ARTIFICIAL INTELLIGENCE (AI) AND SCHOOL LEADERSHIP — SCHOOL LEADERS' REFLECTIONS ON PROFESSIONAL USE OF AI

Marcia Håkansson Lindqvist
Department of Education, Mid Sweden University
SWEDEN

Fanny Pettersson
Department of Education, Umeå University
SWEDEN

Abstract

Artificial intelligence (AI) continues to influence all aspects of school and education. Although AI is acknowledged for introducing both opportunities and constraints for school leadership, there remains limited research on how school leaders use and understand AI in schools. This paper examines how school leaders perceive and engage with the integration of AI for their learning processes and leadership practices. School leaders' professional use, as well as how they model the use of AI in their educational settings, may in turn support teachers' and students' application of AI for teaching and learning, and it may benefit the school as an organization.

Introduction

Artificial intelligence (AI) has had an ongoing influence on all aspects of school and education, including teaching, learning, and organization (Karakose & Tülübas, 2024). Thus, in recent years, the debate in AI in education (AIED) on whether to use AI (i.e., ChatGPT) in education has shifted towards the need for further research on how AI tools can be critically and effectively adopted and used for teaching, learning, and leadership (Strzelecki, 2023). Research has shown that although AI can serve as a teaching and learning tool to stimulate reflection, provide ideas, assist in assessments, and correct language, it also poses risks such as lack of control, cheating, decreased creativity, and development of academic dishonesty (Neumann et al., 2023).

Early research on AI appears to provide a picture of opportunities and constraints for teachers and students (Neumann et al., 2023; Rudolph et al., 2023). However, research on the impacts of AI on school leadership has been "extremely limited," and according to several studies, only "early evidence" has been assessed on how

AI influences leadership in school (Duran & Ermiş, 2024; Fullan et al., 2023; Wang, 2021). Simultaneously, Fullan et al. (2023) concluded that the limited research that exists "suggests that such technology can help educational leaders perform routine, mechanical tasks, thus allowing them to focus on other more productive and creative issues that demand their human skills and their social intelligence" (Fullan et al., 2023, p. 342).

The aim of this paper is to explore and analyse how school leaders perceive and engage with the integration of AI for their learning processes and leadership practices. The following research question was posed: 1) How do school leaders perceive opportunities and constraints related to their professional use of AI in learning and leadership practices?

Background

In recent years, advancements in AI have had a direct impact on all levels of education (Tyson & Sauers, 2021). Fullan et al. (2023) described AI in terms of its "enormous potential to improve learning, teaching, pedagogical innovations, assessment, and educational administration through intelligent tutoring systems, chatbots, robots, learning analytics dashboards, adaptive learning systems and automated assessment" (p. 340). Neumann et al. (2023) discussed this in terms of challenges and opportunities in education. Challenges involve the limited knowledge of how students utilize AI, uncertainties in evaluating AI in school, varying perceptions of acceptable use, increased time demands for assessments, and the unknown potential of AI. Conversely, opportunities lie in enhanced student support, fostering creativity, and potential for driving educational innovation. This means that AI introduces a wide range of ethical, moral, and practical challenges for all actors in school (Strzelecki, 2023).

However, there is limited knowledge regarding school leaders and their use of AI in educational contexts. Fullan et al. (2023) argued that AI will fundamentally reshape both the perception and execution of leadership in educational contexts. Current research shows that AI has the potential to reshape school leadership by automating and streamlining administrative processes, providing advanced data analysis, supporting student learning strategies, and optimizing communication with parents, teachers, students, and the broader educational community (Dogan & Arslan, 2025). Thus, these capabilities can enhance efficiency, facilitate informed decision-making, and allow school leaders to focus on strategic and pedagogical priorities. AI has been associated with both increased and decreased workload, alterations of teaching profession, and the powerful processing abilities. This work involves several perspectives. Policies and easy-to-understand guidelines are needed for the use of language models in learning and teaching, proper use of these tools, and the consequences for cheating (Rudolph et al., 2023).

To meet these opportunities and constraints, professional development is needed. For example, educators may need training to instruct students on academic integrity and educators on how to critically evaluate any resources and adapt the use of AI to their specific context (Rudolph et al., 2023). Other studies have pointed to the importance of expertise, experience, and understanding of students' use and the opportunities and constraints that the use of AI encompasses for them (Cooper, 2023). To support all these aspects, it will be necessary to improve administration and professional development (Hutami, 2024). In summary, according to Van Quaquebeke and Gerpott (2023), "The question is not anymore whether AI will play a role in leadership, the question is whether we will still play a role. And if so, what role that might be. It is high time to start that debate" (p. 272).

Method

This paper focuses on school leaders' reflections on professional use of AI. As part of this explorative pilot study, school leaders were asked to discuss how they perceive and engage with the integration of AI for their learning processes and leadership practices. The data on school leaders' written reflections were gathered from learning reflections ($N = 15$). With inspiration from Moon's (2006) notion of learning journals, the school leaders were asked to elaborate on their professional use of AI through learning journals. The learning reflections were written in the spring of 2024 by school leaders who were in middle of the Swedish National School Leader Programme. The school leaders represented all levels of school, from preschool to upper secondary school. The school leaders had time to reflect on this question for a brief period during a lesson regarding AI and digital technologies for leading, teaching, and learning. The learning reflections were short texts. Using reflexive thematic analysis (Braun & Clarke, 2019), the learning reflections were analysed. This involved reading and rereading in a reflective approach as well as determining which themes emerged in reflection. The school leaders' reflections are identified as "School leader" (SL 1–15).

Findings

The findings are presented in this section. First, the theme *Professional Support* is presented. Thereafter, *Opportunities* and *Constraints* are presented.

Professional Support

In the analysis, the following themes regarding AI as professional support emerged: *Own learning, Source of knowledge,* and *Administrative tasks.*

In the category *Own learning*, school leaders saw opportunities when using AI as a pedagogical tool to support their own learning. For many of the school leaders, this

was evident in their ongoing training as school leaders: “I have used it to help me understand some books during my principal training. I think this can be linked to my learning as a head teacher” (SL10). For another school leader, AI was a source of support regarding the course literature: “I find some course literature difficult to interpret as it sometimes does not have a clear connection to subjects I am used to studying; here I think AI can be a help” (SL12).

AI as a *source of knowledge* was also noted in the school leaders’ reflections. As one school leader noted:

> AI can be used as a quick tool in my principal role when I may be looking for answers to questions and help on where to turn for answers. AI can serve as an idea bank and give you new perspectives on areas that you may not have dealt with before. (SL5)

This involved AI as a source of information in everyday activities: “I can use AI, for example, as an information base linked to various issues that I face in my everyday life as a principal” (SL3). However, AI as a tool also offered support in specific areas such as the Education Act: “I see that one possibility is to get quick answers to questions I am wondering about, such as the School Act” (SL4). Another school leader reflected on the use of AI in school law:

> I still wonder if AI could not be a help and support in [school] law. Some legal texts are sometimes difficult to interpret and apply to different situations that arise. Here, perhaps questions to AI can help with the interpretation and thus contribute to more informed decision-making. (SL11)

For one school leader, the use of AI opened opportunities to deepen knowledge in specific areas, as AI “often provides better answers than search engines, and the knowledge can be deepened through follow-up questions. Instead of asking an expert, I can get an overview of the state of knowledge and dig further into what is most relevant” (SL7).

School leaders also saw the use of AI for support in *Administrative tasks*. For many of the school leaders, AI was used to this end. One school leader explained, “I have the possibility to get answers quickly to specific questions” (SL1). This involved a wide variety of school administration tasks, such as school speeches: “I have support in speeches that I give at school starts and graduations” (SL7). This was also expressed by another school leader in further detail:

> [I] already used it to help with a speech; [it’s] amazing how quickly I got help with the keywords I put in as important. [I] was then able to use certain parts, phrases, and sentences. It saved me a considerable amount of time. (SL8)

Other school administrative tasks included "Scheduling, distribution of duties, plotter diagram payroll, [and] statistics" (SL1). Another school leader saw the uses for support in scheduling meetings as well as gathering, understanding, and presenting information:

> AI can be used by getting help to understand content in different texts. [It] helped to see how I can structure meetings and content in different presentations . . . [I'm] thinking we could use it in scheduling. [It] would be interesting to gather facts and use AI to make decisions that benefit my organization. (SL8)

One of the school leaders provided another example: "[It is useful] as support in letters and texts, but it is important that you see it as support and not as a finished delivered result" (SL5) in order to "[find] structures to work in the systematic quality work and with the governance and management of the organization" (SL6). Many of the administrative tasks were seen to perhaps support organizational administrative tasks that were resource efficient: "Today, I often see AI as a labour-saving tool" (SL11); however, another school leader saw that AI provided "learning in different types of operational and development issues that the school needs to work on" (SL6). In summary, one of the school leaders elaborated on the opportunities in relation to the current challenges with AI: "Challenges right now are to become familiar with the opportunities AI can give me. I think the opportunities are ultimately resource efficiency, saving of time, and methodical work" (SL1). This support was also important regarding the work with data in school:

> I think AI will help us a lot in producing data and analysing data in our organization. We often have large and complicated data sets where AI can be a valuable tool to see connections and help us evaluate the organization. (SL11)

For several of the school leaders, this also involves being a model for AI support in work: "I would like to set an example and show my colleagues how it can be used in a good way in everyday school life" (SL8). In a similar line of thought, one school leader saw that AI support could imply more time for pedagogical leadership: "If AI can help with, for example, analysis, administrative tasks, etcetera, it gives me more time to focus on pedagogical leadership. [It is important] to set an example to the staff so they can apply it to their contact with students" (SL12). In relation to the many challenges that may be related to the use of AI, a school leader reflected on the need to learn about and use AI: "I have to learn the tool to be able to use it myself when I ask teachers to use it. I see that teachers have to use AI in order not to become user-hostile" (SL4). Another school leader discussed their own organization:

> A good prerequisite in my organization is that all staff, from the janitor to the operations manager, have received basic AI training that we school leaders can build on. I myself intend to utilize the benefits where possible and, in this way, try to be a role model for the staff. (SL13)

Opportunities

The school leaders also saw opportunities in providing support for teachers and students in teaching and learning in the classroom. According to the school leaders, this could involve new approaches with teachers: "I can use AI to develop different pedagogical approaches and structures for tasks that I want to implement with teachers" (SL3). This could also involve pedagogical leadership and support and the guidance of teachers: "I can use AI to get tips on conference arrangements/assignment arrangements for my management of staff. I can guide educators to use AI in their teaching to generate time for staff who are always short on time" (SL4). One school leader saw opportunities for teachers to utilize AI, which in turn could support students from several perspectives:

> I see that AI can compensate and help students with difficulties in terms of quickly getting a text template or quickly retrieving facts in a subject they are going to learn. I see that AI can compensate for students with language disabilities in the production of text and easily help them get quick answers. (SL4)

One school leader saw opportunities in AI for teaching and learning for both students and teachers, as AI can "help many, for example, as a support function and source of knowledge for staff and students in schools" (SL3). This support could also provide support for teachers in planning activities and skills needed for work with students: "I could suggest to the teachers to use AI to get different suggestions for activities or projects to do with the children. They could use it in their planning for different tips, ideas, and thoughts" (SL10).

Other school leaders thought that AI can support teachers as staff. This involves understanding teachers as a group: "[It can] give me a summarized picture of what is happening in the activities in forums where educators give their picture. In this way, [it] can give me a learning experience of how educators think" (SL14). Another school leader also expressed a similar reflection:

> I think that AI could possibly help me formulate deeper questions and ideas about a specific area where I need deeper reflection in order to create greater understanding. One such example could be different types of personnel matters where I need a greater understanding of how educators think and reflect. (SL15)

One school leader noted the idea of the use of AI as a pedagogical tool for teachers to support students: "I feel a strong belief in utilizing AI as a complement in everything I do and, above all, a tool for educators to find faster and easier ways to help themselves to help the children" (SL14). Although many of the school leaders mentioned using AI to support teachers and students as groups, one school leader reflected on the use of AI to support individual students: "I have also used AI in challenging situations around individual students and then got good inspiration for measures at the group, individual, and organizational level" (SL7).

Constraints

The next theme involved school leaders' reflection on constraints related to AI. The category *Constraints* involved the following: *Improper use, Time for professional development in the use of AI including prompting,* and *Critical review.*

Improper use was noted in several of the school leaders' reflections. One school leader elaborated on the need for the following: "The school/educators have to make new tasks so that cheating does not occur" (SL4). Another school leader discussed improper use and the consequences of improper use in detail:

> Challenges with AI for me as a principal and responsible for student learning is that students produce finished texts that they then present as their own, which means that teachers judge it as cheating and the student fails the module. This of course affects the students' learning. Then the matter comes to my desk, whether the student should fail the entire course and be given the opportunity to reread or review. Opportunities for students are to find questions—for example, for the upper secondary school work—and tips on investigations that can be done, which can inspire students to stronger motivation in various subjects that allow them to pass—an overall goal for me as a principal in upper secondary school. (SL6)

Professional development was also noted as a constraint. Several of the school leaders reflected on the need for professional development. This often involved the need for more knowledge on the beneficial uses of AI: "I have not yet familiarized myself with how to use AI in the best way. I do not yet have sufficient knowledge on how to use it as a tool" (SL3); and "I need more knowledge on how to use it in a good way" (SL9). New knowledge was necessary to achieve the opportunities of saving time: "Right now I just feel . . . saving time would be great. However, I don't know how to do it because I don't know enough about AI" (SL14). The need for training was also related to prompting in AI: "I see a challenge in that principals and educators need to train themselves to prompt so that AI becomes a good tool . . . I also don't think that teachers have started to use AI in planning or in connection with challenging students yet" (SL7). However, professional

development also requires time: “What is still missing is the time for competence training in this” (SL14).

Critical review was also seen as important in the use of AI. This could involve dialog about AI: “The question of whether we should or should not use it, I think, is not relevant. It is here, and we cannot stop technology. However, I think it’s important that we talk about the ethics of using it” (SL2). According to the school leaders, another constraint was that AI as a supplement could be too efficient: “Challenges may perhaps be that it creates an attachment if the help proves too effective—that you would rely on AI in favour of your own judgment. However, I think that awareness of this may avoid this” (SL11). Another risk was disinformation: “The challenges I see are that there can be disinformation shared . . . to be able to deal with AI in the best way” (SL8). One of the school leaders summarized the challenges: “resistance from staff, potential for cheating, rapid developments (difficult to keep up), and technical knowledge” (SL12).

In summary, the most prominent support is when AI is perceived as an inspiration, expert, and source of knowledge that can provide quick and profound answers, which shows that AI is primarily used to support school leaders in administrative tasks. Opportunities are seen in providing support for teachers and students in teaching and learning in the classroom. Constraints involve improper use, as well as time for professional development in the use of AI, including prompting and critical review.

Discussion

The aim of this paper was to examine and analyse how school leaders perceive and engage with the integration of AI for their learning processes and leadership practices. The following research question was posed: 1) How do school leaders perceive opportunities and constraints related to their professional use of AI in learning and leadership practices?

In regard to professional use of AI in learning and leadership practices, the school leaders’ perceptions are seen on several levels. Regarding their own learning, they appear to have identified activities and uses of AI for increased efficiency (Hutami, 2024; Strzelecki, 2023). This is apparent in terms of saving time in administrative tasks and accessing information. Several of the school leaders viewed access to information as supportive in reformulating and summarizing texts they are required to use in their profession, such as laws and regulations that may be difficult to understand in practice. This use saves time as it gives school leaders direct access to information and profound answers. Several of the school leaders described the use of AI as beneficial in their studies in the national principal program as well. AI

is utilized to summarize and make difficult texts more accessible, which in turn also allows school leaders to save time.

The school leaders in this study confirmed the importance of supporting teachers and students in their learning. For many of the school leaders, this involves acting as a role model, discussing, and sharing efficient use as well as ethical use and critical evaluation (Rudolph et al., 2023). Many of the school leaders discussed ethical use—that is, supporting teachers in the shift from AI as a method for cheating, as well as propagating the new methods in the formulation of assignments and assessments that support students' learning (Neumann et al. 2023; Rudolph et al., 2023). This work will be important for school leaders in supporting teachers' use of AI to support students. Further issues of discussion for school leaders include guidelines for the use of AI (e.g., supporting students in their learning activities with the support of AI), which may offer opportunities for new forms of leadership (Dogan & Arslan, 2025).

For school leaders, as expressed by those interviewed in this study, more knowledge about the efficient and ethical use of AI in learning and leadership will be necessary (Dogan & Arslan, 2025; Fullan et al., 2023). Here, the need for professional development is identified. In addition, school leaders require professional development as school leaders. Finally, school leaders' professional use, as well as how they model the use of AI in their educational settings, may in turn support teachers' and students' application of AI for teaching and learning, and it may benefit the school as an organization.

References

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Cooper, G. (2023). Examining science education in ChatGPT: An exploratory study of generative artificial intelligence. *Journal of Science Education and Technology, 32*, 444–452. https://doi.org/10.1007/s10956-023-10039-y

Dogan, M., & Arslan, H. (2025). The role of artificial intelligence in school leadership. *Revista de Pedagogie Digitala*, *4*(1), 23–30. doi.org/10.61071/RPD.2531

Duran, A., & Ermiş, U. F. (2024). A qualitative focus on school leaders' perceptions of roles, responsibilities, and expectations in enhancing equitable access to educational technology in the era of Gen-AI. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *10*(1), 208-227. https://doi.org/10.31592/aeusbed.1440249

Fullan, M., Azorín, C., Harris, A., & Jones, M. (2023). Artificial intelligence and school leadership: Challenges, opportunities and implications. *School Leadership & Management*, *44*(4), 339–346. https://doi.org/10.1080/13632434.2023.2246856

Hutami, S. (2024). Utilizing technology and artificial intelligence in educational administration to enhance school performance at junior high school. *PPSDP International Journal of Education*, *3*(2), 197–212. https://doi.org/10.59175/pijed.v3i2.302

Karakose, T., & Tülübaş, T. (2024). School leadership and management in the age of artificial intelligence (AI): Recent developments and future prospects. *Educational Process: International Journal*, *13*(1), 7-14.

Moon, J. A. (2006). *Learning journals: A handbook of reflective practice and professional development.* Routledge. https://doi.org/10.4324/9780203969212

Neumann, M., Rauschenberger, M., & Schön, E.-M. (2023). "We need to talk about ChatGPT": The future of AI and higher education. *2023 IEEE/ACM 5th International Workshop on Software Engineering Education for the Next Generation (SEENG)*, (pp. 29-32). IEEE. doi:10.1109/SEENG59157.2023.00010

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning and Teaching, 6*(1), 342-363. https://doi.org/10.37074/jalt.2023.6.1.9

Strzelecki, A. (2023). To use or not to use ChatGPT in higher education? A study of students' acceptance and use of technology. *Interactive Learning Environments*, *32*(9), 5142-5155. https://doi.org/10.1080/10494820.2023.2209881

Tyson, M. M., & Sauers, N. J. (2021). School leaders' adoption and implementation of artificial intelligence. *Journal of Educational Administration*, *59*(3), 271–285. https://doi.org/10.1108/JEA-10-2020-0221

Van Quaquebeke, N., & Gerpott, F. H. (2023). The now, new, and next of digital leadership: How artificial intelligence (AI) will take over and change leadership as we know it. *Journal of Leadership & Organizational Studies, 30*(3), 265–275. https://doi.org/10.1177/15480518231181731

Wang, Y. (2021). Artificial intelligence in educational leadership: A symbiotic role of human–artificial intelligence decision-making. *Journal of Educational Administration*, *59*(3), 256–270. https://doi.org/10.1108/JEA-10-2020-0216

Author Details

Marcia Håkansson Lindqvist
Department of Education
Mid Sweden University
SWEDEN
marcia.hakanssonlindqvist@miun.se

Fanny Pettersson
Department of Education
Umeå University
SWEDEN
fanny.pettersson@umu.se