# Opportunities and Challenges of Artificial Intelligence Use in Secondary School Learning

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**Abstract:** Artificial intelligence is entering the everyday work of secondary schools. Teachers encounter AI-based tools both in classroom organisation and in feedback or adaptation tasks. As these tools become more visible in school practice, their educational role and practical value need to be examined in relation to the conditions of real classrooms. This is especially relevant in classes with varied learning characteristics, where students differ in pace and readiness to participate. In these settings, AI may help teachers adapt instructional material and provide more individualised support. Its value, however, depends on professional judgement and on how each tool is connected to pedagogical purpose. This paper examines opportunities and challenges related to the use of artificial intelligence in secondary education. The study uses teachers' accounts to examine how AI tools are understood and used in secondary school practice. It is designed as a qualitative inquiry based on semi-structured interviews with secondary education teachers, with the interview material examined thematically. Through teachers' accounts, the study will explore how AI is understood in relation to lesson preparation and student support, while also examining what makes its use difficult in everyday school practice. The paper approaches AI as a tool whose usefulness depends on classroom context and teachers' pedagogical decisions.

**Keywords:** Artificial Intelligence, Generative AI, Secondary Education, Teachers, Responsible Use, AI Literacy

## 1. Introduction

Secondary schools now encounter AI in everyday school practice. Teachers and students can use tools that produce explanations, exercises, summaries, feedback and lesson material. Their easy access makes them useful for schoolwork, but also makes it easier for generated material to be used before it has been checked.

A generated text may appear convincing or correct at first sight and still contain errors. It can also be written in a way that does not fit the class or the aim of the lesson. For this reason, large language models can support educational tasks only when their outputs are checked by the teacher and used with an awareness of their limitations (Kasneci et al, 2023). In this paper, generative AI (GenAI) is treated as a visible example of the broader use of artificial intelligence in the learning process in secondary schools.

The educational value of AI is not found in the output alone. A worksheet can save preparation time, and an answer can give a student a starting point, but neither should be used as it stands. The teacher has to check whether the examples fit the lesson and whether the wording is suitable for the class. The task also has to leave room for students to work through the idea, instead of giving them a ready answer to submit.

This paper therefore approaches AI through the work of secondary education teachers. It responds to the need to examine AI use not only as a technological development, but as a classroom decision: how AI-supported material and activities are assessed before classroom use.

## 2. AI Use and Classroom Responsibility

In secondary schools, AI-based tools matter when they become part of the work teachers and students already do. A teacher may use them while preparing a lesson, for example to rework a text for a class or to get an initial idea for an activity. This can help when the same material has to be adjusted for students who do not all work at the same pace. This is consistent with broader discussions of AI in education, where the value of AI depends on how it supports teaching and learning in context (Vincent-Lancrin and van der Vlies, 2020).

Having access to AI tools is not enough for responsible classroom use. Schools also need clear guidance on student data and on the review of generated material before it is used in homework or assessment. Recent research on GenAI links these questions to school readiness and responsible use with students (Ng, Chan and Lo, 2025).

Reliability remains a basic classroom issue. A fluent AI answer may still be wrong, and students may not recognise the problem when the response is written in confident language. For this reason, teachers need to check the output before deciding whether it has a place in the lesson.

Bias also shapes classroom responsibility, because algorithmic bias in education can affect how learners are represented or supported by digital systems (Baker and Hawn, 2022). An AI-generated response may include hidden assumptions about a student or about the kind of support that student needs. This is why AI outputs should be treated as draft material that needs review.

Student data raises a practical problem in classroom use. UNESCO (2023) warns that the rapid spread of generative AI can move faster than privacy safeguards and institutional validation, especially when schools have not evaluated the tools they use. In school practice, this means that teachers should know what kind of student information must stay out of an AI tool before they use it with students or ask students to use it.

Academic integrity is also central. If students use AI only to produce ready-made answers, the activity may no longer support learning. The issue is broader than cheating. The deeper problem is that students may complete the task without seriously working on their own answer.

## 3. Teachers' Perspectives

Teachers are central because AI-generated material does not enter the classroom on its own. They decide whether an activity fits the lesson and whether the tool supports learning. Research with K-12 teachers shows that many recognise the possible value of AI, but do not always feel prepared to connect it with their own practice (Chounta et al, 2022). This hesitation may reflect limited training or uncertainty about how AI should fit everyday teaching practice. When a teacher changes an AI-generated activity, this should not be seen as resistance to innovation. It is ordinary teaching work: the teacher revises the material and decides whether it can be used with the students.

AI literacy belongs to the same discussion, because students also need to understand what kind of help they receive from AI tools. K-12 AI literacy includes the ability to use AI tools effectively and ethically in context (Wang and Lester, 2023). In secondary schools, this cannot be treated only as a computer science topic. Students may use AI in different subjects, so they need to learn that an AI answer should be questioned and that any assistance should be declared rather than presented as personal work.

Teachers also need AI literacy, but in a form that is connected to classroom decisions. A teacher needs to ask practical questions before using an output. Is it accurate? Is the language suitable? Does it protect student data? Does it support learning, or does it replace student effort? The European regulatory framework also treats AI literacy as a condition for informed and responsible use of AI systems (European Parliament and Council, 2024).

## 4. Methodology

The planned doctoral study uses a qualitative research design to examine how secondary education teachers understand the use of AI in the learning process. Its purpose is interpretive: to explore how participants describe AI tools in relation to lesson preparation and student support, with particular attention to responsible classroom use. Attention is also given to the ways teachers review AI-generated material when it becomes part of teaching.

The empirical part will be based on semi-structured interviews with secondary education teachers. Participants will be selected purposively, so that the study can include different teaching backgrounds and levels of familiarity with AI tools. A short background questionnaire may be used before the interviews to record basic descriptive information.

The interviews will focus on participants' experience with AI tools, their criteria for reviewing generated material and the support they expect from schools. The material will be analysed thematically, in order to identify patterns in participants' accounts and connect them with the research questions of the doctoral project. Participation will be voluntary, and no teacher or school will be identifiable in the presentation of findings.

## 5. Expected Contribution

This paper does not report empirical findings, as the interview phase of the doctoral study has not yet been completed. Its contribution is to clarify how AI use in secondary schools can be examined through teachers' everyday classroom decisions. The central question is not only what AI tools can produce, but how teachers judge whether their use is appropriate for a particular lesson and whether it supports student learning.

This perspective places AI within ordinary teaching practice. Teachers decide whether an AI-supported activity or piece of material is suitable for the lesson and whether it needs revision before students use it. The

educational value of AI therefore depends not only on what the tool can do, but also on the professional judgement that guides its use (Vincent-Lancrin and van der Vlies, 2020). The planned doctoral study will build on this perspective by examining how secondary education teachers make these decisions and what support they consider necessary.

## 6. Conclusion

AI can support secondary school teaching when it is used for a clear classroom purpose. AI-generated material should not move directly from the tool to students. Before it is used, the teacher has to check whether it is reliable and whether it fits the lesson. Without this step, AI may save time but weaken the learning task.

For this reason, AI use in secondary schools should be understood as part of teaching practice, since its value depends on how teachers connect digital tools with learning. Teachers need practical AI literacy and clear school-level guidance for reviewing AI-generated material. Students also need to understand that AI answers should be questioned and that any assistance should be declared rather than presented as personal work. The planned doctoral study will examine these issues through interviews with secondary education teachers, with the aim of identifying the conditions under which AI can support learning without reducing teacher judgement or student responsibility.

## Ethics Declaration

No interview data have been collected for this paper. The paper presents the planned design of an ongoing doctoral project. The required ethical procedures of the doctoral programme and the university will be completed before any interview data are collected. Participation will be voluntary, and no teacher or school will be identifiable in the presentation of findings.

## AI Declaration

AI-assisted support was used for language refinement, organisation of draft material and checking clarity of expression. The author reviewed and edited the text, checked the cited literature and remains responsible for the final content, argumentation, references and accuracy of the paper.

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