

Generative AI and trades/craft work: Implications and effects

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NZ Vocational Education Research Forum 2025



Whakatuki

Te tū, ki te hoe.
Puritia, kia mau ki tō ngakau.
Whāia ngā whetū, ki ngā hau
ki ngā au o te moana, hoea
whakamua.
Tihei mauri ora

Seize the paddle, hold it firmly to your heart.
Follow the stars, with the winds, with the currents of the
ocean, paddle forward.



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Overview

- Rationale
- AI@Ara projects - with levels 4 to 7 - 2023;
levels 1 – 4 – 2024; AI agents to support personalised learning - 2025-2027.
- AI in trades/craft occupations -
- Survey in 2023/2024 – trades/craft perspectives on AI
- Learning a trade – overview
- A framework for trades/craft learning in the age of AI
- AI literacies for trades/craft occupations



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Rationale

- AI is here to stay
- Impact on occupations and work - far-reaching consequences on society
- Unresolved implications on ethics (privacy, indigenous, data sovereignty etc.)
equity (corporate ownership, capitalistic model)
- Implications on education (personalised learning environments?)
- Interactions with AI not necessarily text-based (multimodal, 'embodied',
cobot/bionic - <https://edition.cnn.com/travel/robotic-exoskeleton-hiking-china-intl-hnk>)



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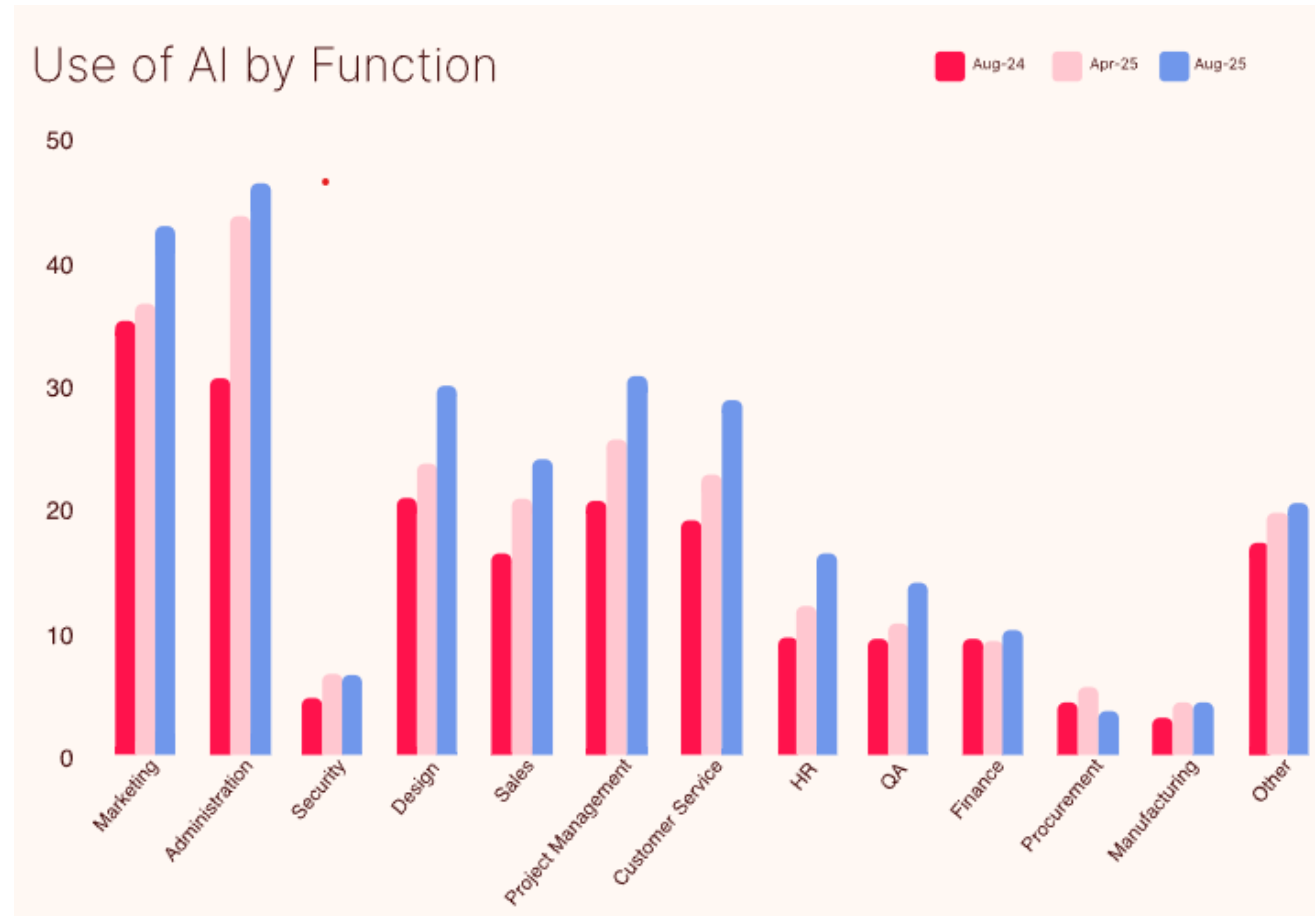
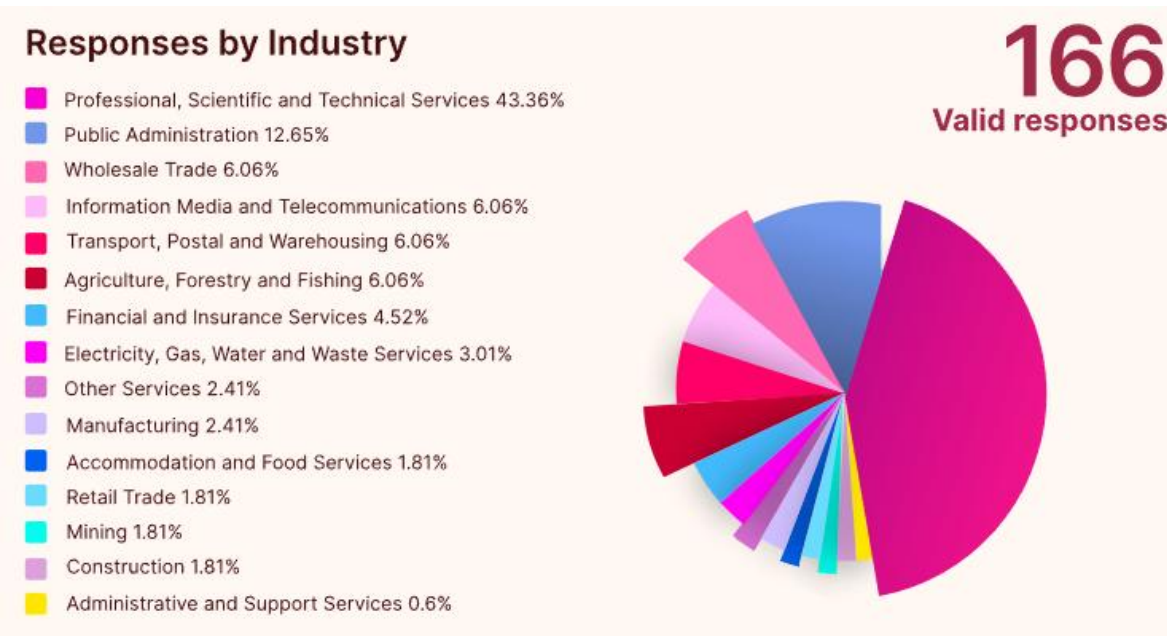
Overview of AI@Ara projects

- **Levels 4 – 7 – computing, construction management, graphic design, hospitality management, nursing** (S. Chan (Ed.). Artificial Intelligence in Vocational Education and Training: Understanding learner and teacher perspectives on the integration of Generative AI through participatory action research Springer, Singapore) – Using AI as ‘socratic’ coach; support reflective learning; compare/contrast coding; attain design thinking; support ‘research’.
- **Levels 1 – 4 – foundation/bridging programmes** (Chan, S., Lewis, T., Collins, R., Beker, C., Fox, J., Peterson, R., Sarkar, A., Lotter, C., & Stewart, A. (2025). Guidelines for supporting foundation/bridging ākonga to evaluate and utilise Gen AI to improve writing and reading. Ako Aotearoa.) **AI as ‘study buddy’; development of AI chatbots to support academic writing.**
- **AI agents to support personalised learning - 2025-2027** (edited book proposal) **AI agents for ESOL/foundation writing; revision of complex concepts; drug calculations; feedback on academic writing – using Copilot agents, NotebookLM, and Cogniti**

Survey (2023/2024)

- Just over 100 responses
- Clear demarcation on AI use based on job designation – ‘office’-based occupations more likely to use AI
- Adoption patchy and nascent
- Very little usage for people ‘on the tools’

AI forum – AI in Action: exploring the impact of AI on NZ's productivity



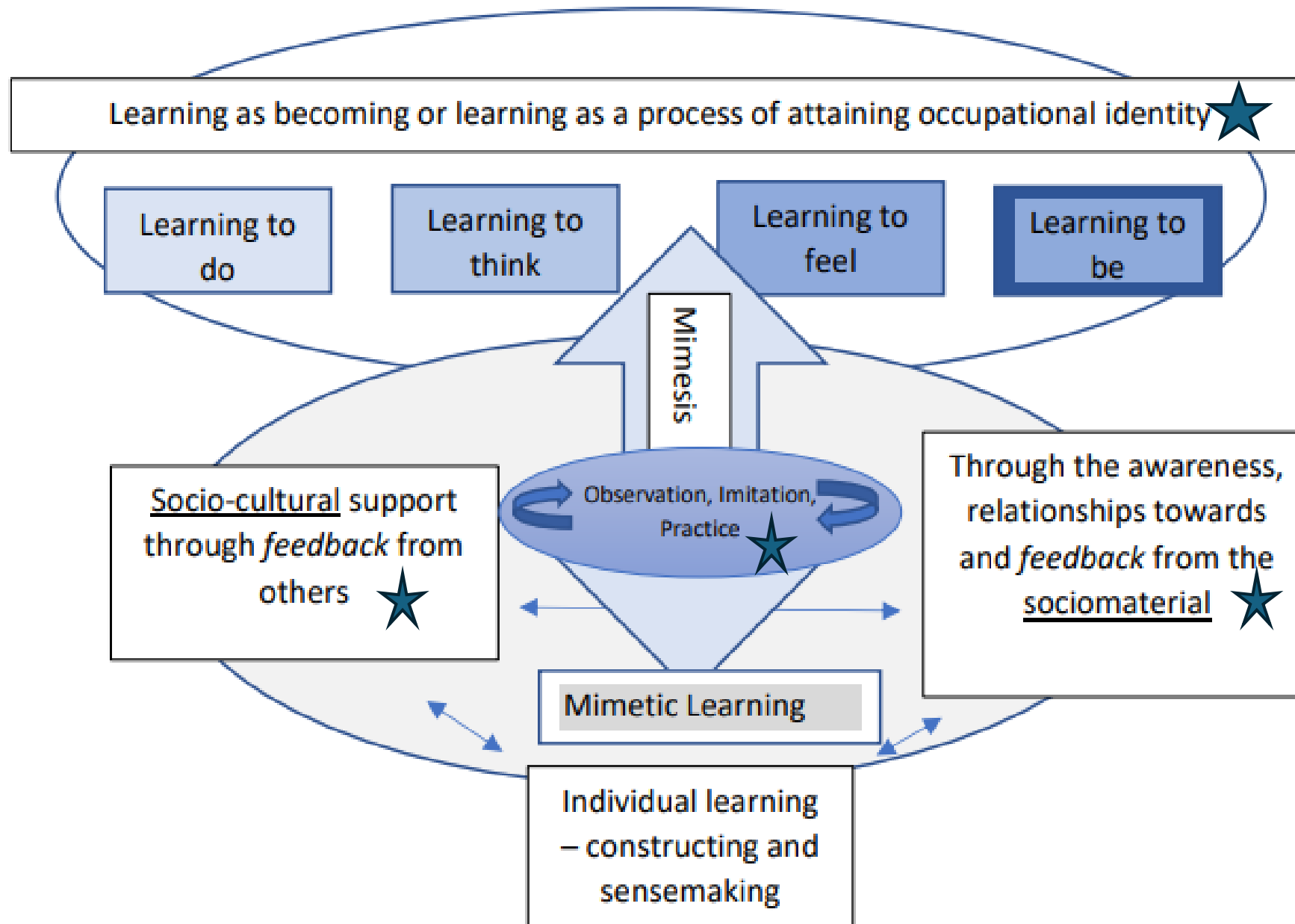


Figure 2.1 Learning as becoming

Learning a trade



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Occupational identity formation (learning to do, think, feel and be)

Mimetic learning (Observation, imitation, deliberate practice)

Learning in the workplace (affordances and agency)

Importance of FEEDBACK (feed up, feedback, feed forward)

- **Sociocultural** – from other people

- **Sociomaterial** - from tools, machines, materials, environment etc.

From NZVET research forum 2020

- summarised from Chan, S. (2013). Learning a trade: Becoming a trades person through apprenticeship. Ako Aotearoa Southern Hub.

Implications of AI in trades/craft occupations

(-- A safe bastion from AI – but for how long??)--

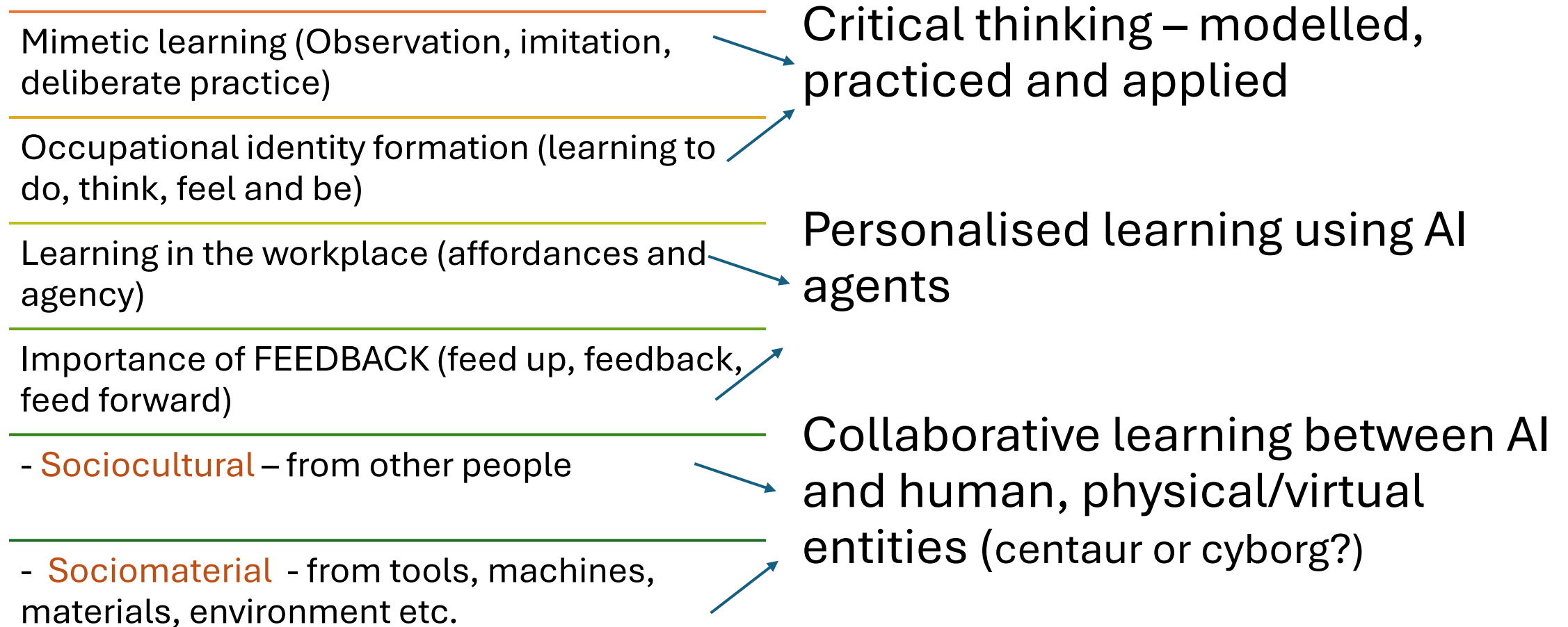
- Robots and AI – cobots, exoskeletons
- Wearable devices – Meta Raybans
- Automated detection/inspection systems
/Remote vehicles – tunnellers, diggers etc.
- Higher expectations - higher multivariate skill requirements; higher cost barriers (need hardware as well as software)
- Complex world (ethics, post-truth, indigenous data sovereignty)



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Nally, D. AI-Informed Pedagogy for a Post-Truth Era. *Digital Society*. 4, 76 (2025). <https://doi.org/10.1007/s44206-025-00230-6>

A framework for trades/craft learning in the age of AI



AI literacies for trades/craft occupations

- Align with occupational job tasks and practices – especially multimodal or non-text-based interaction/communication – voice, touch, ambulatory/motion, gaze, gestures, emotions, neural etc. Human/machine and physical/virtual interfaces
- Teamwork including non-human or virtual partners/team-mates – discrimination against non-human workers (robo-phobia); raised productivity expectations; human fragility-
<https://www.bbc.com/news/av/uk-england-coventry-warwickshire-48140728>;
- SAIL framework - likely to its highest level – to be able to create AI agents – derived from current text-based AI interaction
- Critical thinking and humans as evaluators / quality controllers/ arbiters/ ‘conductors’
- Need for qualifications and curriculum to be updated

Selena Chan

Identity, Pedagogy and Technology- enhanced Learning

Supporting the Processes
of Becoming a Tradesperson

Selena Chan
Thomas Huntington *Editors*

Reshaping Vocational Education and Training in Aotearoa New Zealand

International
Journal of
TRAINING RESEARCH

Edited by

Edited by Selena Chan and Teresa
Schmidt

Digitally Enabling
'Learning by Doing'
in Vocational
Education
Enhancing 'Learning
as Becoming'
Processes

Selena Chan *Editor*

Artificial Intelligence in Vocational Education and Training

Understanding Learner and Teacher
Perspectives on the Integration
of Generative AI through Participatory
Action Research

 Springer

Ngā mihi / Thank you

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Pūkenga

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blogging at:-

<http://mportfolios.blogspot.com>