Emerging technology snapshot

Education and training of mental skills

Delivery of professional and post-academic training has changed significantly in recent years. Pre-pandemic advances were seen in non-traditional approaches to learning. During the pandemic, there was dramatic rapid development and adoption of digital and distance learning technologies. As the contemporary operational environment is increasingly ambiguous and rapidly changing, emerging trends and methods in adult professional training and education can support soldiers effectively learning the mental skills that are needed for future operational environments.
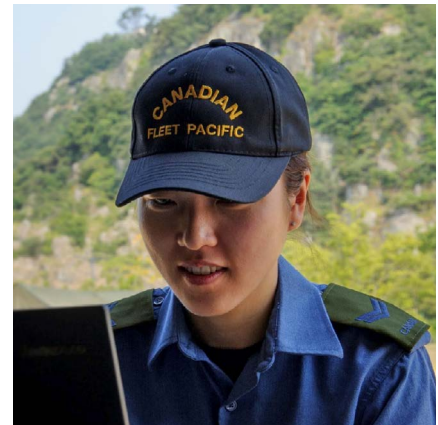

Photo by: Cpl Stuart MacNeil, MARPAC Imaging Services.

Enabling Science and Technology

Metacognition

Metacognition is key to self-regulated learning (which is particularly critical for online learning) and learning success in general. It involves the ability to think critically about one's own cognitive processes during learning activities, and allows students to adapt their learning practices to improve outcomes without external guidance.

Blended learning

Blended learning integrates face-to-face learning with online learning, providing both synchronous and asynchronous interaction with the teacher. Successful experiences requires teaching, social and cognitive presence, as defined in the Community of Inquiry framework. Common challenges include a lack of technology-based skills by both the students and teachers and inadequate infrastructure.

Instructional design

Instructional design is an approach to developing instructional material that takes into account how students learn and how they interact with learning methods and materials. With the rise in online learning, there is increasing need for the inclusion of distance learning instructional design training as part of long term professional development for faculty.

Learning analytics

Learning analytics (LA) is the measurement, collection, analysis and reporting of data about the learning process to better inform teaching and learning. It stimulates metacognition and self-regulation by providing students with insight on progress and it supports teachers in identifying students' learning difficulties, allowing them to adapt their curriculum accordingly. LA helps inform adaptive learning.

Adaptive learning

Adaptive learning, (also known as adaptive instruction or intelligent tutoring systems) involves the use of technologies and data to provide individually customized content to students, intelligently adapting to learning needs. Artificial intelligence can help the system dynamically adjust the e-learning environment to learners' skills. Adaptive learning is expected to be even more effective for teams.

"The flexibility that comes with new technologies and teaching models doesn't mean that learners are looking for a solely online experience. Instead, experts from our report feel that blended learning – sometimes termed 'active learning' or 'hybrid learning' – is a key future approach to education. "

FutureLearn. Online Learning in a Post-Pandemic World: the Future of Learning Report. March 16, 2022.

National Research Council Canada   Conseil national de recherches Canada

Canada

Signals

Academic

University of Toronto's InVEST project fosters equity, diversity and inclusion and supports lifelong learning through a module that focuses on interculturalism, decision making, and conflict resolution in a global virtual team context.

Government

The National Academy of Educational Sciences (Ukraine) recently published on the use of adaptive technologies and augmented reality in personalized learning for teacher training through a program that includes training on emotional intelligence.

Collaboration

Duke University (USA) and the National University of Singapore studied the use of an automated adaptive time management systems that improves self-regulation online.

Defence

The US Department of Defense (DoD) is the top affiliation in the field. DoD recently worked on designing multicultural awareness and competencies building assignments for use in virtual settings.

Corporate

Enterprise learning management systems serve the learning and training needs of employing organizations including corporations, governments, and healthcare institutions, in order to stay competitive and retain top talent.

"Adult Learning and Education (ALE) supports and enables people to understand change, to cope with change, to respond to change and to transform ourselves and our world."

International Council for Adult Education. Adult Learning and Education (ALE) – Because the Future Cannot Wait. 2020.

Impact

Social

The SARS-COVID-19 pandemic enhanced an interest and access to a variety of learning approaches including virtual learning.

Policy

Advances in virtual learning allow for a wider range of instructional approaches to better meet Canadian Armed Forces (CAF) training and education needs. Proof of their effectiveness supports their incorporation into contemporary training programs.

Economic

Increasing technological needs in education, and the rise of virtual learning, is expected to lead to strong growth in the learning management system market.

Environmental

Virtual learning has the potential to reduce travel to specific learning centers and the resource requirements needed for certain skills-based training environments.

Defence

The increasing use of technologies to simulate real-world situations and capture learners' physiological data allow personnel to learn more complex scenarios and larger skill sets – including resilience, readiness and critical thinking. This will aid the CAF in preparing diverse personnel for better teamwork and problem solving skills in meeting the challenges of the modern operating environment.

"In the future of work, the critical skills for success are increasingly soft skills like emotional intelligence, adaptability and resilience. Success in the future of work requires becoming a lifelong learner. "

Yolanda Lau, Forbes Council Member. Embrace Lifelong Learning to Thrive in the Future of Work. Sept 30, 2021.

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