SALTISE

3RD ANNUAL CONFERENCE

3E CONFÉRENCE ANNUELLE

Bridging knowing how with knowing why

Bâtir un pont entre savoir pourquoi et savoir comment

June 12, 2014 | 12 juin 2014

http://www.saltise.ca/conference-2014/
2014conference@saltise.ca

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Mot de bienvenue de Richard Filion

directeur général du Collège Dawson

C'est avec un réel plaisir que je souhaite la plus cordiale bienvenue à l'ensemble des participants qui nous font l'honneur de leur présence à l'occasion de cette 3ième conférence annuelle de SALTISE.

Encore cette année, cette journée d'échanges et de présentations promet d'être des plus intéressantes. Le simple fait de réunir plus de deux cents personnes pour entendre, partager et discuter des avancées les plus innovatrices concernant l'enseignement des sciences témoigne éloquemment à la fois du grand intérêt de cette question et du profond engagement des pédagogues à l'effet d'améliorer les conditions par lesquelles les jeunes et moins jeunes sont mis en contact avec l'apprentissage des diverses disciplines scientifiques.

L'idée d'allier l'utilisation des technologies avec le développement de méthodes pédagogiques actives est certes porteuse de réalisations inédites et pertinentes dans le contexte d'une éducation du 21ième siècle.

Je n'ai pas de doute que cette journée de réflexion saura vous guider dans vos recherches respectives et continuera de vous inspirer pour mettre en œuvre des activités d'enseignement qui stimuleront et encourageront les étudiants dans l'étude des sciences. Comme nous l'a rappelé Platon, s'arracher aux ombres de la caverne exige de l'effort et ce sont ces efforts que vous favorisez en poursuivant votre quête de l'excellence pour l'enseignement des sciences.

Bonne conférence!

Richard Filion
Directeur général
Collège Dawson

Welcome from Robert Kavanagh

Dear Participants,

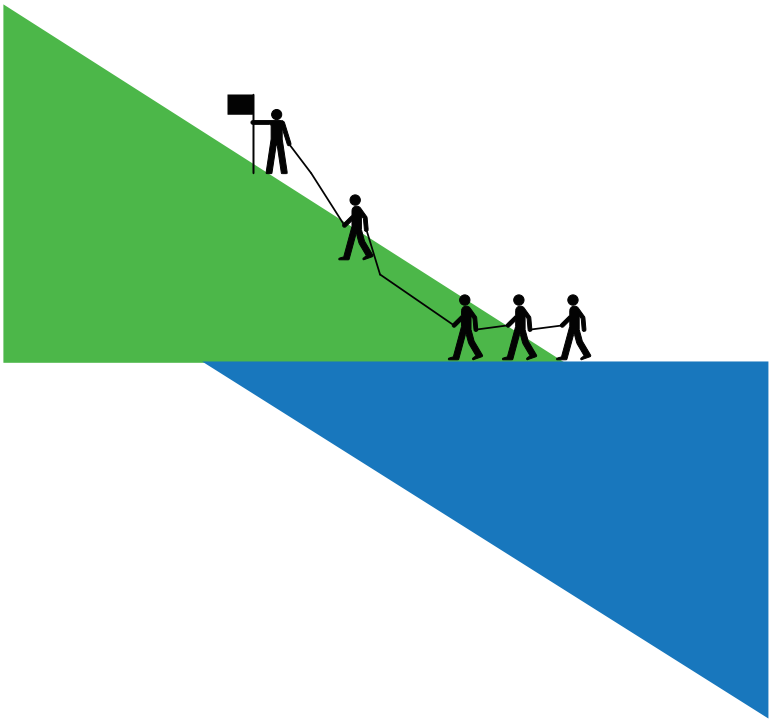
It is a great pleasure to welcome you to this year's SALTISE conference, "Bridging knowing how with knowing why: Scaling the ladder of practical knowledge and pedagogical theory".

The idea behind this conference is a simple, yet powerful and exciting one: by entering into a dialogue, teachers and pedagogical researchers can gain insights from one another and enrich what they bring to their respective areas of practice. This dynamic interaction of thinking, discovery, understanding, applying and growing helps teachers to move forward and researchers to expand the ways in which they construct questions.

This conference is broadly about teaching and learning and about how to provide contexts so that students can learn, enriched by the grounding of SALTISE and its focus on science education. By understanding more about how effective learning takes place and how to create those circumstances, we can all better understand what that means in terms of acting as teachers, facilitators and mentors.

I wish you a stimulating conference that will help open new doors to understanding the multiple and varied levels of learning.

Robert Kavanagh,
Academic Dean



SALTISE

Information about SALTISE

SALTISE - *SUPPORTING ACTIVE LEARNING & TECHNOLOGICAL INNOVATION IN SCIENCE EDUCATION* is a community of instructors and professional development staff from English and French educational institutions within the Greater Montreal region, as well as other regions of Quebec. This community is brought together because of the shared goals of supporting pedagogical change involving innovations in instruction and leveraging the use of educational technology to promote learning.

SALTISE owes its creation to a consortium composed of science faculty and educational researchers from Montreal area educational institutions, Dawson College, John Abbott College, Vanier College and McGill University, funded by a Chantier 3 institutional grant from Quebec's Ministry of Education (Ministère de l'Enseignemen supérieur, de la Recherche, de la Science et de la Technologie). The 3rd Annual Conference thanks the *Canada-Québec Agreement on Minority-Language Education and Second Language Instruction* for its funding.

Currently, SALTISE has over 200 members and continues to grow with the support of collaborations from members of the college and university education networks. In particular, SALTISE acknowledges the partnership of the Vitrine technologie-éducation (VTÉ), a non-profit organization with the mission of guiding Quebec post-secondary education institutions in their educational technology choices - based on funding by Ministère de l'Enseignement supérieur, de la Recherche et de la Science (MESRS).

SALTISE COMMITTEE OF PRINCIPALS:

- Elizabeth Charles (SALTISE co-cordinator, researcher, Dawson College)
- Nathaniel Lasry (SALTISE co-cordinator, Physics, John Abbott College)
- Murray Bronet (Chemistry, John Abbott College)
- Marielle Beauchemin (Micropublishing and Hypermedia, Vanier College)
- Chris Whittaker (Physics, Dawson College)
- Silvia d'Apollonia (Biology, Dawson College)
- Kevin Lenton (Vanier College)
- Ken Ragan (McGill, Faculty of Science)
- Robert Bracewell (McGill, Professor Emeritus, Faculty of Education)

SALTISE EXTERNAL ADVISORY BOARD

- Thérèse Laferrière (Laval University)
- Jim Slotta (OISE at the University of Toronto)

Informations sur SALTISE

SALTISE: SOUTIENT L'APPRENTISSAGE ACTIF PAR LA TECHNOLOGIE ET L'INNOVATION DE LA L'ENSEIGNEMENT DANS LA SCIENCE est une communauté de professeurs et de chercheurs dans le domaine du développement professionnel intervenant dans les établissements post-secondaires francophones et anglophones dans la région du grand Montréal, ainsi que d'autres région du Québec. Cette communauté a pour objectif de promouvoir les innovations pédagogiques et l'optimisation de l'utilisation des technologies éducatives pour promouvoir l'apprentissage.

SALTISE a été créée par des chercheurs et de enseignants de la faculté des sciences des establishments éducatifs de la région de Montréal suivants : Collège Dawson, Collège John Abbott, Collège Vanier et l'Université McGill. SALTISE est financée par une subvention institutionnelle « Chantier 3 » du Ministère de l'Enseignement supérieur, de la Recherche et de la Science (MESRS) du Québec. La troisième conférence annuelle remercie *l'Entente Canada-Québec sur l'éducation des langues minoritaires et l'enseignement des langues secondaires* pour son financement.

SALTISE compte plus de 200 membres et continue de croître grâce à l'étroite collaboration entre collèges et universités dans le system éducationnel du Québec. En particulier, SALTISE aimerait souligner l'implication de la Vitrine Technologie-Éducation (VTÉ), une organisation à but non lucratif financée par le Ministère de l'Enseignement supérieur, de la Recherche et de la Science (MESRS) et dont la mission est de guider les choix des établissements d'enseignement supérieur québécois en matière de technologie éducative.

LE COMITÉ DIRECTEUR DE SALTISE :

- Elizabeth Charles (Coordonnatrice du SALTISE, chercheur, Collège Dawson)
- Nathaniel Lasry (Coordonnateur du SALTISE, Physique, Collège John Abbott)
- Murray Bronet (Chimie, Collège John Abbott)
- Marielle Beauchemin (Micropublishing and Hypermedia, Collège Vanier)
- Chris Whittaker (Physique, Collège Dawson)
- Silvia d'Apollonia (Biologie, Collège Dawson)
- Kevin Lenton (Collège Vanier)
- Ken Ragan (McGill, Faculté des sciences)
- Robert Bracewell (McGill, Professeur Émérite, Faculté d'éducation)

CONSULTANTS EXTERNES

- Thérèse Laferrière (Université Laval)
- Jim Slotta (OISE, Université de Toronto)

Welcome from SALTISE conference committee:

The SALTISE conference committee welcomes you to the 3rd Annual Conference **"Bridging Knowing How with Knowing Why: Scaling the ladder of practical knowledge and pedagogical theory"**.

We have put together a full schedule of distinguished speakers, presentations, and interactive events to inspire you and encourage your own efforts at tailoring pedagogical innovations into your practice.

We wish to thank our colleagues from the following institutions:

- Dawson College
- John Abbott College
- Vanier College
- Vitrine technologie-éducation (VTÉ)
- Entente Canada-Québec (ECQ)

Enjoy the conference!

The Conference Committee

Mot de bienvenue du comité de la conférence SALTISE

Le comité de la conférence SALTISE vous accueille à la troisième conférence annuelle «**Bâtir un pont entre savoir pourquoi et savoir comment : developper connaissance pratique et théorie pédagogique»**.

Nous avons rassemblé une suite d'événement avec d'éminents conférenciers, des présentations et des événements interactifs pour vous inspirer et vous encourager à intégrer les innovations pédagogiques dans votre pratique.

Nous tenons à remercier

- Collège Dawson
- Collège John-Abbott
- Collège Vanier
- Vitrine technologie-éducation (VTÉ)
- Entente Canada-Québec (ECQ)

Profitez de la conférence !

Comité de la conférence

2014 Conference Coordinators

- Rahma Siad-Togane (York University, Chief Assistant Coordinator)
- Sarah Mostafa-Kamel (McGill, Assistant Coordinator)
- Diala Sitani (McGill, Assistant Coordinator)

2014 Conference Committee

- Elizabeth (Liz) Charles (Dawson College)
- Murray Bronet (John Abbott College)
- Marielle Beauchemin (Vanier College)
- Christophe Reverd (VTÉ)

- Nathaniel Lasry (John Abbott College)
- Chris Whittaker (Dawson College)
- Silvia d'Apollonia (Dawson College)

Awards Committee:

- Azra Khan (Dawson College)
- Susan Ajersch (John Abbott College)
- Wilma Brown (Vanier College)

Graphic Designer

- Isabelle Kalekas (www.swishycoat.com)

2014 CONFERENCE COORDINATORS

SALTISE

Location of Events

ALL EVENTS WILL BE HELD AT:

Dawson College,
4001 de Maisonneuve W,
Westmount, QC, H3Z 3G4

PARKING:

Parking arranged for Alexis Nihon parking lot

NAME TAGS & REGISTRATION:

Available on the day of the Conference at the main entrance to 4001 de Maisonneuve West (look for the registration table as soon as you enter the building)

DIRECTIONS: Dawson College can be reached by various methods of transportation (Atwater Metro, #24 bus on Sherbrooke, by Bixi (bicycle path on de Maisonneuve), and by car.
See College website for more details http://www.dawsoncollege.qc.ca/visiting-dawson

NOTE: All venues -- Conrod's (2.C.4, Atrium level), the Multipurpose Room (5B.16) and 3F wings -- are best accessed from the de Maisonneuve Blvd entrance (considered the Atrium level). If entering from the Metro-level, take the escalators up one floor to the Atrium level.

KEYNOTE: will be held in the 5B.16 (Multipurpose Room)

CONFERENCE SESSIONS: 3F wing (see map)

LUNCH: Conrod's (Atrium level)

WINE AND CHEESE RECEPTION: Conrod's (Atrium level)

Lieux des événements

TOUS LES ÉVÉNEMENTS AURONT LIEU AU :

Collège Dawson,
4001 de Maisonneuve Ouest,
Westmount, QC, H3Z 3G4

STATIONNEMENT:

Le stationnement le plus proche est celui d'Alexis Nihon.

INSCRIPTION:

L'entrée principale de 4001 de Maisonneuve Ouest (cherchez la table d'inscription dès que vous entrez dans le bâtiment)

DIRECTIONS : Vous pouvez vous rendre au Collège Dawson par plusieurs moyens de transport (métro Atwater, bus 24 sur Sherbrooke), par Bixi (piste cyclable sur de Maisonneuve), et en voiture. Pour plus de détails, voir le site Web du Collège http://www.dawsoncollege.qc.ca/visite-Dawson

NOTE : Toutes les salles des activités - Conrod (2C.4, niveau atrium), la salle polyvalente (5B.16) ainsi que celles de l'aile 3F - sont plus facilement accessibles depuis l'entrée située au niveau de l'atrium du coté du boulevard de Maisonneuve. Depuis le métro, prenez l'ascenceur jusqu'au premier étage pour rejoindre l'atrium.

CONFÉRENCES PRINCIPALES : 5B.16 (salle polyvalente)

SESSIONS DE LA CONFÉRENCE : aile 3F (voir la carte)

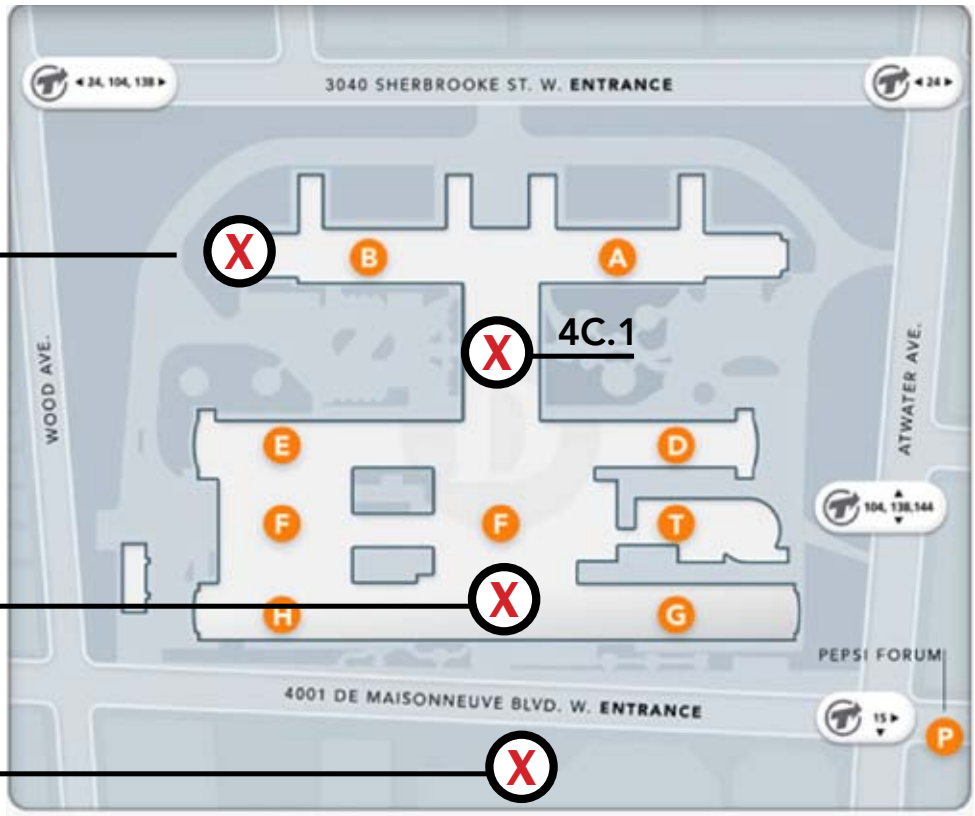
DÎNER : Salle Conrod (niveau atrium)

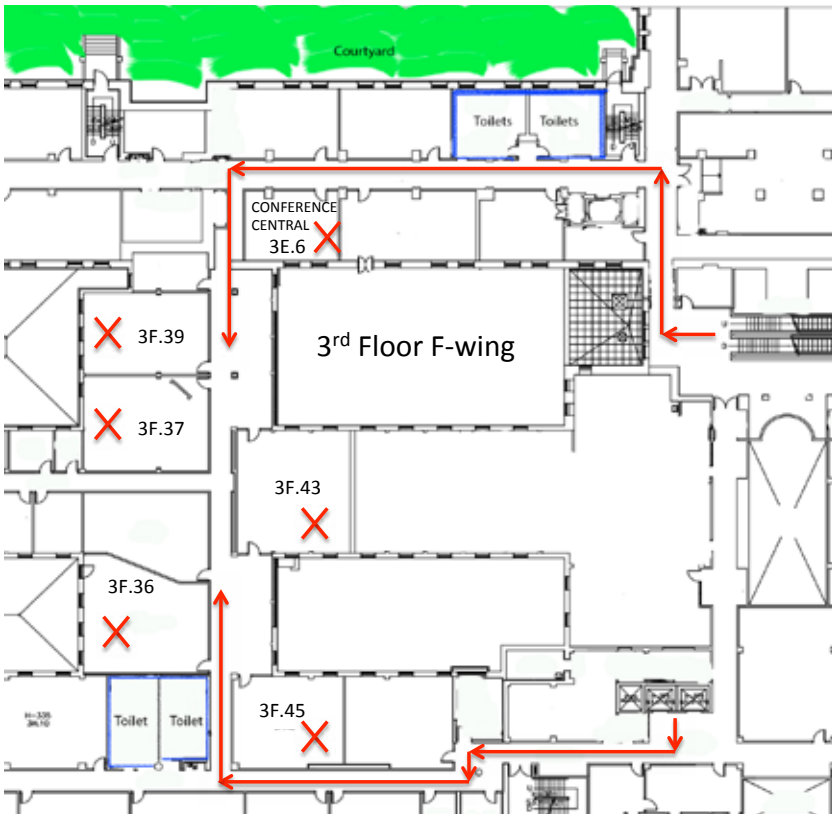
RÉCEPTION VIN ET FROMAGE : Salle Conrod (niveau atrium)

5B.16
Opening & Plenary Sessions

Registration Table
Pick up Name Tags

Parking @ Alexis Nihon





De Maisonneuve Blvd.

SALTISE

Keynote Speakers

Opening remarks & Plenary Session:

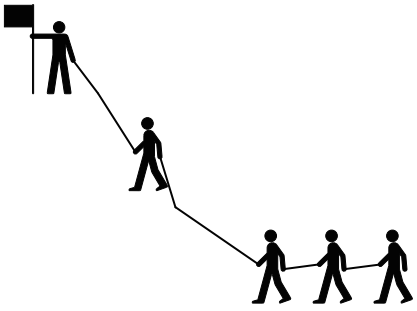
CARL BEREITER
(UNIVERSITY OF TORONTO, OISE)

Principles, practices, and principled practical knowledge

Location and Time: 5B:16 @ 8:30 - 9:30

CARL BEREITER

CARL BEREITER is a Professor Emeritus at the Ontario Institute for Studies in Education (OISE), University of Toronto. Along with Marlene Scardamalia, he developed CSILE (later Knowledge Forum®), the first networked system for collaborative learning, and its accompanying theory and pedagogy, Knowledge Building. His book *Education and Mind in the Knowledge Age* elaborates the epistemology and psychology underlying Knowledge Building. His academic honors include a Guggenheim Fellowship, fellowships to the Center for Advanced Study in the Behavioral Sciences, election to the U.S. National Academy of Education, and a lifetime achievement award (shared with Scardamalia) for "seminal contributions" to Computer-Supported Collaborative Learning. His educational contributions are profiled in the Routledge Key Guide, *Fifty Modern Thinkers on Education.*



Afternoon Plenary Session & Welcome:

NOAH FINKELSTEIN
(UNIVERSITY OF COLORADO, BOULDER)

Actively Engaging in Educational Transformation: The roles and promise of disciplinary engagement in education at a critical time

Location and Time: 5B:16 @ 13:45 -14:45

NOAH FINKELSTEIN

NOAH FINKELSTEIN is a Professor of Physics at the University of Colorado Boulder and conducts research is in physics education. He serves as a director of the Physics Education Research (PER) group at Colorado. Finkelstein is also a Director of the national-scale Center for STEM Learning at UC-Boulder, which has become one of eight national demonstration sites for the Association of American Universities' STEM Education Initiative.

Finkelstein's research focuses on studying the conditions that support students' interest and ability in physics – developing models of context. These research projects range from the specifics of student learning particular concepts, to the departmental and institutional scales of sustainable educational transformation. This research has resulted in over 100 publications.

He is increasingly involved in education policy serving on many national boards including chairing the American Physical Society's Committee on Education, PER Topical Group, and is a Technical Advisor to the Association of American University's STEM Education Initiative. He is a Fellow of the American Physical Society, and a Presidential Teaching Scholar for the University of Colorado system.

Program at a Glance

	8:00 - 8:30 Coffee & Tea					
8:30 -9:30	**Morning Keynote Speaker: Carl Bereiter**					
9:45 -11:00 Session 1	**1.1 Room 4C.1** **Technology to enhance & promote learning** (Invited speakers session)	**1.2 Room 3F.45** **Changements conceptuels en sciences** (Session in French)	**1.3 Room 3F.43** **Engagement and Learning - taking more into account**	**1.4 Room 3F.36** **Dawson's Active Learning Classroom** (Interactive Session)	**1.5 Room TBA** **Design-Me Classroom:** (Interactive Session)	
	Chris Buddle (McGill) – *Tweets from tablets: using social media and mobile technology to enhance activate learning in a field biology class* **Jim Slotta** (UofT, OISE) – *New roles for technology and physical environments in supporting collective inquiry* **Radhi Mhiri**, **Maarouf Saad** (ÉTS), **Catherine Mounier**, **Daniel Lemieux** (UQAM), **Adel Omar Dahmane** (UQTR), and **Vahé Nérguizian** (ÉTS) – *Multimodal Mobile Learning* Discussant: **Claude Martel** (Concordia)	**Abdeljalil Métioui** (UQAM) et **Louis Trudel** (Ud'Ottawa) – *Une démarche pédagogique axée sur le conflit conceptuel pour faciliter l'apprentissage des circuits électriques* **Caroline Cormier,** (Cégep André-Laurendeau et UdeM) – *Conceptions alternatives en chimie avec des étudiants postsecondaires* ***Louis Trudel*** *(Université d'Ottawa) et* **Abdeljalil Métioui** *(UQAM) Utilisation du laboratoire assistée par vidéo sur la compréhension des mouvements à une et deux dimensions chez les élèves du collégial* Animateur: **Nathaniel Lasry** (JAC)	**Cindy Hovington, Anila Asghar,** and **Josephine Nalbantoglu** (McGill) *Learning and the Brain: How to keep the brain mind in the classroom* **Cory Legassic & Greta Nemirof-Hoffman** (Dawson) *How our teaching can fragment the student vs. "addressing the whole person."* **Joel Trudeau** (Dawson) *The CERN-SPACE project : Engaging students through open problems across disciplines* Chair: **Suzanne Kunicki** (Dawson)	***Ginny Malcolm*** ***Anna-Lisa Aunio*** ***Chris Roderick*** ***Tim Miller*** (Dawson) *Orchestrating Pedagogy and Technology: Best practices from Dawson's Active Learning Classroom (ALC)*	**Chris Whittaker** and **Susanne Koltai** (Dawson) *"Design-Me Room" - how can the room layout be a tool in the process of designing for learning* *Participants will work together to create and refine learning activities in a new flexible classroom environment that features modular student tablet-chairs on wheels (manufactured by Steelcase) and writeable walls. This is a perfect opportunity to learn more about active learning by engaging in an orchestrated activity to design active learning activities.*	
	11:00-11:15 Break & refreshments 15 minutes					
11:15-12:30 Session 2	**2.1 Room 4C.1** **Bridging the Gap - curriculum and research** (Invited speakers session)	**2.2 Room 3F.45** **Classe d'Apprentissage Actif (CLAAC)** (Session in French)	**2.3 Room 3F.43** **Becoming sensitized to students' needs in active learning**	**2.4 Room 3F.36** **Media to promote learning in the college classroom**	**2.5 Room 3F.37** **Beyond the classroom - new ways to impact instruction** (Interactive Session)	
	Chandra Turpen (University of Maryland) – *A design-based research approach to developing interdisciplinary science learning environments* **Meredith Derian-Toth, Tara Tressel, Krista Muis, Susanne Lajoie** (McGill) – *Exploring the Communication Gap Between Educational Research and Practice* **Jean François Briere** and **Jonathan Sumner** (Dawson) – *From the perspective of practitioners: Team teaching in practice - a model for cross-curriculum development* Discussant: **Jim Slotta**	**Samuel Fournier-St.Laurent** (Cégep Ahuntsic) et **Samuel Bernard** (Cégep Lanaudière) – *L'innovation techno-pédagogique: quand les enseignants rencontrent les classes d'apprentissage actif (séance 1)* **Louis Normand** (Rosemont) *Séance 2 - les classes d'apprentissage actif en physique* Animateur: **TBA**	**Laura King,** (Cégep André-Laurendeau) **Catherine Fichten** (Dawson, CSLP), **Jillian Budd, Mai Nguyen, Mary Jorgensen, Gabrielle Lesage** (Adaptech) – *Inclusive Research on Inclusive E-Learning: Implications and Applications* **Neerusha Baurhoo** and **Anila Asghar** (McGill) – *Constructing Inclusive STEM Classrooms for Students with Special Needs: A Universal Design for Learning Approach* **Silvia d'Apollonia** (Dawson College) – *Pathfinder" to track students' mental models: Pedagogy and Research* Chair: **Rob Cassidy** (Dawson)	**Roberta Silerova & Ed Hudson** (JAC) – *"Quick and dirty" video supplements for first-year science classes* **Murray Bronet** (JAC) – *Innovating the Cultural and Pedagogical Gap with Seaweed* **Sameer Bhatnagar** (Dawson), **Kevin Lenton** (Vanier) – *DALITE in Physics: How do we know when students have changed their thinking* Chair: **Suzanne Kunicki** (Dawson)	**Jennifer (Cong Yan) Zhao** (McGill) – *Active Library Instruction Enhancing Science Education* **Sofia Ibarraran** (McGill, TPULSE) – *Graduate students making a difference: the TPULSE project at McGill* **Stéphanie CARLE** (AQPC) **Maeve MULDOWNEY** (Dawson College) *What You Do Inspires Me!* **Christophe Reverd** (VTE) – *Everything You Always Wanted to Know about Digital Badges but Were Afraid to Ask* Chair: **Selma Handani** (Dawson)	

	12:30 - 13:30 **Lunch**				
13:30-14:45	***Afternoon Keynote speakers:*** **Noah Finkelstein**				
15:00 -16:15 Session 3	**3.1 Room 3F.43 Understanding how to change conceptions** (Invited Session)	**3.2 Room 5B.13 Implementation of active learning: scaling up** (Special Session)	**3.3 Room 3F.37 Implications and lessons learning from innovative pedagogies**	**3.4 Room 3F.36 Using technology to promote learning** (Interactive Session)	**3.5 Room 3F.45 Using a Universal Design for Learning Framework** (Symposium)
	Calvin Kalman (Concordia) – *Changing Students' Approach to Learning* **Alexandre Tremblay**, **Isabelle Harpin** (UdeM) **Jesús Vázquez-Abad** (UdeM) **Caroline Cormier** (UdeM, Cégep Saint-Jean-sur-Richelieu, Cégep André-Laurendeau) – *Diagnosing and Using Alternative Conceptions in College Science* Discussant: **Michael Dugdale** (JAC)	**Yves Maufette** (UQAM) – *Implementation of active learning/Implémentation d'un apprentissage actif* Discussants: **Carl Bereiter** (OISE) **Noah Finkelstein** (UofC, Boulder) **Chandra Turpen** (UofMaryland)	**Karl Laroche** (Vanier) – *Vodcasts versus readings: Assessing the effect of using videos to facilitate the initial construction of knowledge* **Edward Awad** (Vanier) – *Adventures in Flipped Teaching* **Phoebe Young** (UofC, Boulder) – *Active Learning and Technology between the Disciplines: From Science to History and Back Again* Chair: **Jim Sparks** (Champlain College)	**Alice Cherestes** (McGill) – *Instructional Videos Used in General Chemistry Laboratory* **Tara Tressel, Meredith Derian-Toth & Susanne Lajoie** (McGill) – *Bridging the Gap Between Research and Practice: Using a Blog to Communicate Educational Research to Teachers* **Rhys Adams & Gregory Mulcair** – *Promoting Active Learning in China* Chair: **Jonathan Sumner** (Dawson)	**Thomas Henderson, Catherine Loiselle** (CRISPESH) and **Roberta Thomson** (McGill) – *Optimizing Relevance, Value, and Authenticity in College Learning using a Universal Design for Learning Framework* This symposium will be a symposium on this topic with three presentations by each author. Chair: **Thomas Henderson** (CRISPESH)
16:15 -17:00	**Award Presentations**				
	17:00 – 18:00 **Wine and cheese**				

Dawson = Dawson College

JAC = John Abbott College

Vanier = Vanier College

Champlain College = Champlain Regional College, Longuiel

Cégep André-Laurendeau

Cégep Ahuntsic

Cégep régional de Lanaudière

Cégep de Rosemont

Cégep de Saint-Jean-sur-Richelieu

McGill = McGill University

Concordia = Concordia University

UdeM = Université de Montréal

UQÀM = Université de Québec à Montréal

Ud'Ottawa = Université d'Ottawa

UQTR = Université du Québec à Trois-Rivières

ÉTS = École de Technologie Supérieure

UofT, OISE = University of Toronto, Ontario Institute of Studies in Education (OISE)

UofMaryland = University of Maryland

UC, Boulder = University of Colorado, Boulder

CRISPESH = Centre de recherche pour l'inclusion scolaire et professionnelle des étudiants en situation de handicap

CSLP = Centre for the Study of Learning and Performance

VTÉ = Vitrine technologie-éducation

AQPC = Association québécoise de pédagogie collégiale

T-PLUSE = Tomlinson Project in University Level Science Education, McGill University

SALTISE thanks Pearson for their sponsorship of this conference

June 12th Conference Day

8:30-9:30

Opening remarks & Plenary Session:

CARL BEREITER (University of Toronto, OISE) – *Principles, practices, and principled practical knowledge*

Probably every teacher would agree that pedagogy should be based on principles, but principles do not usually provide much practical guidance. Reducing pedagogy to procedures, however, has risks, the worst being what Ann Brown called "lethal mutations"—procedural changes that defeat the purpose for which the procedures were originally designed. The much-lamented gap between theory and practice in education cannot be filled by practical knowledge alone or by explanatory knowledge alone. Principled practical knowledge, or PPK, is a type of knowledge that has characteristics of both practical know-how and scientific theory. Like basic scientific theory PPK meets standards of explanatory coherence. However, its main function is not explanation or prediction but practical guidance. Its explanations do not go as deep as those of basic science, but they go deeper than those provide by experience-based rules of thumb, "best practice," or general principles of a vaguely philosophical nature. They go deep enough to enable a field of practice to advance. PPK arises out of efforts to solve practical problems, but it requires an investment of knowledge-creating effort beyond what the immediate problem calls for. This is the kind of additional investment often found in teaching hospitals, where it plays an important role in the progress of the health sciences. Insofar as an organization like SALTISE functions as an organization for creating as well as disseminating knowledge, it can play a comparable role in helping the field of education to advance beyond existing best practice.

Session 1
9:45-11:00

1.1 Using Technology to Enhance and Promote Learning (Invited speakers session)

CHRIS BUDDLE (McGill University) – *Tweets from tablets: using social media and mobile technology to enhance activate learning in a field biology class*

In a first year field biology course at McGill, students used twitter and blogs as a means to share knowledge, communicate with each other and the instructors, and consult with experts from around the world. These tools demonstrated a positive effect on student engagement and facilitated active learning.

JIM SLOTTA (University of Toronto, Ontario Institute of Studies in Education, OISE) – *New roles for technology and physical environments in supporting collective inquiry*

This talk will present several recent projects from the ENCORE lab at the University of Toronto that explore the role of new technologies in supporting collective forms of science inquiry. Projects will include immersive environments, embedded phenomena, tangible and embodied interactions for learning, and instrumented environments for student-collected data.

RADHI MHIRI, MAAROUF SAAD (École de Technologie Supérieure), CATHERINE MOUNIER, DANIEL LEMIEUX (Université du Québec à Montréal), ADEL OMAR DAHMANE (Université du Québec à Trois-Rivières), & VAHÉ NÉRGUIZIAN (École de Technologie Supérieure) - *Multimodal Mobile Learning*

Pioneering work in developing the flipped classroom (FC) for lessons in science and engineering are made while trying to integrate laboratory work remotely as teaching strategy. The experiment was conducted for an electronic course using the laboratory project approach and a physiology course using problem-based approach. The implementation of FC has led us to develop the mobile multimodal learning concept.

Discussant: Claude Martel (Concordia University)

1.2 Changements Conceptuels en Sciences (présentation en français/presentations in French)

CAROLINE CORMIER (Cégep André-Laurendeau/UdeM) – *Conceptions alternatives en chimie des étudiants postsecondaires : résistance ou non au changement conceptuel lors de l'enseignement traditionnel ?*

Les conceptions alternatives sont réputées résister au changement lors d'un enseignement traditionnel. Qu'en est-il réellement? Des données recueillies chez près de 2000 étudiants collégiaux québécois montrent que certaines conceptions diminuent en fréquence à mesure que les étudiants progressent dans leurs études, tandis que d'autres restent aussi fréquentes ou même augmentent.

ABDELJALIL MÉTIOUI (Université de Québec à Montréal) et Louis Trudel (Université d'Ottawa) – *Une démarche pédagogique axée sur le conflit conceptuel pour faciliter l'apprentissage des circuits électriques*

Dans la présente communication, nous présenterons d'abord une synthèse critique des recherches portant sur les

conceptions des apprenants avant et après enseignement à l'égard des circuits électriques. Ensuite, nous verrons qu'il est possible de faire évoluer les conceptions erronées identifiées vers des conceptions scientifiques en développant des stratégies d'enseignement axées sur le conflit conceptuel.

LOUIS TRUDEL (Université d'Ottawa) et ABDELJALIL MÉTIOUI (Université de Québec à Montréal) – *Utilisation du laboratoire assistée par vidéo sur la compréhension des mouvements à une et deux dimensions chez les élèves du collégial*

Au collégial, les mouvements à une et à deux dimensions causent beaucoup de difficultés aux élèves. Pour pallier ces difficultés, il a été suggéré que la démarche d'enquête scientifique des étudiants soit encadrée par l'ordinateur. À cet égard, notre présentation décrit les éléments de base d'une stratégie d'enseignement appelée «laboratoire assisté par video.

Animateur : Nathaniel Lasry (John Abbott College)

1.3 Engagement and Learning: Taking more into account

CINDY HOVINGTON, ANILA ASGHAR, & JOSEPHINE NALBANTOGLU (McGill University) – *Learning and the Brain: How to keep the brain mind in the classroom*

What can affect learning? We will highlight specific parts of the brain involved in learning and how various factors (emotions, memory and anxiety) can influence learning. Moreover, concrete strategies will be shared that educators can use with their students and allow them to harness their brain's full learning potential.

CORY LEGASSIC & GRETA NEMIROF-HOFFMAN (Dawson College) – *How our teaching can fragment the student vs. "addressing the whole person."*

While many schools claim to be "teaching the whole student," usually each student is reduced to numerous fragments, each to be addressed by a separate service and professional in education, career planning, counselling, athletics, etc. For 40 years, Dawson's New School has been exploring critical humanistic education, and we would like to offer insight into ways we can address the whole student within our classrooms.

JOEL TRUDEAU (Dawson College) – *The CERN-SPACE project: Engaging students through open problems across disciplines*

The impact of open-ended problems on student engagement and deep learning is explored using concrete examples taken from the 2014 international Particle Physics student competition (CERN) and related activities with SPACE, a Dawson project which seeks to expand academic discussion and collaboration beyond the classroom and across the disciplines.

Chair: Suzanne Kunicki (Dawson College)

1.4 Dawson's Active Learning Classroom: Lessons learned

GINNY MALCOLM, ANNA-LIISA AUNIO, CHRIS RODERICK, TIM MILLER (Dawson's ALC community) – *Orchestrating Pedagogy and Technology: Best practices from Dawson's Active Learning Classroom (ALC)*

Participants will get to experience learning in the ALC through a variety of activities from a variety of disciplines that have worked well in our ALC environment. The four presenters will discuss best practices, from the perspective of their different disciplines, and how they have designed and organized (orchestrated) activities in order to leverage the opportunities for learning offered by the technology.

1.5 Design-Me Classroom: (Interactive Session)

CHRIS WHITTAKER AND SUSANNE KOLTAI (Dawson College) – *"Design-Me Room" - how can the room layout be a tool in the process of designing for learning*

Participants will work together to create and refine learning activities in a new flexible classroom environment that features modular student tablet-chairs on wheels (manufactured by Steelcase) and writeable walls. This is a perfect opportunity to learn more about active learning by engaging in an orchestrated activity to design active learning activities.

11:00 -11:15 Break

Session 2
11:15-12:30

2.1 Bridging the Gap - curriculum and research (Invited speakers session)

CHANDRA TURPEN (University of Maryland) – *A design-based research approach to developing interdisciplinary science learning environments*

Our approach to design research supports critical reflection at multiple time-scales and grain sizes through collecting systematic data, listening to and valuing students' reasoning, and bringing diverse perspectives to interpreting data. I will show how our approach leads to improved curricular tasks, refined assessment objectives, and new design heuristics.

MEREDITH DERIAN-TOTH, TARA TRESSEL, KRISTA MUIS, & SUSANNE LAJOIE (McGill University) – *Exploring the Communication Gap Between Educational Research and Practice*

This presentation will discuss the use of a blog that pairs educational theories with classroom activities. In addition, the authors will address how they've disseminated research to practitioners in an understandable, applicable form allowing for direct communication between teachers and researchers. Findings include the construction of new knowledge between both parties.

JEAN FRANÇOIS BRIERE & JONATHAN SUMNER (Dawson College) – *From the perspective of practitioners: Team teaching in practice - a model for cross-curriculum development*

Presenters will share their experiences in developing active learning strategies, lesson-plans (scripts), and assessments through a collaborative team-teaching approach for two Option courses in the Science Program at Dawson College. Discussion will focus on how this collaboration might serve as a model for others looking to maximize the development of content-rich, active learning courses.

Discussant: Jim Slotta (University of Toronto, OISE)

2.2 Classe d'Apprentissage Actif (CLAAC) (présentation en français/presentations in French)

SAMUEL FOURNIER-ST.LAURENT (Cégep Ahuntsic) et SAMUEL BERNARD (Cégep régional de Lanaudière) - *L'innovation technopédagogique: quand les enseignants rencontrent les classes d'apprentissage actif (séance 1)*

Dans un premier temps, les premiers résultats d'une étude sur les conditions d'efficacité des classes d'apprentissage actif (CLAAC), réalisée par une équipe de chercheurs provenant de six collèges et de l'Université de Montréal, seront exposés. Ensuite, une démarche en six composantes pour élaborer des scénarios dans un tel environnement sera présentée.

LOUIS NORMAND (Cégep de Rosemont) – *L'innovation technopédagogique: quand les enseignants rencontrent les classes d'apprentissage actif (séance 2)*

Plus de résultats et les rapports des données préliminaires de l'CLAAC, un projet créé par la subvention du CRSH dirigé par Bruno Pollehuber de l'UdeM.

Animateur : TBA

2.3 Universal Design for Learning (UDL) and becoming sensitized to students' needs in active learning

LAURA KING (Cégep André-Laurendeau), CATHERINE FICHTEN (Dawson College, CSLP), JILLIAN BUDD (McGill University), MAI NGUYEN, MARY JORGENSEN, & GABRIELLE LESAGE (Adaptech) – *Inclusive Research on Inclusive E-Learning: Implications and Applications*

The Adaptech Research Network has studied ICT use by post-secondary students with disabilities since 1998. Our current research looks at excellence in e-learning used by college faculty. What works for students from diverse backgrounds and for students with disabilities? We will share challenges, solutions, and practical outcomes of inclusive research.

NEERUSHA BAURHOO & ANILA ASGHAR (McGill University) – *Constructing Inclusive STEM Classrooms for Students with Special Needs: A Universal Design for Learning Approach*

This presentation focuses on barriers and what students with special needs encounter in science classrooms and effective approaches to address them. By drawing on the universal design for learning approach, we highlight intervention-based practices to develop inclusive learning environments for diverse students.

SILVIA D'APOLLONIA, SUZANNE KUNICKI (Dawson College) and MURRAY BRONET (John Abbott College) – *Using "Pathfinder" to track students' mental models: Pedagogy and Research*

Students' mental models of a topic (operationalized as a network of nodes connected via weighted relationships) can be collected by asking students to rate all pairs of terms and using the Pathfinder algorithm to analyze the networks. We will discuss how this technique can be used in class to explore misconceptions and in research to explore students' understanding.

Chair: Rob Cassidy (Dawson College)

2.4 Using media to promote learning in the college classroom

ROBERTA SILEROVA & ED HUDSON (John Abbott College) – *"Quick and dirty" video supplements for first-year science classes*

This presentation outlines the use of short videos, viewable outside of class, to supplement in-class material. The presenters will show sample videos, and discuss aspects of creating and posting them. Results from a student survey, and viewing statistics, will be used to tailor future videos to better meet student needs.

MURRAY BRONET (John Abbott College), PETRA TURKEWITSCH (Cegep de la Gaspesie) – *Innovating the Cultural and Pedagogical Gap with Seaweed*

This presentation reports on the work of students from John Abbott College and the Cégep de la Gaspésie who formed collaborative teams to solve "real-life" problems within a laboratory environment. Their project purports to reflect future workplace realities, where collaborative teams are commonplace and necessitated, by changing existing "cookbook" paradigms for laboratory experimentation.

SAMEER BHATNAGAR (Dawson College), KEVIN LENTON (Vanier College), MICHAEL DUGDALE (John Abbott), CHRIS WHITTAKER (Dawson College), NATHANIEL LASRY (John Abbott College) and ELIZABETH CHARLES (Dawson College) – *DALITE in Physics: How do we know when students have changed their thinking*

The Distributed Active Learning Interactive Technology Environment (DALITE) is a web-based innovation that extends the success of Peer Instruction to an asynchronous mode. This instructional tool engages students in a series of tasks that involve written self- explanation and intentional reflection. Case study results of five classes using DALITE will be discussed.

Chair: Suzanne Kunicki (Dawson College)

2.5 Beyond the classroom - new ways to impact instructional practices (Interactive Poster)

JENNIFER (CONG YAN) ZHAO (McGill University) – *Active Library Instruction Enhancing Science Education*

Science education is not just science instructors' sole responsibility. Library instruction adds value to it by equipping students with competent information skills, which help them to succeed in their program studies and career endeavors. This session will demonstrate how active pedagogies are used in library instruction sessions and the feedback from student.

SOFIA IBARRARAN (McGill University, TPULSE) – *Graduate students making a difference: the TPULSE project at McGill*

As members of a group interested in improving education, graduate students at McGill are making a difference as part of the Tomlinson Project in University Level Science Education (T-PULSE). These efforts will be described as well as the workshops that have been developed to support changes to the ways graduate and undergraduate students think about learning and instruction.

CHRISTOPHE REVERD (Vitrine technologie-éducation) – *Everything You Always Wanted to Know about Digital Badges but Were Afraid to Ask*

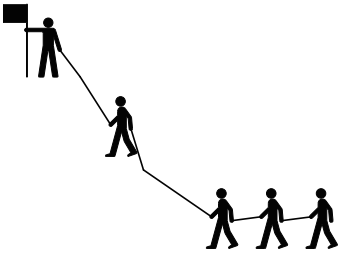
Vitrine technologie-éducation (VTÉ) and Mozilla are partnering to promote a broader use of Open Badges in Higher Education. Come and discover this digital tool that ideally complements any active learning approach. Join the various education institutions' initiatives in order to promote a shared expertise and prevent wasted time.

STÉPHANIE CARLE (Association québécoise de pédagogie collégiale, AQPC) and MAEVE MULDOWNEY (Dawson College) – *What You Do Inspires Me!*

Many teachers are breaking new ground in the area of college education, implementing new teaching approaches or conducting research. Writing an article is an opportunity to share with colleagues. Pédagogie collégiale's editorial team will provide participants with writing tips and techniques to help them produce a highly readable article.

Chair: Selma Hamdani (Dawson College)

Lunch break
12:30 - 13:30



Afternoon Plenary Session

13:30 -13:45

RICHARD FILION, Director General – Welcome from Dawson

13:45 -14:45

NOAH FINKELSTEIN (University of Colorado, Boulder) – *Actively Engaging in Educational Transformation: The roles and promise of disciplinary engagement in education at a critical time*

Significant, perhaps unprecedented, attention is being paid to the needs for transformation within the fields of science, technology, engineering, and mathematics (STEM) education. This talk examines how higher education and STEM disciplines themselves are positioned to contribute to these discussions. I will review the growth of our own program at CU-Boulder, and particularly my own research that examines several of the critical scales of focus in physics education. This work, applicable across the STEM fields, develops a new theoretical line of inquiry in discipline-based education research through experimental work at the individual, the course, and the departmental scales. I present samples of these scales reviewing: how students use new tools (whether computer simulations or representations and metaphors), course transformation at the introductory to advanced levels that deploy new tools, research on how subtle faculty choices that influence the impacts of these course transformations, and the development of a framework for understanding (and effecting?) sustained change in undergraduate education.

Session 3
15:00 -16:15

3.1 Understanding how to change conceptions (Invited Speaker Session)

CALVIN KALMAN (Concordia University) – *Changing Students' Approach to Learning*

Relying solely on lecturing, or using group activities, etc., as a bag of tricks "for enhanced teaching," instructors do not promote a holistic approach to learning. We need to create a learning environment in which students cannot only succeed but also develop critical thinking and other transferrable skills. This presentation will discuss a research program with such outcomes.

ALEXANDRE TREMBLAY (Université de Montréal/Cégep de Saint-Jean-sur-Richelieu), ISABELLE HARPIN (Université de Montréal), JESÚS VÁZQUEZ-ABAD (Université de Montréal), and CAROLINE CORMIER (Cégep André-Laurendeau) – *Diagnosing and Using Alternative Conceptions in College Science*

A new ICT-based instrument, ConSOL, provides educators with a tool to identify and diagnose students' alternative conceptions when learning. Presenters will discuss their multinational project that looks into exploring and comparing conceptions among college students in Quebec, Mexico and Australia. The use and usefulness of this online questionnaire will be discussed.

Discussant: Michael Dugdale (John Abbott College)

3.2 Implementation of active learning - how do we scale up (Special Topic – Invited Session)

YVES MAUFETTE (Université du Québec à Montréal) – *Implementation of active learning/Implémentation d'un apprentissage actif*

This presentation will deal with the complete renewal of a program using an active learning approach such as Problem-based learning (PBL). The speaker will present a realistic portrait, will demonstrate the process and the results after numerous years of implementation and research. He will share his reflexions on the challenges, the advantages, and the limits of such a change, in addition the feedback of exchanges with numerous international colleagues.

Cette présentation traitera d'un renouvellement complet de programme par l'implantation d'une pédagogie active, notamment l'approche par problèmes (APP). Le conférencier en dressera un portrait réaliste, illustrera la démarche et les résultats après plusieurs années de travail et de recherche. Il partagera avec nous ses réflexions sur les enjeux, les avantages et les limites d'un tel changement, ainsi que le fruit de ses échanges avec plusieurs collègues internationaux.

Discussants:
Carl Bereiter (OISE)
Noah Finkelstein ((UofColorado, Boulder)
Chandra Turpen (UofMaryland)

3.3 Implications and lessons learning from innovative pedagogies

KARL LAROCHE (Vanier College) – *Vodcasts versus readings: Assessing the effect of using videos to facilitate the initial construction of knowledge*

This presentation reports on the effects of providing flipped class students with videos compared to text-based readings as source material, in preparation for class. Findings show that students watching videos demonstrate greater learning gains, while those doing readings spend more time preparing for class. Benefits and challenges will be discussed.

PHOEBE YOUNG (University of Colorado, Boulder) – *Active Learning and Technology between the Disciplines: From Science to History and Back Again*

Despite longstanding faith in principles of active learning, historians and humanists can be hesitant to apply new technologies to support it. With adaptation, tools developed in the sciences can promote student engagement in historical thinking. This presentation expands on an inquiry web-based collaborative reading tool and a program for building digital interpretive exhibits.

EDWARD AWAD (Vanier College) - *Adventures in Flipped Teaching*

This presentation reports on a flipped teaching model in General Biology I and II conducted over 4 semesters using Moodle as the delivery of videos, and class activities consisting of a combination of technology-rich activities that students undertake individually and/or collaboratively. Students' perspectives and the effectiveness of this method will be discussed.

Chair: Jim Sparks (Champlain College)

3.4 Using technology to promote learning (Interactive Poster Session)

ALICE CHERESTES, SHRIKALAA KANNAN AND KIRUBA KRISHNASWAMY (McGill University) – *Instructional Videos Used in General Chemistry Laboratory*

Multimedia technology is a new instructional design approach for the general chemistry laboratory curriculum. This presentation reports on the impact and efficiency of laboratory educational videos for university freshmen students from multidisciplinary backgrounds. Results show that using these videos to support learning helps students with their preparation for lab work.

TARA TRESSEL, MEREDITH DERIAN-TOTH AND SUSANNE LAJOIE (McGill University) – *Bridging the Gap Between Research and Practice: Using a Blog to Communicate Educational Research to Teachers*

Social media sites, i.e., Twitter, Facebook, Edublogs, and Pinterest, are learning tools through which teachers connect with peers, share classroom activities and lesson plans, and explore new topics and ideas. This research explores how modeling through vicarious experiences in social media facilitates teachers' knowledge gains and increases self-efficacy in implementing technology.

RHYS ADAMS (Vanier College) and Gregory Mulcair (John Abbott College) – *Promoting Active Learning in China*

This poster highlights the outcomes of a recent exchange between teachers from Vanier and John Abbott Colleges, and four Chinese institutions. Workshops on peer instruction, problem based learning and using technology in the classroom were given to 400 teaching faculty and administrators at these institutions.

Chair: Jonathan Sumner (Dawson College)

3.5 Using a Universal Design for Learning Framework (symposium)

THOMAS HENDERSON, CATHERINE LOISELLE (CRISPESH) and ROBERTA THOMSON (McGill University) – *Optimizing Relevance, Value, and Authenticity in College Learning using a Universal Design for Learning Framework*

This presentation will explore how the UDL framework can provide a structure for thinking about and creating flexible pedagogical strategies. Of particular emphasis: alternatives for engaging with course content; multiple ways for students to learn, practice, implement, understand, analyze, and integrate skills and knowledge; leveraging of technologies to support access and engagement.

Chair: Thomas Henderson (CRISPESH)

Presentation of "Best Practices & Pedagogical Innovators" Awards 16:15-17:00

Closing reception – wine and cheese 17:00 – 18:00

The SALTISE Conference Committee wishes to thank: the Canada-Québec Agreement on Minority-Language Education and Second Language Instruction, managed by Ministère de l'Enseignement supérieur de la Recherche et de la Science (MESRS), for the funding of this year's conference.

Le comité de programmation de la troisième édition de la conférence annuelle du SALTISE souhaite remercier pour son appui financier l'Entente Canada-Québec relative à l'enseignement de la langue de la minorité et à l'enseignement de la langue seconde, gérée par le Ministère de l'Enseignement supérieur, de la Recherche et de la Science (MESRS) du Québec.

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A particular thanks goes to our partner, Vitrine technologie-éducation (VTÉ). VTÉ is a non-profit organization with the mission to guide Quebec post-secondary education institutions in their educational technology choices. VTÉ provides free online laboratories on emerging technologies and new ways to teach, a catalog of teaching and learning resources as well as software group purchases for cégeps and universities.

Nous adressons un remerciement particulier à notre partenaire, la Vitrine technologie-éducation (VTÉ). La VTÉ a pour mission de guider les choix des établissements d'enseignement supérieur québécois en matière de technologie éducative. La Vitrine technologie-éducation organise des laboratoires en ligne, gratuits, sur des technologies émergentes et de nouvelles façons d'enseigner, un catalogue de ressources d'enseignement et d'apprentissage ainsi que des achats regroupés de logiciels pour les cégeps et les universités.

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Finally, we thank our host, Dawson College, for their ongoing support.

Enfin, nous remercions le Collège Dawson, l'hôte de cette conférence, sans qui cet événement n'aurait pas lieu.

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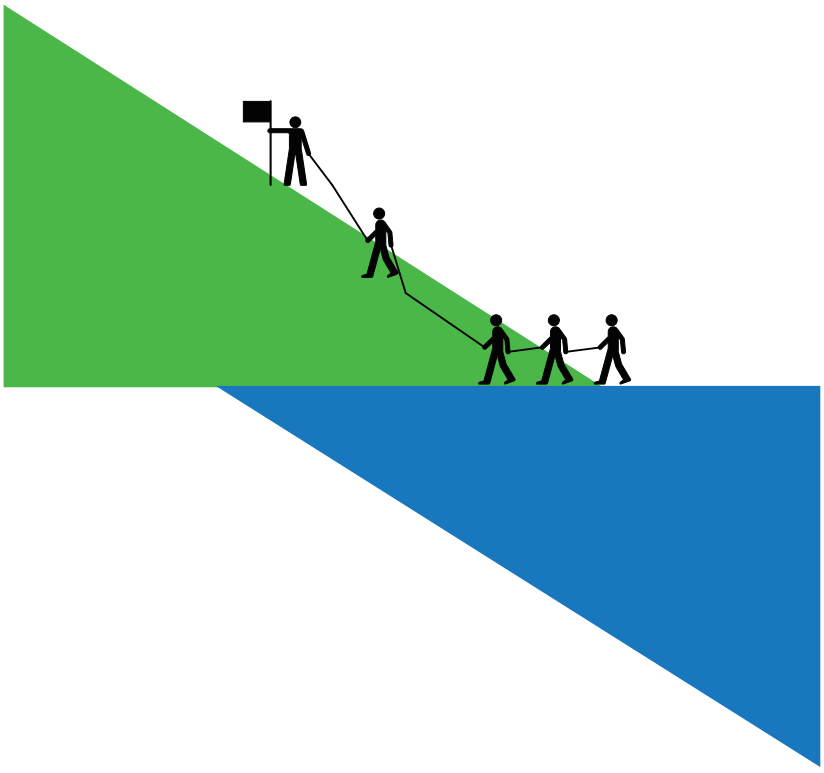

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