

IEA COMPASS:
BRIEFS IN EDUCATION

SCHOOL PRINCIPALS AS CHANGE AGENTS IN AN ERA OF AI-DRIVEN TRANSFORMATION

Insights from ICILS 2023



SUMMARY

This *Compass Brief* presents findings from the 2023 cycle of ICILS (International Computer and Information Literacy Study), the first international study to capture school principals' perspectives on the emergence of generative AI (artificial intelligence) in schools. Data from more than 1,100 principals in 11 countries, collected in late 2023 and early 2024, provide a unique snapshot of leadership responses at an early stage of AI adoption. While many principals recognized potential benefits for teaching and learning, most also expressed concerns related to academic integrity, misinformation, and students' overreliance on AI. In most countries, fewer than one third of principals reported having received guidance from educational authorities, indicating that schools were often navigating these developments without clear policy direction. Overall, the findings underline that adaptation to generative AI does not occur automatically but depends on leadership capacity, system-level guidance, and targeted support.

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IMPLICATIONS

- ▶ **System-level guidance is essential:** the wide variation in generative AI adoption across and within countries shows that diffusion is uneven and highly context-dependent. Without clear frameworks, schools risk responding in fragmented or inconsistent ways. Educational authorities should provide strategic guidance that clarifies expectations, responsibilities, and boundaries for the use of generative AI in schools, balancing innovation with ethical, legal, and pedagogical safeguards.
- ▶ **Support principals as change agents:** principals are not resistant to generative AI but are positioned at the forefront of managing uncertainty. The findings show that school leaders require support to translate emerging technologies into coherent school practices. Strengthening principals' capacity through guidance, leadership resources, and opportunities to engage with AI tools can help ensure informed decision-making and consistent implementation.
- ▶ **Prioritize professional learning and responsible use:** across countries and age groups, nearly all principals identified an urgent need for teacher professional learning and student guidance related to generative AI. Short, modular, and regularly updated professional development can complement longer-term curriculum reform. Emphasizing critical, reflective use, rather than replacement of teachers' work, can help schools harness potential benefits while managing risks related to quality, equity, and academic integrity.

INTRODUCTION

With the arrival of AI, our world has entered a phase of accelerated transformation. AI is rapidly becoming a pervasive feature of contemporary societies, reshaping how information is produced, accessed, and used. In education, recent advances in generative AI, particularly LLMs (large language models) such as ChatGPT, have increased the pace of this transformation. These tools, which became widely accessible from late 2022 onward, can generate text, complete school tasks, and provide information across a wide range of subjects and levels of complexity. Their swift diffusion has brought generative AI into students' everyday lives and, increasingly, into school contexts, raising fundamental questions about teaching, learning, assessment, and educational governance.

For schools, the emergence of generative AI presents a dual challenge. On the one hand, education systems are expected to prepare students for a world in which AI tools are likely to play an important role in further education, work, and civic life. On the other hand, schools are increasingly called upon to consider how, and under what conditions, these tools should be used within educational settings. While generative AI may offer opportunities to support learning, personalization, and teacher productivity, it also raises concerns related to academic integrity, the authenticity of student work, equity, data protection, ethical concerns, and the reliability of AI-generated information. These opportunities and risks have sparked intense debate among educators, policymakers, and the public, often in the absence of systematic evidence on how schools are responding in practice.

Within this context, school principals occupy a central position. As institutional leaders, they act as key change agents who shape how

schools interpret and respond to technological developments. Principals influence whether and how generative AI tools are introduced, restricted, or integrated into school practices; they mediate policy expectations at the system level with the realities of classrooms; and they play an important role in setting norms, providing guidance to teachers, and communicating with parents and students. Understanding principals' perceptions of generative AI is therefore essential for assessing how schools are navigating this period of rapid technological change and where additional guidance or support may be needed.

Until recently, there has been little cross-national, representative evidence on school leaders' views regarding generative AI. The 2023 cycle of ICILS addresses this gap. In response to the rapid public uptake of generative AI in 2022, ICILS 2023 included a set of questions administered to school principals in a subset of participating countries. These questions captured principals' familiarity with and use of generative AI tools, as well as their perceptions of the potential impact of such tools on teaching and learning.

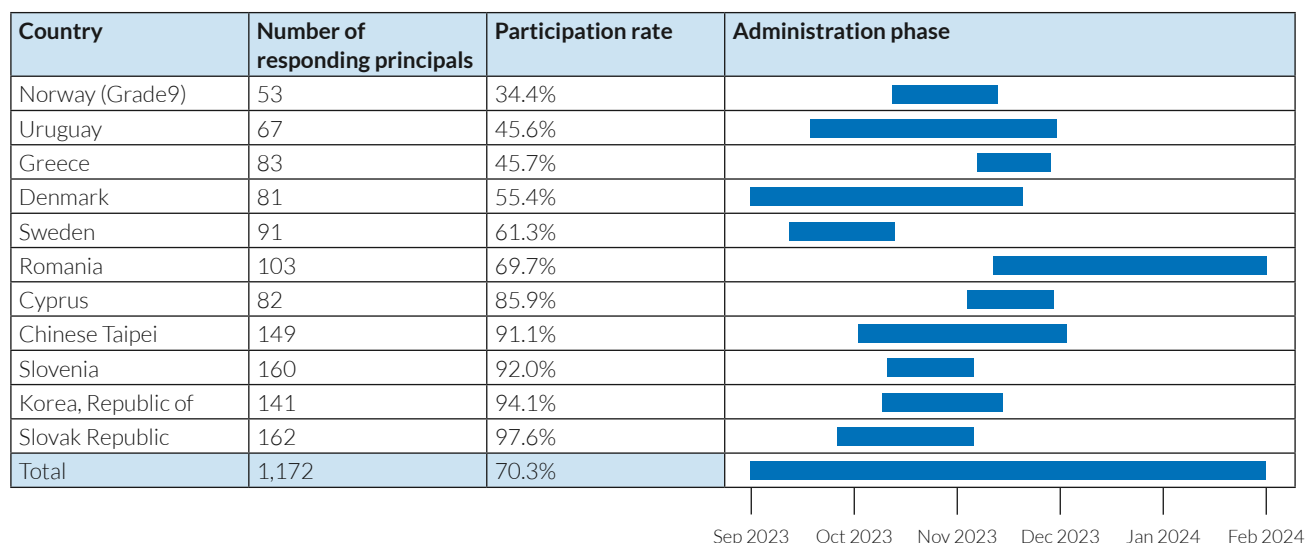
Although developments in AI continue at exceptional speed, and perceptions may already be evolving, ICILS 2023 remains the first and, to date, only international study to provide cross-nationally comparable, representative data on principals' perspectives on generative AI. Importantly, the timing of data collection means that these findings capture school leadership responses close to the outset of a major technological shift, offering insights into early patterns of awareness, adoption, and hesitation.

DATA

The analyses presented in this brief are based on data from the 2023 cycle of ICILS, which included a set of questions on generative artificial intelligence administered to school principals in a subset of participating countries. ICILS provides a representative sample of schools accommodating eight-grade students. In each country, principals of the selected schools were invited to complete these questions. Data collection took place between September 2023 and early 2024, either as part

of the main school principal questionnaire or through a follow-up administration, depending on national implementation schedules. Figure 1 provides information on sample sizes, participation rates, and administration periods. The dataset comprises responses from more than 1,000 principals overall. Response rates and timing varied across countries, suggesting caution when interpreting results. Results are reported at the country level and in aggregated form across countries.

Figure 1. Number of responding principals, participation rate, and administration phase by country



RESULTS & DISCUSSION

► Principals' use of generative AI

By the time of data collection, between 44 and 85 percent of school principals, on average across countries, reported having used generative AI at least once for work-related or personal purposes, indicating substantial cross-national variation in early adoption (Figure 2). In Chinese Taipei, the Republic of Korea, and Slovenia, three quarters or more of principals reported experience with generative AI, whereas in the Slovak Republic, Cyprus, Romania, and Uruguay fewer than half of principals reported any use.

► Guidance from authorities

Principals were asked whether they had received information from national educational authorities on the use of ChatGPT or similar tools. The nascent state of generative AI in schooling at the time of data collection is evident in principals' responses, presented in Figure 2. In four countries, fewer than 10 percent

of principals reported having received information on explicit policies or recommendations regarding the use of generative AI for teachers' or students' work. In most other countries, this share was somewhat higher but still below one third. Notable exceptions were Chinese Taipei and the Republic of Korea, where close to half of principals reported having received guidance for both teachers' and students' use. In both contexts, generative AI guidance aligns with well-established and explicit curriculum initiatives related to the use of digital technologies, which may have supported earlier engagement by school leaders. In Denmark, authorities also provided regulatory guidance, particularly concerning students' use. At the same time, stronger public debates around ethics and data protection in Europe, including the implementation of the GDPR (General Data Protection Regulation), may have contributed to greater caution among principals when engaging with generative AI.

Figure 2. Principals' reports on generative AI use and information received from educational authorities about the use of ChatGPT or similar tools in schools (by country)

Country	Used AI at least once	Percentages of principals that have received information relating to the work of	
		Teachers	Students
Chinese Taipei	85.0 (3.2)	49.8 (6.7)	39.7 (7.4)
Cyprus	45.7 (6.1)	15.3 (4.3)	13.3 (3.7)
Denmark	54.5 (5.6)	23.6 (6.5)	49.4 (7.3)
Greece	55.7 (6.1)	4.7 (3.0)	1.8 (1.3)
Korea, Republic of	78.4 (3.8)	45.0 (8.0)	40 (7.4)
Norway (Grade 9)	64.2 (7.1)	27.4 (7.3)	31.4 (7.5)
Romania	46.2 (6.2)	6.7 (3.2)	6.7 (3.2)
Slovak Republic	44.3 (4.9)	6.8 (2.1)	6.9 (2.3)
Slovenia	74.9 (3.6)	3.5 (1.4)	3 (1.4)
Sweden	57.7 (7.0)	26.2 (6.5)	21.2 (6.2)
Uruguay	46.5 (7.3)	11.5 (3.5)	10.6 (3.5)
International Average	60.7 (1.8)	21.4 (1.7)	21.7 (1.7)

Note: Standard errors are presented in brackets.

► **Principals' perceptions: how will generative AI affect students' learning and teachers' work?**

In ICILS 2023, school principals were asked to indicate how likely they considered a range of potentially positive and negative developments associated with the use of generative AI tools for students' learning and teachers' work in their schools. While the ICILS 2023 international report provides a comprehensive overview of principals' responses, this brief places particular emphasis on perceptions of potential challenges.

Across countries, a substantial majority of principals expressed concerns about how generative AI may relate to students' learning (Figure 3, boxes a and b). On average, more than three quarters considered it likely that students might become reliant on such tools rather than engaging in independent learning. Similar proportions anticipated increased risks of students submitting work that is not their own and being exposed to false, misleading, or biased information. Around two thirds of principals expected that the use of generative AI could make it more difficult for students to develop a deep understanding of subject matter. In addition, approximately 40 percent of principals, on average across countries, expressed concerns that students might become anxious about the growing influence of technology in society, a view somewhat more common among older principals.

Principals' perceptions varied by their own experience with generative AI. Those who reported no prior use of such tools were generally more likely to anticipate negative implications for students' learning than principals who had used generative AI at least once. An important exception related to concerns about plagiarism, which were reported at similarly high levels regardless of principals' personal experience and were more frequently expressed by principals aged 50 years or younger.

At the same time, principals also recognized potential benefits associated with students' use of generative AI (Fraillon, 2025). A majority considered it likely that such tools could increase students' interest in learning, support learning outcomes, reduce stress, help develop and refine research questions, improve the quality of written work, and support creativity.

Across countries, principals expressed varied views on how the availability and use of generative AI may relate to teachers' work (Figure 3, boxes c and d). Between one and two thirds of principals, on average, considered it likely that generative AI could pose challenges to teachers' professional standing or lead to the use of materials that contain inaccurate information, misalign with curricular requirements, or conflict with sound pedagogical

practice. Around 40 percent also reported concerns that generative AI might be of limited usefulness for teaching and learning because it does not function adequately in the language(s) of instruction used in their schools. This concern was considerably less common among principals who reported some experience using generative AI than among those who had never used such tools.

One concern was shared by almost all principals, regardless of prior experience: that generative AI could make it more difficult for teachers to judge whether students' submitted work is their own. While expectations of this challenge were high among both user and non-user principals, they were more pronounced among younger principals. More generally, principals without prior experience using generative AI, as well as principals aged 50 years or younger, were more likely than their peers with experience to anticipate challenges for teachers' work.

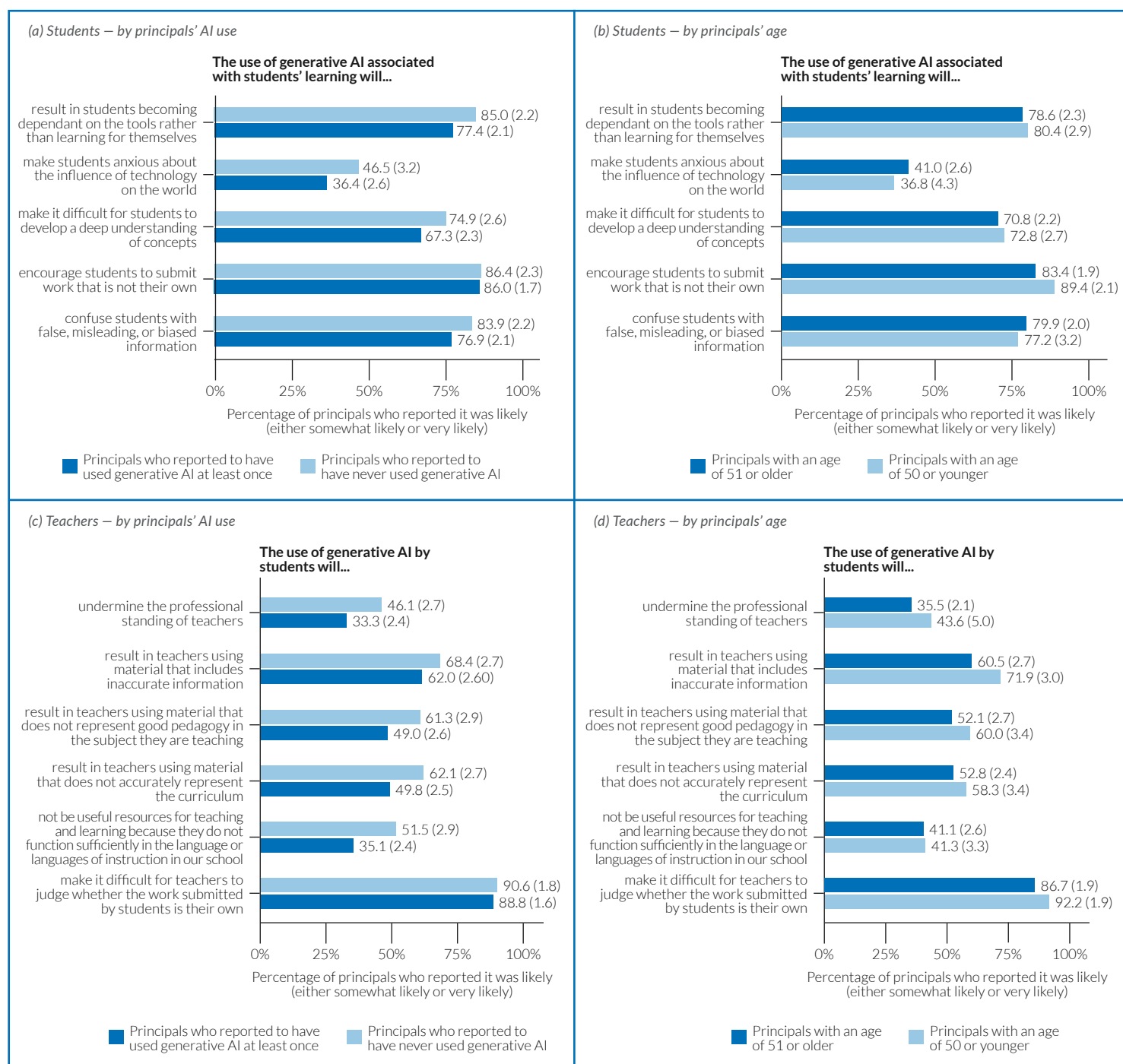
Principals also identified potential opportunities associated with teachers' use of generative AI (Fraillon, 2025). On average across countries, more than two thirds considered it somewhat or very likely that such tools could support teachers by easing lesson planning, developing teaching and learning materials, creating more individualized learning programs, assessing students' work, and generating feedback.

Taken together, these findings suggest that principals' views on generative AI are nuanced, reflecting both expectations of opportunities and concerns about potential challenges.

► **Getting ready for generative AI: student and teacher training needs**

In anticipation of the novel challenges associated with the introduction and increasing availability of LLMs, the vast majority of principals, close to or more than 90 percent in all participating countries, identified a need for professional development for teachers to support students in using generative AI responsibly and effectively (Fraillon, 2025). Principals considered it somewhat or very likely that teachers would require specific professional development related to the use of generative AI to support teaching and learning. In addition, they indicated that teachers would need to monitor the extent to which students rely on ChatGPT or similar tools to complete their classwork and to identify assessment approaches that limit inappropriate use of such tools. Principals also emphasized that students would need to learn how generative AI tools such as ChatGPT are developed, how to make informed decisions about when and when not to use them, and how to understand both the potential benefits and the potential risks associated with the use of generative AI for society.

Figure 3. Percentage of principals indicating that the use of ChatGPT or similar tools will have specific negative consequences (average across countries), shown for students (top row) and teachers (bottom row), split by principals' AI use (left) and age (right)



Note: Standard errors are presented in brackets.

CONCLUSIONS & IMPLICATIONS

Evidence from ICILS 2023 points to a critical moment for education systems in responding to generative AI. The findings show substantial variation across and within countries in how schools and their leaders were engaging with generative AI, indicating that adaptation to new AI-related technologies is uneven and far from automatic. In the absence of clear system-level direction, schools risk struggling to realize potential benefits while simultaneously facing challenges related to academic integrity, information quality, and instructional coherence. These early patterns highlight that generative AI is not simply another digital tool, but a development that requires deliberate governance and strategic leadership.

Importantly, the results do not suggest resistance to generative AI among school principals. On the contrary, principals' responses indicate broad awareness of both opportunities and risks, as well as a willingness to engage with new technologies. What emerges clearly, however, is that principals cannot be expected to manage this transition on their own. As change agents at the school level, they operate at the intersection of policy, pedagogy, and practice, and their capacity to lead responsible integration depends on the availability of guidance, support, and shared expectations from educational authorities.

Across countries and age groups, nearly all principals identified a strong need for professional learning opportunities for teachers to support the responsible and effective use of generative AI. Principals also signaled the importance of clearer policies and frameworks to guide decisions about appropriate use, assessment practices, and the boundaries of acceptable application in educational settings. These findings point to a common challenge faced by education systems: while generative AI has entered schools rapidly, the institutional conditions needed to support its thoughtful use are still emerging.

Taken together, the results underline the urgency of coordinated system-level responses. Educational authorities play a central role in providing strategic direction, developing professional learning opportunities, and establishing safeguards that support consistent and equitable implementation. By strengthening principals' capacity to act as informed change agents, education systems can better navigate the introduction of generative AI and ensure that its use supports, rather than undermines, teaching and learning.

FURTHER READING

The ICILS International Report, *An International Perspective on Digital Literacy: Results from ICILS 2023* (Fraillon, 2025) provides in an Addendum a comprehensive presentation of the responses of principals to the questionnaire related to generative AI. The following additional topics are covered:

- ▶ Inclusion of ChatGPT or similar tools in the curriculum,
- ▶ Permission to use generative AI in schools,
- ▶ Principals' perceptions of potentially positive impacts of ChatGPT or similar tools on the work of students and teachers, and
- ▶ Principals' perceptions of potential impacts of ChatGPT or similar tools on the breadth and focus of teachers' work.

Further, Ali et al. (2024) provide a timely systematic literature review on ChatGPT in teaching and learning.

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Please cite this publication as:

Meinck, S., Holtmann, M., Fraillon, J., & Strietholt, R. (2026, August). School Principals as Change Agents in an Era of AI-driven Transformation. *IEA Compass: Briefs in Education* No. 31. IEA.

ISSN: 2589-7039

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