

Which teachers are using Artificial Intelligence and what predicts their use?

Evidence from TALIS 2024

Dr Tim Friedman (Australian Council for Educational Research)

Dr John Ainley (Australian Council for Educational Research)

Dr Wolfram Schulz (Australian Council for Educational Research)

Research Overview

The OECD's Teaching and Learning International Survey (TALIS) 2024 asked teachers about their use of artificial intelligence (AI) as part of their work. This paper draws on data from 55 education systems to examine cross-national variation in teachers' AI use and factors associated with adoption of AI.

Purpose of Study

The rapid emergence of generative AI tools for use in education in recent years has reshaped expectations of what teachers can do in their work. There have been calls for education systems to develop guidance for the appropriate integration of these tools into teaching and learning (see for instance Miao & Cukurova, 2024; OECD, 2026), and many systems have since begun to develop policy responses. The evidence base on teacher uptake of AI, however, has tended to be limited to single-country studies (Kaufman et al, 2025; Collie & Martin, 2024). This paper draws on findings from TALIS 2024 (OECD, 2025), the largest international comparative study of teachers to provide a cross-national picture of the proportion of teachers that use AI and what factors predict their likelihood to adopt it.

Research Methods

TALIS involved questionnaires completed by lower-secondary teachers and school leaders, and with optional participation at primary and upper-secondary levels (OECD, 2025). Data for this paper focus only on teacher responses from primary and lower-secondary level. Questions about AI were placed on one of three randomly assigned questionnaire forms. These include whether they used AI during the past 12 months, how they use it and their beliefs about the use of AI in education.

Preliminary analyses using confirmatory factor and reliability analyses suggest that two scales can be derived from ten items reflecting teacher beliefs: positive and negative beliefs about AI. Pooled logistic regressions with country fixed effects were fitted at lower secondary level (n = 33,340 across 55 systems) and at primary level (n = 8,690 across 16 systems) to examine factors associated with AI use. These factors included teacher experience, initial teacher education in digital tools, indicators of professional learning: in the pedagogical use of digital tools, in the technical use of digital tools, and in AI specifically, the two belief scales, and three school-level measures (aggregated

from teachers responding to any of the three TALIS forms): digital practice for whole-class instruction, digital practice for individualised instruction, and teacher autonomy.

Results and Discussion

Reported AI use varied substantially across countries. At lower-secondary level, the proportion of teachers who reported using AI in the previous year ranged from approximately one in seven in France to approximately three-in-four in Singapore and the UAE. Among AI users at lower-secondary level, the most common purposes were generating lesson plans and adjusting the difficulty of lesson materials. Assessing student work and reviewing student data were less common. Among non-users, the dominant reason for not using AI was a lack of knowledge and skills, followed by concerns about whether AI should be used in teaching and feeling overwhelmed by new technologies.

In the logistic regression model, there was a large degree of between-country variation in AI use. By observing odds-ratios, AI-specific professional learning was the strongest predictor of AI use at lower secondary level. Teachers who had received such training had nearly four times the odds of using AI in their teaching. Positive beliefs about AI were also strongly associated with use, while negative beliefs played a smaller role. Positive beliefs were more strongly associated with adoption than negative beliefs with non-adoption.

There were mixed findings for associations with school-level variables. Teachers in schools with higher levels of IT use for whole-class instruction were somewhat more likely to use AI, while those in schools emphasising digital tools for individualised instruction were slightly less likely. School-level teacher autonomy showed no meaningful association with AI use at lower secondary level.

Applying this model at primary level showed similar patterns. AI-specific professional learning was again the strongest predictor of AI use, positive beliefs the second strongest. School-level context of digital practice appeared somewhat more influential at primary than at lower secondary level, while whole-class digital practice was associated with higher AI use and individualised digital practice with lower AI use. School-level teacher autonomy was associated with AI use at this level.

The findings have implications for understanding the ways in which AI can be used productively to support teaching in schools. Knowing why teachers use AI to support educational goals will help inform the development of systemic frameworks and policies (Borgonovi et al., 2025). There are emerging system-wide initiatives intended to support the development of trustworthy educational AI tools (OECD, 2026, pp 30-32; Vodafone Foundation, 2025). These initiatives, and their effects on teachers, need to be understood in the context of AI use and the extent to which they facilitate teachers'

professional judgements. Large-scale survey data can help to provide evidence on those issues.

References

- Borgonovi, F., Bastagli, F., Ochojska, M., & Piumatti, G. (2025). *AI Adoption in the Education System: International Insights and policy Considerations for Italy*. OECD Artificial Intelligence Papers Series No, 52. OECD Publishing.
- Collie, R. J., & Martin, A. J. (2024). Teachers' motivation and engagement to harness generative AI for teaching and learning: The role of contextual, occupational, and background factors. *Computers and Education: Artificial Intelligence*, 7. <https://doi.org/10.1016/j.caeai.2024.100224>
- Kaufman, J. H., Woo, A., Eagan, J., Lee, S., & Kassan, E. B. (2025). *Uneven adoption of artificial intelligence tools among U.S. teachers and principals in the 2023–2024 school year*. RAND Corporation. https://www.rand.org/pubs/research_reports/RRA134-25.html
- Miao, F., & Cukurova, M. (2024). *AI competency framework for teachers*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000391104>
- OECD (2025). *Results from TALIS 2024: The State of Teaching*, OECD Publishing, Paris, <https://doi.org/10.1787/90df6235-en>
- OECD. (2026). *OECD Digital Education Outlook 2026: Exploring Effective Uses of Generative AI in Education*. OECD Publishing. <https://doi.org/10.1787/062a7394-en>
- Vodafone Foundation (2025), *AI in European Schools A European report comparing seven countries*, Vodafone Foundation, https://skillsuploadjr.eu/docs/contents/AI_in_European_schools.pdf.