compiled to provide access to reading material to children and to support their development of emerging literacy skills, especially in the areas of fluency and comprehension. READS will be accessible through ABRACADABRA and placed on USB keys for those schools that lack Internet access.



ELM (continued)

Support for teachers using ELM/ORME is fundamental for our team, and as a result we are developing suggested lesson plans for each idea being explored. Teachers will be provided with suggested warm-up introductory activities that involve physical and social interaction in the classroom. Further, there will be suggestions that anticipate possible student conceptual misunderstandings, and teachers will be offered suggestions as to how to guide students away from such difficulties. There will also be suggestions for classroom discussions, to be carried out following the online activities, to help students to consolidate the new concepts.

This year has seen extensive cooperation between our multi-disciplinary project team and teachers and students. Thanks to our usability tests with Grade 1 students at two EMSB schools this winter, we were able to adjust the activities to make them more coherent and accessible to students. In addition, a focus group with several early elementary teachers from a number of schools provided a fountain of information that has guided the design of the teacher reporting feature and the Teacher Management feature. Thank you to all the consultants, teachers and students from the EMSB who have contributed to the design process.

The team was very pleased to learn that the **Max Bell Foundation** has provided continued funding for ELM/ORME and over the next three years we are planning to refine the current activities and expand to address other themes. We expect to learn a lot from the first year it is used and to use that knowledge to improve and refine features in the Teacher Management and reporting features. We will also continue to expand on the teacher and parent resources. The first version of ELM/ORME will be available in the Fall 2014 release of the Learning Toolkit.

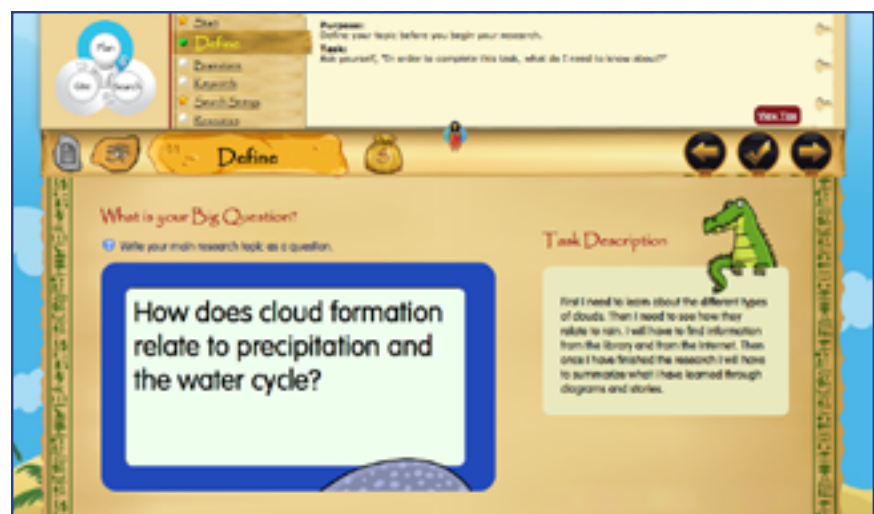




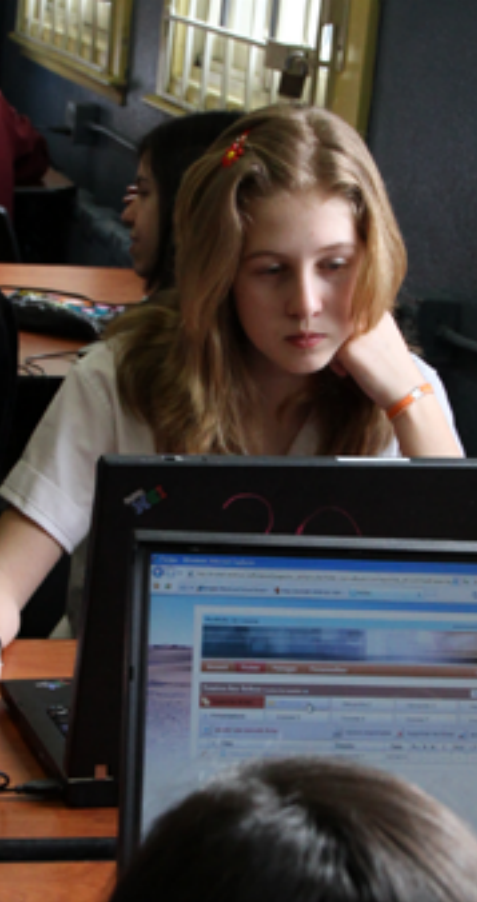
Inquiry Strategies for the Information Society in the Twenty-First Century

With funding from the **Max Bell Foundation**, we have redesigned the student module of ISIS-21 with the help of consultants, teachers and students from the ESSB, SWLSB and the EMSB. The tool is targeted towards late elementary and early secondary students and consists of three phases: Plan, Search, and Use. We have modified the steps in the prototype version, created new steps for the last phase, and revamped the interface to appeal to our target audience. Our focus has been on a Guided Mode which is intended for students ready to take on the process in full but have had little to no prior exposure to developing information literacy skills.

The skills focused on in the Plan phase consists of defining a topic, outlining related sub-topics, extracting the main concepts, developing search strings, and considering the specific type of information required and the best location to find it.



Plan's Define Step



ISIS-21 (continued)

The focus of the Search phase is to have students determine appropriate sources and conduct searches. They select promising sources and evaluate them for quality and appropriateness.



Search's Explore Step

Pilot Project

This past winter the latest version of ISIS-21 was piloted in ESSB, EMSB and SWLSB classrooms with **7 enthusiastic teachers** and **180 students** from grades 3-8 implementing the redesigned software for the very first time! Usability and achievement data was collected in the spring from diverse classes to help further inform the design team on how best to teach these important cross-curricular and life-long learning skills to various age groups. The new and improved ISIS-21 will be available in the Fall 2014 LTK release.

The Use phase encourages students to find relevant key points in their sources, and then either paraphrase or quote that information. They reorganize the information from all of their sources in order to help synthesize their understandings and form conclusions. Their new knowledge culminates with a creative final product, complete with a bibliography.

Other new features include, a Flexible student environment that will enable teachers to use select features of the tool with their students, the linking of ISIS-21 with ePEARL such that ePEARL's core self regulated learning features will be accessible within ISIS-21, and multi-media support material for a newly created teacher module.



Use's Synthesize Step



ABRACADABRA has a new Name!

As a reflection of our work in non-Canadian countries, ABRA now stands for:

**A
BALANCED
READING
APPROACH FOR
CHILDREN
AND
DESIGNED TO
ACHIEVE
BEST
RESULTS FOR
ALL**





Some Results of Our Research

ABRACADABRA Impacts

Over the years more than a dozen studies have been performed in Canada and internationally to explore the impacts of ABRA on various facets of children's reading skills. Some of these are modest studies while others are ambitious large-scale and longitudinal investigations complete with random assignment of classes to ABRA and control groups. The results show that ABRA holds positive effects: after ABRA had been part of instruction for a dozen of weeks, an average student would increase her percentile scores: in phonemic awareness -- from 50 to 63, phonics -- from 50 to 56, fluency -- from 50 to 53, vocabulary -- from 50 to 51, reading comprehension -- from 50 to 54, and listening comprehension -- 50 to 67.

ABRA effects may vary as a function of student characteristics, including reading ability, attention, mother tongue etc. For instance, Deault et al. (2009) suggest that ABRA supports students with attention difficulties. In Australia ABRA benefited indigenous students more than their non-indigenous peers on phonological awareness, phonics and early literacy skills (Wolgemuth et al., 2011, 2013). ABRA also offered promise for reducing the difference between high and low readers. Kenyan students who scored poorly at the reading pre-test after ABRA instruction demonstrated significantly higher gains than students who were high performing at the pre-test (Abrami et al., 2013).

Research Results (continued)

ABRACADABRA Impacts

On the basis of studying ABRA use in classrooms, we have also learned the following **valuable lessons on how to implement ABRA** that we think can generalize to other educational contexts:



- Large ABRA effects are attributable to high-quality implementation that requires teachers' technical competency, good lesson planning, clear instruction differentiation where systematic attention is given to decoding and text comprehension, and adequate time for student exposure to the software. Importantly, **ABRA makes a difference when its underlying pedagogical approach becomes a coherent part of the Language Arts curriculum.** In addition, pedagogical context in the classrooms should be student-centred, where students use ABRA in pairs and small groups -- a strategy that has repeatedly proven effective.

• While ABRA may provide the means to scaffold learning, **teachers need to develop facility with the student-centred processes embedded in the software**, such as the assessment reports, and teacher resources designed to enhance classroom implementation. Additionally the use of the extension activities, outside of an ABRA-dedicated classroom time, for literacy instruction may strengthen the effects of the software on the development of early reading skills.

- Classroom technologies used for teaching may vary; some teachers arrange for access to a stationary computer lab; while others enjoy a mobile lab. Oftentimes teachers choose to add an ABRA station to the existing centers by arranging classroom computers and laptops. **Rotation between stations enables students to use ABRA individually or in pairs.** Teachers may also use interactive Smartboards to demo to their students or to complete activities with the entire class.

- Offering an elaborate system of support to parents, ABRA encourages parental involvement in the process of their children learning to read. Research has shown that home literacy experiences have an important impact on early literacy development. Although parental involvement has not been targeted so far by the ABRA studies, **anecdotal evidence from teachers, students and parents show that ABRA is a potentially powerful tool in the hands of parents.**

We invite teachers and parents to use ABRACADABRA, available without charge, so that together we can improve not only students' reading performance but also contribute to their life-long learning success.

Research Results (continued)



ABRA – ePEARL study

The current evidence on literacy instruction shows promising links between self-regulation, reading ability and computer technologies. To test if the use of self-regulation strategies will enhance the development of reading comprehension skills with early elementary students, CSLP researchers studied the combined use of ABRA and ePEARL, a web-based student-centred portfolio. In total, **26 teachers**, and **their 517 cycle one students** from six English school boards in Quebec, Canada, participated in this study.

The results collected over two years showed that the students in classes where ABRA and ePEARL were used together performed significantly better than their peers in control classes on a range of reading skills. These skills included vocabulary (word-reading and word-meaning), comprehension abilities (sentence and passage comprehension), and written expression (conventions, linguistics and content).

An important finding is that ABRA and ePEARL produced effects in authentic educational contexts, where regular classroom teachers successfully used both tools within their regular English Language Arts classrooms. Technology access was close to regular: with the ratio of 4 students per computer, students rotated to use ABRA and ePEARL on a computer centre. In regard to project support, researchers' involvement was minimal whereas school board consultants, who by virtue of their position are responsible for teacher professional development, fully carried out the charge of providing pedagogical support.

Integrating ABRA in Kenyan Classrooms

In 2013 the CSLP and Aga Khan Academies continued working collaboratively on Phase 2 of a pilot project started in 2012, to learn further about the feasibility of using ABRA with emerging readers and their teachers in Kenya, where the need to improve children's literacy is so great.

The purpose of the second phase was to deliver delayed treatment to the phase 1 control participants, **7 English teachers** and **274 students** from six schools in the Mombasa area. Once a week each ABRA class was bussed to the Aga Khan Academy computer lab with full access to ABRA. The Phase 2 findings reveal that after eleven weeks of exposure to ABRA, students in the seven ABRA classes (grades 2 and 3) showed similar gains to the Phase 1 ABRA students who improved their comprehension scores, including reading and listening, at a significantly higher rate than students in the control classes.



The lessons learned from the pilot have informed the expansion of the project in Mombasa and Nairobi in 2014-2016. This full-scale study is possible through financing from the **SSHRC Partnership Development program** and support from Concordia University, the Aga Khan Academies Unit and CAMARA Kenya.

Research Results

(continued)

Improving Literacy in Hong Kong

In the fall of 2013 and winter of 2014 the CSLP and the Center for Enhancing English Learning and Teaching (CEELT) at the Chinese University of Hong Kong collaborated on a project with the purpose to pilot the use of ABRACADABRA to teach English as a Second Language reading to early elementary students in Hong Kong. Three English teachers and their 75 grade-two students used ABRA for over 10 weeks during the 120-minute long lab sessions and from home. Student achievement data show that ABRA students outperformed students in control classes on a range of reading measures. Specifically ABRA student scores were higher in phonics including word fluency and phoneme segmentation tasks.

Teacher interviews showed that ABRA produced a motivational impact on all their students including less able and less confident ones. Teachers also reported that ABRA enabled them to systematically target various language skills (e.g. different sub-skills of reading and phonics), learning strategies as well as expose their students to authentic reading. Additionally, the ABRA activities enabled teachers to cater to differences amongst learners and the tailoring of individualized experiences so that the instruction became more student centered.

Technology Implementation Questionnaire

Having supported educational technology innovation in Quebec and Canada for more than a decade, the CSLP realizes the necessity to understand the challenges to innovation implementation in schools including its sustainability and scalability. To this end we will be administering an online version of the *Technology Implementation Questionnaire* (TIQ, Wozney et al. 2006) to a large population of Canadian elementary and secondary teachers. This questionnaire was designed to investigate personal and environmental characteristics, teacher attitudes, and computer technology practices. In particular, the TIQ elicits teacher perceptions of expectancy of success, value of technology use and cost of technology use. In addition, teachers' experiences and current uses of technology, as well as availability of resources are also surveyed.



For more information on any of these tools please contact Anne Wade at wada@education.concordia.ca

Recent Papers

Abrami, P.C., Wade, A., Lysenko, L., Marsh, J. & Gioko, A. (under review). Using educational technology to develop early literacy skills in Sub-Saharan Africa.

Abrami, P.C., Borokhovski, E., & Lysenko, L. (under review). The effects of ABRACADABRA on reading outcomes: A meta-analysis of applied field research.

Lysenko, L.V. & Abrami, P.C. (2014). Promoting reading comprehension with the use of technology. *Computers & Education*. Advance online publication.
<http://dx.doi.org/10.1016/j.compedu.2014.01.010>

Wolgemuth, J., Savage, R., Helmer, J., Harper, H., Lea, T., Abrami, P. C., . . . Loudon, W. (2013). ABRACADABRA aids indigenous and non-indigenous early literacy in Australia: Evidence from a multisite randomized controlled trial. *Computers & Education*, 67, 250-264.
<http://dx.doi.org/10.1016/j.compedu.2013.04.002>

Wolgemuth, J., Abrami, P. C., Helmer, J., Savage, R., Harper, H., & Lea, T. (2014). Examining the impact of ABRACADABRA on early literacy in Northern Australia: An implementation fidelity analysis. *Journal of Educational Research*. Advance online publication.
<http://dx.doi.org/10.1080/00220671.2013.823369>

LTK Award of Excellence



Congratulations to this year's recipient of the LTK Award of Excellence, **Thomas Stenzel**, currently a consultant with LEARN. For the past 15 years, Thomas has served as both

a technical and pedagogical point person to the CSLP team and has provided informative advice related to both the design and development of ePEARL. He has provided dozens of workshops on the LTK and sat on various CSLP project teams. Furthermore he has promoted the use of both ePEARL and ABRACADABRA throughout Canada, the United States and Europe, through a long list of conference presentations. Thomas has served as a true champion and advocate for the evidence-based and pedagogical foundation in which the tools within the Learning Toolkit have been built. His involvement in LTK-related projects has substantially influenced their success.

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