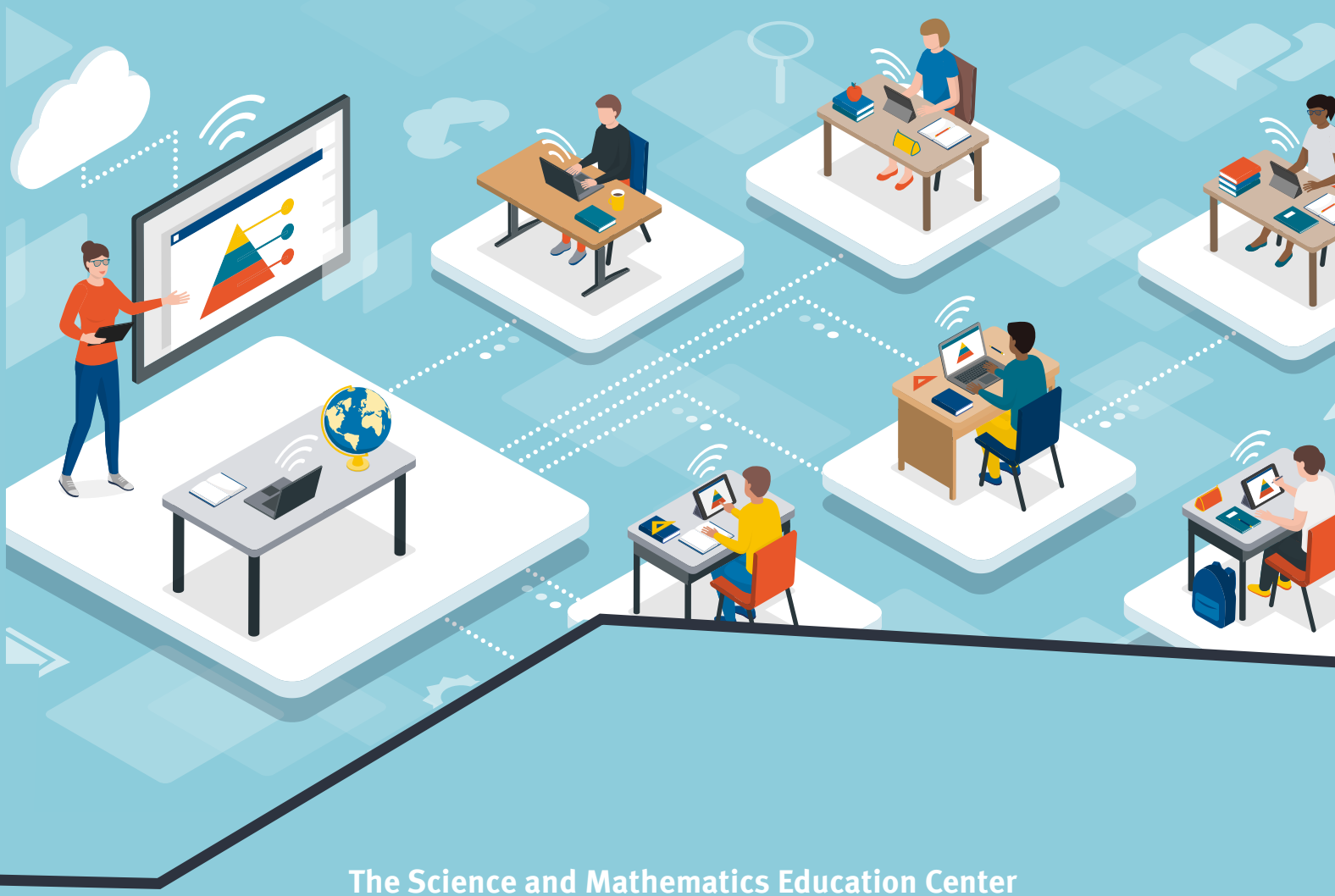

The Science and Mathematics Education Center
at the Department of Education

23rd Annual Science and Mathematics Educators Conference (SMEC 23)

Reimagining Science and Math Teaching and Learning: Lessons Learned in Light of Online Teaching and the Pandemic

CONFERENCE PROCEEDINGS

Beirut, Lebanon | March 5–6, 2022

1866 AUB American University of Beirut الجامعة الأميركية في بيروت
Faculty of Arts and Sciences
Departmen of Education
Science and Mathematics
Education Center | SMEC

THE TWENTY-THIRD ANNUAL SCIENCE AND MATHEMATICS EDUCATORS ONLINE CONFERENCE (SMEC 23)

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ACKNOWLEDGEMENTS

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SATURDAY, MARCH 5, 2022

SMEC 23 CONFERENCE PROGRAM AT-A-GLANCE

10:00–10:15 am	**OPENING CEREMONY**
	PLENARY SESSION
10:15–11:15 am	**MATHEMATICS** **Moderator: Murad Jurdak** **Mathematics: not just a matter of mind** ***Cristina Sabena,*** Department of Philosophy and Education University of Torino, Italy
11:15–11:30 am	**BREAK**

CONCURRENT INTERACTIVE SESSIONS

(DEVELOPMENTAL WORKSHOPS AND INNOVATIVE IDEA SESSIONS)

	Title	*Presenter(s)*	Moderators	Audience
Developmental Workshops 11:30 am–1:30 pm	المختبر الافتراضي في خدمة تعلم الكيمياء	*Mohammad Aref Tarabay*	Tamer Amin	Science Intermediate
	Flipped Classroom	*Amina Maatouk*	Enja Osman	Science all levels
	Nearpod	*Soad Azrak and Sarah Balees*	Jad Abu Najem	Math elementary
	Digital learning experience through Tabshoura platform	*Nayla Fahed, Muriel Albina, and Reine Sakr*	Rabih El Mouhayar	Math And Science

SATURDAY, MARCH 5, 2022

Innovative Idea Sessions 11:30 am 12:45 pm	Math and Science Anywhere, Anytime	*Hiba Bayloun*	Rola Khishfe	Math and science elementary
	Mathematical Olympiads in Lebanon	*Giuseppe Della Sala*	Murad Jurdak	Math Secondary
	Flipped Classrooms in Teaching and Learning of Mathematics	*Rana El Kaouri*	Rana Bassaj	Math all levels
1:30–2:30 pm	**BREAK**			

PLENARY SESSION

2:30–3:30 pm

SCIENCE

Moderator: Tamer Amin

Towards a more compassionate and empowering vision for science teaching and learning

Lama Jaber,

College of Education

Florida State University

SUNDAY, MARCH 6, 2022

RESEARCH AND PROJECT REPORT SESSIONS

Moderator: Murad Jurdak

11:00 am–1:00 pm	11:00–11:30 am منهجية الفصل المعكوس باستخدام تطبيقات google ***Mohammad Rifaii, Houssein Zaarour and Ali Ghanawi*** 11:30 am–12:00 pm تدريس الرياضيات عن بعد في زمن تفشي الوباء: عائق أم فرصة؟ ***Carol Chhimi and Rana Sweidan*** 12:00 pm–12:30 pm **Teaching Science During a Pandemic: Resolving Tensions and Contradictions of Practice** ***Heather McPherson and Rebecca Pearce*** 12:30 pm–1:00 pm **The Effect of Arithmetic of Infinity Methodology on Students' Beliefs of Infinity** ***Layla Nasr***

CONCURRENT INTERACTIVE SESSIONS

(Developmental workshops and innovative idea sessions)

	Title	*Presenter(s)*	Moderators	Audience
Developmental Workshops 11:00 am–1:00 pm	Online Learning, Emphasis on Assessments	*Barakat Nasser*	Rola Khishfe	Math and Science intermediate and secondary
	Hand-in-hand, learning through engagement	*Zeina Merhi*	Lin Zhang	Math and science intermediate and secondary
Innovative Idea Sessions 11:30 am–12:45 pm	الرياضيات في صفوف رياض الأطفال خلال التعلم عن بعد	*Hiba Kobeissi and Maysaa Awada*	Jad Abu Najem	Math kindergarten
	Blended Learning Approach in Secondary Science Classes	*Ali Saad and Ibrahim Takkoush*	Enja Osman	Science secondary
	Teaching Mathematics through Coding Skills in Scratch	*Rawan Adawi*	Rabih El Mouhayar	Math elementary and intermediate
	Méthode d'enseignement interactive des sciences en appliquant l'enseignement à distance	*Andree Chaoui*	Rana Bassaj	Science all levels

ABSTRACTS

PLENARY 1 – MATHEMATICS

SATURDAY | 10:15–11:15 am

Mathematics: not just a matter of mind

Cristina Sabena
Department of Philosophy and Education, University of Torino, Italy

Important educational scholars in the past (Piaget and Montessori among them) have emphasized the role of sensorial and motor experiences for learning in early childhood. In the last two decades, studies in mathematics education have increasingly highlighted the contribution of the body and sense-motor experiences in mathematical thinking and in the teaching-learning processes of mathematics at all school levels. I will focus in particular on gestures and I will consider them as semiotic resources that interact with speech and written signs in the mathematics classroom. After deepening the theoretical basis for such a multimodal semiotic approach, its educational implications will be discussed.

PLENARY 2 – SCIENCE

SATURDAY | 2:30–3:30 pm

Towards a more compassionate and empowering vision for science teaching and learning

Lama Jaber
College of Education
Florida State University

The world, and especially our country, is going through unprecedented adversities and challenges. Against this turbulent reality, schools and teachers are often the only oasis of hope and stability in children's lives. Teachers are not only in charge of disciplinary content, but they also afford opportunities for learners to see themselves as agents of change, to imagine new futures for themselves and their societies, and to own and enact their dreams. How can science education be leveraged to achieve these goals? In my talk, I argue that to reach these goals, science teaching should first and foremost center our children, their goals, interests, curiosities, and, more broadly, their full humanity. I discuss how such a view of teaching entails an empathetic, asset-based orientation to all learners as brilliant sensemakers. In particular, I focus on the importance of attending and responding to learners' intellectual and emotional experiences within and beyond the classroom, and how such responsiveness can both promote science learning and empower children to see themselves as agentic human beings. Drawing on examples from my own and other scholars' work, I discuss implications for instruction and for teacher education that aim to promote a more compassionate, empathetic, and empowering science education rooted in its inherent mission of social development.

DEVELOPMENTAL WORKSHOPS

SATURDAY | 11:30–1:30 pm

المختبر الافتراضي في خدمة تعلم الكيمياء

Mohammad Aref Tarabay,
Ministry of Education, Lebanon

فرضت جائحة كوفيد-١٩ نفسها بقوة على القطاع التربوي وتأثرت جميع المناهج التعليمية بها، غير أن تأثيرها على المقررات العلمية كان الأكبر بسبب تمحور جزءٍ كبير من تلك المقررات على التجارب المخبرية والتي باتت بعيدة المنال في ظل الإغلاق للمدارس وبالتالي المختبرات واللجوء إلى التعلم افتراضياً من بعد. استناداً إلى ذلك برزت الحاجة لردم تلك الثغرة الخاصة بتلك التجارب وبرز معها دور المختبرات الافتراضية كمسارٍ يمكن أن يؤدي إلى النواتج المنشودة من التجارب العلمية، ومن هنا أتت أهمية هذه الورشة التي تهدف إلى تسليط الضوء على كيفية استثمار المختبر الافتراضي وتسخيره خدمةً لتعلم الكيمياء. تعتمد الورشة على تجربتين مأخوذتين من موقع Phet Colorado وهو موقع مخصص لمحاكاة التجارب العلمية، حيث تم إعداد مستند لكل تجربة يتضمن التعليمات التي يجب على المشارك اتباعها للقيام بالتجربة الافتراضية وصولاً للإجابة عن الأسئلة المرفقة بناء على نتائج التجربة، واستنتاج القانون العلمي الذي ترمي إليه التجربة. إن القيام بالتجربة العلمية وحده لا يكفي لتحقيق الهدف التعلمي المنشود بل لابد من خارطة طريق تستثير الفضول العلمي للمشارك وتغريه لطرح التساؤلات وتتحدى أفكاره، حيث يمكن لمستند الاكتشاف الذي يرافق المشارك في التجربة أن يلعب هذا الدور ويساهم في مساعدته على بناء تعلماته خلال أداء التجربة وصولاً به إلى اكتشاف القانون العلمي المنشود. تقوم الورشة على نظرية التعلم البنائي-الاجتماعي لفايغوتسكي حيث يبني المشارك من خلال إجرائه للتجربة، تعلماته بنفسه وبالتشارك مع أقرانه خلال أنشطة العمل الجماعي. في نهاية الورشة سيكون على المشاركين إعداد مستند الاكتشاف بأنفسهم بغية التأكد من امتلاكهم لتلك المهارة وتوظيفها في وضعيات جديدة في حياتهم المهنية.

Flipped Classroom

Amina Maatouk,
Houssam Hariri High school, Lebanon

The COVID-19 pandemic has changed our world rapidly and enduringly. It has shaken up the academic landscape, has also laid for an astonishing transformation in education and pushed teachers to keep pace with the new normal in education through experimenting with new methods for engaging their students. One innovative teaching method which has become increasingly popular and may be particularly amenable to teaching during the pandemic is flipped classroom learning. So, the aim of this workshop is to shed light on this model including the benefits and challenges it poses and how teachers might use it with their own students and apply it successfully in their classrooms. Moreover, participants will be provided with different resources that are helpful for flipping classroom lessons. Furthermore, they will take the role of learners who are going to do several interactive learning activities using different apps.

Nearpod

Soad Azrak and Sarah Balees,
Abrar Educational Center, Lebanon

Nearpod gives teachers opportunities to provide immediate feedback and lets them know where reteaching would benefit students. Students can ask questions in the moment or take notes to strengthen their understanding of the content. Students can also move through content at their own pace, and teachers may choose to assign them different presentations or give them a chance to create their own. Since features like polls, ideas, and collaborative boards show immediate results, students and teachers can engage in meaningful discussion. Alternatively, teachers can implement follow-up questions through up-voting or quickly inserted whiteboards. Nearpod is also useful as a remote learning tool or for when a substitute is present in the classroom, as it's relatively easy for teachers to monitor student progress on the platform.

When direct instruction is a necessity, Nearpod offers fantastic ways to increase student involvement via in-person or remote environments. It would be nice to see some additional collaborative features like a backchannel or group annotation capabilities for further collaboration and communication. Teachers interested in using Nearpod to its fullest capabilities will want to check out the extensive learning resources available through webinars, professional development presentations, and the site's blog.

If there's a complaint to be made about Nearpod, it's that -- compared to some competitors -- it takes more time to figure out and get proficient with using. As a result, it might be best suited to more sustained use rather than as something you pull out here and there or use just to adapt some of your existing content. Patience is also needed when browsing the massive content library. It has tons of great content but lacks filters, so you'll need to do some digging and exploring to find that "just right" lesson.

Digital learning experience through Tabshoura platform

Nayla Fahd, Muriel Albina, and Reine Sakr,
Lebanese Alternative Learning, Lebanon

The Lebanese Alternative Learning mission is to provide all students in Lebanon with a transformative digital learning experience to break the cycle of inequalities in educational opportunities, build a better future and lead the change we want to see in our society.
Therefore, the Tabshoura platform relies on a constructivist methodology "Tabshoura's discovery methodology" focusing on the autonomous thinker, the analytical thinker and the creative thinker (Tabshoura 3Ts).
Our team of Math and Sciences specialists will showcase some of Tabshoura content for Middle School highlighting the use of "retry" and "feedback'" features to reinforce autonomy, the use of observation and deduction to develop the analytical skills of the learner and the role of real-life situations to enhance creativity.
We will then share with you some of our challenges and form groups to discuss them and come up with recommendations for us to adopt.
After sharing the recommendations with all the others, you will experience Tabshoura firsthand by accessing a link provided to you. You will have to solve a selection of our activities.

INNOVATIVE IDEA SESSIONS

SATURDAY | 11:30 am–12:45 pm

Math & Science Anywhere, Anytime

Hiba Bayloun,
Wellspring Learning Community, Lebanon

Science and math are typically seen as important subjects that can only be taught face to face.

The workshop will highlight that children not only must be instructed about how the world works from an adult's point of view but also discovering how the world works through their own online investigations. "The Inquiry Cycle" is a phrase commonly associated with science lab experiments applying the scientific method, but what if that didn't have to be the case? What if children were exposed to more authentic online ways to manipulate and explore ideas online through an inquiry cycle that they could easily relate to and understand. In the elementary level, students need the opportunity to think like a scientist. So, the question arises: how can educators explore topics online with children using the scientific methods that are more authentic? General ideas for investigating various subject areas will be shared and discussed with participants, as well as ways to help students approach online learning in a more scientific engaging way. Participants will have the opportunity to examine and reflect on authentic student work with the inquiry cycle currently used in a local IB school. Participants will also engage in online "hands on" activities exploring how the inquiry cycle can be used in the classroom.

Mathematical Olympiads in Lebanon

Giuseppe Della Sala,
American University of Beirut, Lebanon

The Math Olympiads are a competition aimed at high school students, which has developed a solid tradition in many countries around the world. The style of the contest puts a strong emphasis on creativity and inventiveness, with the idea of presenting types of questions which are not normally seen in high school curricula. We will present some recent efforts on the part of the American University of Beirut, aimed at introducing a competition of this kind in Lebanon.

Flipped Classrooms in Teaching and Learning of Mathematics

Rana El Kaouri,
International College Ras-Beirut, Lebanon

Teaching has changed a lot in the past 10 years specially in the last two years where the pandemic has changed education dramatically. Research showed that online learning has been a tool to enhance students' cognition and increase retention of information. Hence, eLearning must become central to most academic programs. Flipped classroom is one of the tools/ models highly recommended to use

in this transition. It is a blended learning design that results in higher learning outcomes compared to Fully E-Learning. The Flipped classroom model is exactly what it sounds like: learning is flipped upside down. Students will be able to learn the given material on their own way and time and class time will be used to solve exercises and activities that involve higher order thinking to deepen their understanding. A recent study revealed that most of the students had a positive attitude towards flipped classroom and the use of video (shortened pre-recorded or pre-prepared lecture/ lesson at home), and this positive attitude towards flipped classroom was strongly correlated to perceptions of increased motivation, engagement and effective learning. Low achievers significantly reported more positively as compared to high achievers with regards to attitudes towards the use of video as a learning tool and because of the more educator-learner interaction which allowed the educator to better detect concepts that learners are struggling with and to better apply differentiated instruction.

RESEARCH SESSIONS

SUNDAY | 11:00 am–1:00 pm

11:00 am–11:30 am

منهجية الفصل المعكوس باستخدام تطبيقات google

Mohammad Rifaii, Houssein Zaarour and Ali Ghanawi,
Al-Hadi Institute, Lebanon

جلسة تفاعلية حول منهجية الفصل المعكوس كيفية تطبيقها في تعليم الرياضيات مع التلامذة من ذوي الاحتياجات الخاصة بفاعلية باستخدام تطبيقات google المجانية مع أبرز الإيجابيات والعوائق المتوقعة وكيفية تخطيها بالإضافة الى عرض لنتاج تطبيق هذه المنهجية على نتائج التلامذة.

11:30 am–12:00 pm

تدريس الرياضيات عن بعد في زمن تفشي الوباء: عائق أم فرصة؟

Carol Chhimi and Rana Sweidan,
Al-Kawthar High School, Lebanon

شهد العام الدراسي تحدّيا كبيراً في لبنان على بعد أن لجأت معظم المؤسّسات التربوية لاعتماد نظام التعليم عن بعد (التعلم الالكتروني)، كأحد تداعيات فيروس كورونا المستجد. يعتبر الرياضيات من العلوم العقلية الضرورية لفهم مختلف ظواهر العالم, و نظرا" للطابع العقلي الذي تتميز به الرياضيات فإن أساليب ووسائل تعليمها شغلت تفكير مدرسيها إلى أن برز التحدي الأكبر في تدريس الرياضيات عن بعد في ظل جائحة كورونا وقد شكل ذلك تحديا" للمتعلمين و المعلمين معا" .و مثله مثل أي من طرائق التدريس فإن اعتماد التعليم عن بعد في الرياضيات له إيجابياته و له محدوديته و عوائقه. بالرغم من إيجابيات التعلم الإلكتروني فإن أسئلة تدور في خلد الكثيرين عن فعاليته كبديل للطرق التقليدية ومدى الاستعداد لذلك بالاضافة الى الجوانب التي يجب مراعاتها. و بعيدا" عن النظريات سنقدم في هذا البحث الإجرائي وصفا" موجزا" لواقع الحال انطلاقا" من تجربة ثانوية الكوثر بما يتعلق بعملية تعلم و تعليم الرياضيات خلال جائحة كورونا و التحديات الي واجهتها خلال فترة التعلم عن بعد و كيف تم العمل على معالجتها عبر ابتكار أفكار جديدة ساهمت في تفعيل العملية التعليمية في مختلف مراحل التعلم

12:00 – 12:30 pm

Teaching Science During a Pandemic: Resolving Tensions and Contradictions of Practice

Heather McPherson and Rebecca Pearce,
McGill University, Canada

On March 13th, 2020, the COVID-19 pandemic closed all educational institutions in Quebec, Canada. Within weeks of the shutdown, teachers were called upon to resume their teaching activities online. Science teachers had to adapt quickly to navigate online learning platforms while simultaneously reimagining how to deliver engaging, inquiry-based activities in high school science courses. To understand how teachers reconciled these dual tensions, we drew on Cultural Historical Activity Theory (CHAT) as a framework to examine how teachers transitioned their professional practices to meet the educational needs of their students. This study reports on the experiences of ten science teachers from two high schools in the Montreal area as they adjusted and developed their professional practices during the COVID-19 pandemic. Virtual professional development meetings and semi-structured interviews captured teachers' successes and failures as they struggled to transform their teaching. We followed the teachers' professional journey as they worked in their school communities to deliver engaging online science lessons and responded to a shifting professional landscape. We examined the rapidly changing norms of practice, how these changes impacted teachers' epistemological beliefs about student engagement and evaluation, and how newly acquired pedagogies could find permanence in teachers' post-pandemic activities. This study suggests that teacher communities can rapidly respond to a shifting professional landscape when they engage, share, and critically reflect on their professional practices. This research can inform researchers, educators, school boards, and policymakers how teachers learn and enact practical, effective processes that could shift the status quo post-COVID-19 pandemic.

12:30 pm–1:00 pm

The Effect of Arithmetic of Infinity Methodology on Students' Beliefs of Infinity

Layla Nasr,
Lebanese University, Lebanon

This study investigates the effect of a new methodology of the mathematical infinity on students' beliefs of it. The participants were a group of 25 students (grade 12) of the academic year 2020/2021. The students were subject to an intervention presenting a new methodology: "Arithmetic of Infinity" which is different from the classical one they learn in the Lebanese curriculum. A pre- & post questionnaires were administrated to check its effect. Results showed that the majority of students had positive beliefs of infinity after being exposed to this methodology. An evaluation was held after the intervention to check if the students were able to make basic computations using the new methodology. Results showed that the majority of students (92%) were able to pass the evaluation.

DEVELOPMENTAL WORKSHOPS

SUNDAY | 11:00 am–1:00 pm

Online Learning, Emphasis on Assessments

Barakat Nasser,
Beirut Baptist School, Lebanon

In February 2020, the whole country was locked down, all domains were forced to cease their activity, except for education. This lockdown was the awaited slap that awakened our hibernating system and unleashed new horizons for the Lebanese educators; it opened our eyes to the world of technology and e-learning. Now, after 2 years of this incident, learning should move forward, and it is an excellent opportunity now to benefit of all the ICT skills gained by our educators and the abundance and availability of e-learning platforms. The learning process is built on 4 basic pillars: Interaction, communication, practicing and exercising, and finally assessments and evaluations. Even when it comes to online learning, these domains still form the foundation to any learning process and any LMS should target these 4 domains and supply the right tools to implement them. However, the question that needs to be considered is what tool is the most convenient for a certain task? Meeting with learners, communicating with them and interacting should be considered in synchronous sessions. Appropriate time should be given for practicing and solving exercises, whether direct applications or in-depth analysis problems. Finally, evaluating the process of learning and the level of acquired performance and knowledge should be provided to all learners respecting equity and reliability scales as well. This can all be done when the proper tool is used and more importantly, when the proper vision is considered.

Hand-in-hand, Learning through Engagement

Zeina Merhi,
University College of Aley, Lebanon

Education in the 21st century aims at equipping learners with skills important for life, work and citizenship. The current pandemic however forced the adoption of online learning and stressed educators who in no time were searching for solutions to evolving problems. The key to making online learning successful is engagement!
This workshop sheds the light on student engagement and provides a successful progression from motivation to empowerment. It equips learning professionals with the use of engagement techniques that enhance online learning. The participants will be provided with enough time to actively explore some tools and strategies. They will also participate in hands-on activities, communicate and collaborate.

INNOVATIVE IDEA SESSIONS

SUNDAY | 11:30 pm–12:45 pm

الرياضيات في صفوف رياض الأطفال خلال التعلم عن بعد

Hiba Kobeissi and Maysaa Awada,
Al-Kawthar High School, Lebanon

يعد الهدف العام لتدريس الرياضيات فى مرحلة الروضة هو تنمية النواحى المختلفة للتفكيرالرياضى لدى الطفل فى المرحلة العمرية من ٤ الى ٦ سنوات، حيث سيتم العمل على ابتكار انشطة والعاب تعليمية عبر الحاسوب مستخدمين العديد من الاستراجيات التي تساهم في ايصال الافكار للصغار بطريقة محببة وسلسة وان كانت خلال التعلم عن بعد.

Blended Learning Approach in Secondary Science Classes

Ali Saad and Ibrahim Takkoush,
Saint Mary's Orthodox College, Lebanon

Knowing that the fast-evolving education landscape requires the integration of technology to customize learning, blended learning with its mix of technology and face-to-face instruction is a great approach. This workshop introduces the Blended Learning Approach that focuses on the skills educators need in order to ensure the best learning outcomes for learners. It provides them with a set of techniques and guided activities to implement Blended Learning strategies for teaching and learning in Secondary Science classes. It also supports learners' preparation for the future addressing the 21st century skills.

Teaching Mathematics through Coding Skills in Scratch

Rawan Adawi, ICT teacher, EdTech Coach,
Saudi Arabia

Learning Algebra in Mathematics has been a struggle for many students. Finding the connection with real-life situations and how to apply those rules in different contexts was still a question to many. Using Scratch environment, many rules can make more sense and can be put into practice. The students' enthusiasm and engagement in applying algebra or geometry concepts while coding is exceptional. It is important to note that this sort of STEM activity can help the students develop computational thinking which has been recognized as the 5th C to acquire 21st-century skills. During this session, we will be discussing innovative ideas of how to apply concepts in Mathematics using coding skills in Scratch. Scratch is an engaging coding program that teaches the students how to design their animated projects based on coding concepts. The student will need to develop a sequence of code blocks to demonstrate a certain idea or to solve a problem. This sort of activity improves the students' critical thinking and problem-solving skills especially when they need to debug and fix a code. The topics being discussed in the session will be of good use for Math teachers

from elementary to middle school. The participants will engage in hands-on activities on Scratch and will develop their projects using mathematical equations. Projects might include directions, drawing shapes, using variables, and others. It is also important to note that there are available resources to support the teachers which will be shared during the session to support lessons in Mathematics.

Méthode d'enseignement interactive des sciences en appliquant l'enseignement à distance

Andree Chaoui,
Balamand University, Lebanon

Toutes les écoles sont fermées, et tous les cours en salle de classe ont été transférés en ligne, dans le cadre des mesures visant à contenir tout danger de propagation du COVID-19 ou d´autres virus. L'école à distance est donc une précaution importante pour s'assurer de limiter les possibilités de transmission du virus. C'est la période de l'école à la maison pour de nombreux enfants.
Nous présenterons dans cette proposition la définition, les avantages et les inconvénients de l'enseignement des sciences à distance, dans tous les cycles scolaires, en adaptant des méthodes d´enseignement interactives face à l'enseignement traditionnel. L´enseignement à distance, également appelé enseignement en ligne renvoie à une modalité d'enseignement qui « permet à une personne d'apprendre de façon relativement autonome, avec le soutien à distance de l´enseignant. Le cours scolaire est d'abord une interaction en ajustement permanent entre un professeur et des élèves . Il forme ainsi un cours interactif qui permet à distance à l'élève de faire des recherches sur internet pour connaître par lui-même les différentes informations du cours.
La plupart du temps les cours au Liban ne sont pas interactifs et sont plutôt magistraux. Le cours magistral dépend totalement de l'enseignant. Au Canada les cours magistraux sont rares. On mise d'abord sur l'interactivité et le débat en cours. Le cours interactif se déroule par une circulation d'informations entre apprenants et enseignant. Comment doit être la communication en classe ? Solliciter l'enfant à poser des questions : Car il semble que la curiosité de nos jeunes libanais, n'est pas toujours sollicitée. Les avantages de l'apprentissage en ligne sont nombreux : efficacité, accessibilité et polyvalence. L'enseignement à distance doit être interactif, il consiste à créer durant les séances interactives, des temps de débats et d'échanges entre élèves et avec l'enseignant afin d'améliorer chez eux la compréhension du contenu du cours.