From data to decisions: how learning analytics can inform quality assurance in schools

Schools are increasingly surrounded by data. Digital learning platforms, online assignments, classroom tools, and school information systems all produce traces of what students do, how they progress, and where challenges may be emerging. This creates new opportunities, but also new questions. What can schools actually learn from these data? How can these insights support better teaching and school improvement? And how can schools use them without losing sight of pedagogy, professional judgment, and ethics?

Drawing on findings from a systematic review of the research, this article explores how learning analytics can support quality assurance and school improvement, while also considering the challenges and risks involved.

Potential benefits

Learning analytics can be understood as the collection, analysis, interpretation, and communication of data about learners and their learning in order to generate insights that can improve learning and teaching. In a school context, this matters because quality assurance is not only about external inspection or formal accountability, but also about internal efforts to improve. Schools are increasingly expected to monitor their own quality, reflect on their practices, identify areas for improvement, and make informed decisions about teaching, supporting learners, and school development. In that sense, learning analytics can provide schools with evidence that may help schools understand what is happening and where action may be needed.

At its full potential, learning analytics can support schools in adopting a development-oriented approach to improving the quality of education. That means using data not to control or surveil, but to improve. The strongest potential lies in helping schools strengthen their internal quality assurance processes: reflecting on teaching and learning practices and results, identifying patterns, discussing priorities, planning action, and evaluating effects. The focus is often on improving learning and teaching processes and outcomes, but this relates to a broader view of quality that includes students' needs, expectations, future prospects, wellbeing, identity, and self-awareness. This is important in practice because schools are increasingly taking a broad view of what quality entails, going beyond mere test results. It is also about whether students are supported both as learners and in their broader development.

One practical strength of learning analytics is that it can make certain issues more visible. It may help teachers and school teams personalize teaching and support more effectively, spot students who may be at risk of disengaging or falling behind, and support students' self-awareness and self-regulation. It can also support data-informed reflection and decision-

making, not only for individual teachers, but also by stimulating discussions at school level among school leaders and teaching teams. Used carefully, it can help a school move from reacting to problems ad hoc to noticing them earlier and responding more thoughtfully.

Research in this field also shows that learning analytics can be useful across different phases of quality assurance processes. During planning, it can help schools and teachers set goals, identify priorities, and design more targeted actions. During implementation, it can support the adaptation or piloting of new teaching strategies and learning designs. During evaluation, it can contribute to self-evaluation beyond the classroom by helping teams discuss evidence



together and build a shared understanding of student needs and learning processes. During review, it can help inform next steps and future improvement plans. In other words, learning analytics is not presented as a one-off measurement tool, but as something that can potentially support an ongoing cycle of reflection, action, evaluation, and refinement.

Risks & Limitations

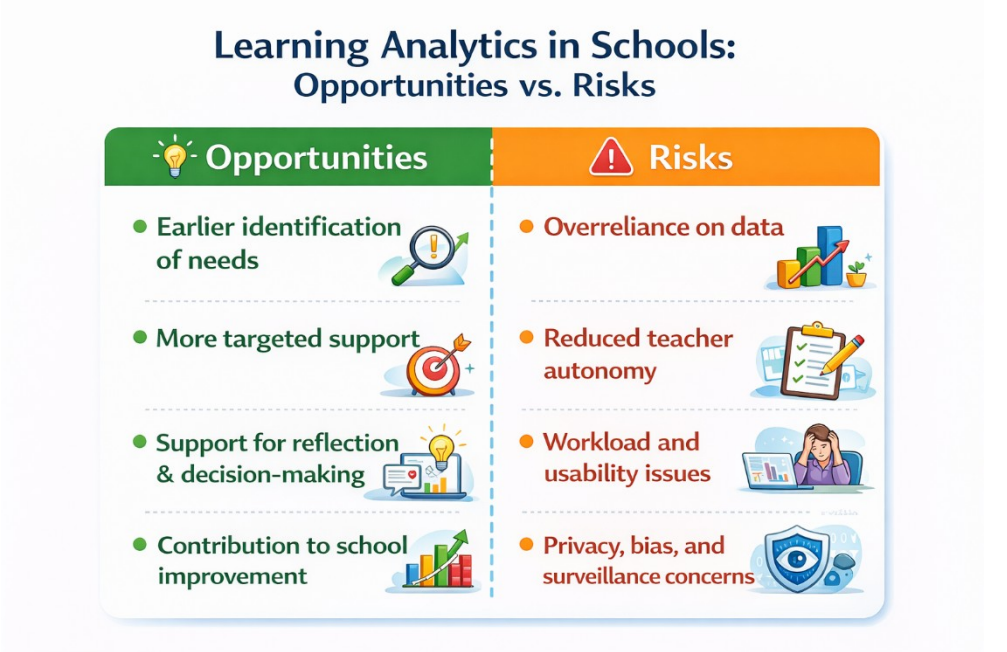
However, data do not speak for themselves. ILearning analytics should support human judgment, not replace it. Teachers and other professionals need to remain in control of interpretation and decision-making. Data can point to patterns, raise questions, or highlight areas for attention, but they do not automatically tell a school what the right response is. Educational decisions still require pedagogical thinking, contextual knowledge, and professional interpretation. Without that, there is a risk that schools start treating available data as if they were automatically meaningful or sufficient.

This matters because schools are not only technical systems; they are human and pedagogical environments. A recurring concern is that overreliance on data can weaken teacher agency, reduce professional autonomy, and even discourage innovation, creativity, and experimentation. If data use becomes too dominant, schools may begin to value only what is measurable and neglect what is educationally important but harder to quantify. There is also a danger that decision-making shifts away from teachers and schools toward external systems,

platforms, or private actors. For practitioners, this is a key warning: useful data should strengthen professional work, not narrow it.

Another major insight is that learning analytics is not just a pedagogical issue. It also has technological and ethical dimensions, and these need to be kept in balance. On the positive side, learning analytics may help schools organize support more efficiently, make patterns more visible, and use time and resources more purposefully. But the same technologies can also create practical burdens. If systems are difficult to use, hard to interpret, poorly aligned with teachers' needs, or time-consuming, they can add workload and distract from teaching rather than improve it. Research suggests that schools should not begin with the question "What can the technology do?" but with "What do teachers and students actually need, and what is educationally desirable?"

The ethical side is just as important. Key concerns include privacy, data ownership, security, bias, stereotyping, discrimination, and surveillance. In a school setting, these concerns are especially serious because many students are minors. Poorly designed or poorly governed uses of data can reinforce prejudice, expose sensitive information, or turn monitoring into a form of control over students and staff. Research also warns against broader trends such as datafication and the objectification of education, where complex learning processes are reduced to simplified indicators. This means that schools should treat learning analytics not only as a practical tool, but also as a matter of responsibility.



Using learning analytics for quality assurance

Because of these opportunities and risks, successful use of learning analytics for quality assurance depends heavily on school conditions. A school needs more than software. It needs a shared vision, a clear sense of purpose, and a culture in which data use is understood as a

collective responsibility. That includes dialogue among teachers, school leaders, and other stakeholders; shared language about what data mean; and agreed ways of using evidence in day-to-day practice. TLearning analytics should therefore be part of a supportive school culture of self-evaluation, improvement, and collaborative inquiry rather than an isolated technical initiative.

This also requires capacity building: giving staff the time, skills, and support they need to work with data effectively. Many of the difficulties around learning analytics are not only about the data themselves, but about whether people have the time, trust, competence, and support to use them well. Schools may need training in data interpretation, critical evaluation, privacy, and ethical use. They may need better infrastructure, more time for collaborative work, and internal support such as coaching or professional development. Acceptance also matters: if the wider school community does not trust or value the use of learning analytics, implementation is unlikely to succeed. In practice, responsible use depends on people, structures, and culture developing together.

Responsible use of learning analytics

For educational professionals, the most useful takeaway is therefore not that schools should simply use more data. Learning analytics can be valuable when it is used deliberately, critically, and in service of educational aims. It can help schools identify needs earlier, reflect more systematically, support staff dialogue, and make improvement efforts more focused. But these benefits can only be realized when pedagogical priorities come first, when interpretation remains in professional hands, and when ethical safeguards are treated as essential rather than optional.

A strong approach to school quality does not choose between professional judgment and data. It combines them. Learning analytics can enrich quality assurance when it helps schools ask better questions, notice what needs attention, and act more thoughtfully. It becomes



problematic when it turns into a tool of external control, blind efficiency, or routine surveillance. The real challenge for schools is therefore not whether to use learning analytics, but how to use it in a way that supports better education, protects people, and keeps improvement at the center. That is where its practical relevance lies.

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