



Content-integrated AI learning in TVET

Innovation and Learning Practice

Bridging Innovation and Learning in TVET (BILT) Project



Submitted by College of the North Atlantic, Canada

The content-integrated AI learning (CIAIL) model embeds artificial intelligence (AI) across TVET curricula to prepare students for the demands of an AI-driven economy and enhance their employability. The model supports the integration of AI into existing programmes so students learn about – and with – AI. By combining trainer support with industry research, the initiative positions TVET institutions as leaders in innovation and workforce development.

Start date: April 2025

Type of implementing institution: Public college

Funding partner: Government of Newfoundland and Labrador, Canada

Target group: TVET administration, faculty, students, government departments



College of the North Atlantic

College of the North Atlantic (CNA) is a public faculty in Newfoundland and Labrador, Canada. It is one of the largest post-secondary institutions in Canada and is committed to delivering programmes that enable students to meaningfully contribute to social and economic development, both locally and globally. CNA is a member of CICan (Colleges and Institutes Canada), home of the pan-Canadian UNEVOC Centre.

Description of activities

The CIAIL model's goal is twofold: first, AI is used to augment content delivery and assessment; and second, AI is learned through its use for teaching and learning. It positions AI as a 'co-intelligence' tool that enhances critical thinking and problem-solving skills. The model also emphasizes practical, field-specific applications – from career simulations to writing support.

Through reviews of existing courses and industry research, CIAIL identifies how AI-related competencies should be integrated into training, ensuring emerging trends and upskilling needs inform the development of new qualifications. Learning outcomes are then revised to improve in-demand AI-enhanced skills and new programmes are developed in collaboration with industry stakeholders. The model aims to tailor AI within each discipline to maintain its relevance and practical application.

Relevance

What issues is the CIAIL model designed to address?

TVET institutions need to prepare students for an AI-driven economy that is rapidly evolving and re-shaping everyday work. Existing curricula, however, often lack systemic integration of AI competencies leaving students underprepared for the demands of a changing workforce. Faculties often lack the training and tools required to integrate AI into teaching, increasing the risk of programmes becoming outdated.

What strategies have been employed to address these challenges?

The model embeds AI across the curriculum. This ensures students learn to use AI tools and understand their relevance in their field. It also supports faculty development and curriculum renewal to keep pace with technological change and industry expectations. It has five main pillars: curriculum review and redesign; faculty training and capacity building; a pilot CIAIL model in communications courses; research and industry engagement; and cross-institutional collaboration.

Added value

What is new about the CIAIL model and how does it differ from similar initiatives in Canada?

Research highlights the need to **embed AI formally into TVET curricula**, moving beyond ad-hoc tool usage toward structured cross-disciplinary integration. The CIAIL model emphasizes both learning about AI and using it as a tool for learning, weaving it into existing curriculum outcomes. It also stresses the importance of placing faculty readiness at the center of implementation ensuring adequate training, access to technology and ongoing support.

What stage of implementation is the initiative at?

The model is being piloted in CNA's communications courses and its Adult Learning, Teaching and Innovation certification. Instructors are being trained on teaching on- and with- AI, and their feedback, along with students' feedback, is informing refinement of the model ahead of broader rollout.

Early findings indicate students can use AI for a range of tasks, from real-time writing to generating initial drafts, while instructors use it to help students assess their writing to deepen learning. Initial instructor skepticism on using AI was overcome as the pilot and training progressed.

Transferability

What advice would you offer to those wishing to replicate this initiative?

CIAIL is a scalable, evidence-informed model that other institutions can replicate, adapt and improve. To help overcome skepticism, it is recommended to highlight practical, discipline-specific use cases and create peer support networks and mentorship opportunities.

Institutions should start with small pilots and align AI integration with current outcomes to minimize disruption to existing curriculum guidelines and approval processes.

Equitable access should be prioritized to avoid expanding the digital divide, and training centres are advised to guard against the erosion of critical thinking by balancing AI-integrated exercises with other approaches.

Has the CIAIL model been promoted in any national or international contexts?

The model was promoted at the BILT Bridging Event 'Policies for the digital transition and integration of AI in TVET' in Kuala Lumpur, Malaysia, in May 2025.

The CIAIL model is one of the BILT project's Innovation and Learning Practices that addresses systemic challenges within the five work streams of the project.

Specifically, this initiative addresses digitalization in TVET.



Digitalization in TVET

Providing response to new skills demands, as technology has permeated the world of work and is changing the profile of jobs.

Additional Innovation and Learning Practices cover the following areas:



New qualifications and competencies in TVET



Entrepreneurship in TVET



Greening TVET



Migration and TVET

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More information about this practice

[CNA website](#)

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About the BILT Project

UNESCO-UNEVOC's Bridging Innovation and Learning in TVET (BILT) project is a reference point for innovation and learning in TVET. It fosters global policy dialogue and peer learning among TVET stakeholders while promoting innovation and inclusive excellence in TVET. BILT complements developments at the national level in supporting innovative, market-oriented and attractive modes of learning and cooperation in TVET.

The BILT project explores the process of identifying, integrating and implementing new qualifications and competencies in TVET. This is known as the 'three I's process'.

In addition to the broad focus on new qualifications and competencies, BILT addresses four complementary themes: Digitalization in TVET, Greening TVET, Entrepreneurship in TVET, and Migration and TVET.

For more information, please visit
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New qualifications and competencies in TVET

- **Identifying** new qualifications and competencies in a timely manner;
- **Integrating** them into appealing and flexible curricula and training regulations; and
- **Implementing** them in innovative training approaches

Entrepreneurship in TVET

Unlocking the potential of innovative entrepreneurial activities and fostering entrepreneurial culture

Greening TVET

Responding to new development paradigms for sustainability and reduced environmental impact

Digitalization in TVET

Providing response to new skills demands, as technology has permeated the world of work and is changing the profile of jobs

Migration and TVET

Accelerating the integration of migrants into their host communities, and allowing them to become productive members of the workforce

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