

The Triple-D Model for Evidence-Informed Educational Practice: Decisions, Decision-Makers, and Diversity of Evidence

Kristin Vanlommel, Evelyn Goffin, & Jan Vanhoof
University of Antwerp, Belgium

ABSTRACT

This conceptual article presents the Triple-D model for evidence-informed practice that speaks directly to current debates on research use, educational leadership, and policy implementation. We conceptualize evidence-informed decision-making as the interaction between the decision, the diversity of evidence, and the capacities of the decision-maker. By framing evidence use as a situated and interpretive process, the model moves beyond linear approaches and highlights how educators can actively integrate research evidence, data, and professional expertise. It offers a framework that supports educators in navigating complex, high-stakes decisions in which multiple and sometimes competing forms of evidence must be reconciled. It also advances a competency profile for decision-makers. These competencies are positioned as central to strengthening research use and bridging the persistent gap between policy, research, and practice.

Résumé

Cet article conceptuel présente le modèle « Triple-D » de prise de décision fondée sur les preuves. Ce modèle s'inscrit directement dans les débats actuels sur l'utilisation de la recherche, le leadership éducatif et la mise en œuvre de politiques. Nous conceptualisons la prise de décision fondée sur les preuves comme l'interaction entre la décision, la diversité des preuves et les capacités du décideur. En considérant l'uti-

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SIMON FRASER
UNIVERSITY



lisation des preuves comme un processus situé et interprétatif, le modèle dépasse les approches linéaires et met en évidence comment les éducateurs peuvent intégrer les résultats de recherche, les données et l'expertise professionnelle dans leur travail. Il propose en effet un cadre qui peut aider les éducateurs à prendre des décisions complexes à enjeux élevés, dans lesquelles des données multiples et parfois contradictoires doivent être conciliées. Ce modèle propose également un profil de compétences pour les décideurs. Ces compétences sont considérées comme essentielles pour accroître l'utilisation de la recherche et combler le fossé persistant entre les politiques, la recherche et la pratique.

Keywords / Mots clés : evidence-informed decision-making, evidence use, research use, data use, decision-making literacy / prise de décision fondée sur des preuves, utilisation des preuves, utilisation de la recherche, utilisation des données, culture décisionnelle

Decisions, decision-makers, and diversity of evidence

Educators continuously make decisions that shape outcomes for students, colleagues, and the wider school community. A teacher may piece together information from conversations with students, parents, and colleagues after an incident and decide what support or follow-up is needed. A school leader may interpret the results of a school self-evaluation and decide which improvement actions should be prioritized. In such situations, the quality of educational action is shaped by the quality of the decision-making process, including how different forms of evidence are selected, interpreted, and weighed.

Professional decision-making is therefore the starting point of this article, in which we introduce the Triple-D model as a practical framework for understanding and supporting evidence-informed decision-making in education.

This model moves beyond a purely data-based approach to education. Data-based approaches have directed attention to measurable aspects of educational quality, including student outcomes, school performance, and other school-based data on which educators can rely when making decisions (Ikemoto & Marsh, 2007; Mandinach, 2012). In parallel, research-based “what works” approaches have emphasized identifying and implementing interventions that have been shown to be effective. Both traditions have made important contributions to educational improvement. However, both can also become too narrow when evidence is treated as self-evident, technical, or detached from professional expertise and local context. A strong focus on measurable data may lead to an overly limited view of educational quality, while a narrow “what works” approach may suggest that research findings can simply be transferred into practice without interpretation or professional judgment. The question of what constitutes valid evidence, and whether certain forms of evidence should be prioritized over others, remains contested (e.g., Nelson & Campbell, 2017). Moreover, teachers and school leaders may experience data and research use as an external obligation rather than a meaningful resource for professional learning and school improvement (Mandinach & Schildkamp, 2021).

For these reasons, evidence-informed decision-making in education cannot be reduced to the use of one particular type of evidence. It requires attention to the diversity of evidence sources that may inform professional judgment, including scientific research, local data, and educators' intuitive expertise. It also requires attention to the conditions under which these sources of evidence can be meaningfully interpreted and used.

This concern with meaningful evidence use is not specific to education but also appears in other professional fields where evidence-informed practice has a longer tradition. In healthcare, for instance, evidence-informed decision-making has long been promoted to support professional judgment and reduce reliance on uninformed or purely intuitive decision-making. Nurses and doctors are expected to draw on the best available evidence, alongside clinical expertise and contextual knowledge, when making professional decisions (Thompson, 2003). At the same time, evidence use in healthcare is not automatic or straightforward either. Recent work shows that the relationship between research engagement and improved healthcare is shaped by professional, organizational, and system-level conditions, including research networks, institutional capacity, and sustained opportunities to engage with evidence (Boaz, Goodenough, Hanney, & Soper, 2024; Oliver & Boaz, 2019). Cross-sector work similarly suggests that the key question is not only whether evidence is available, but also what it means to use evidence well in situated professional practice (Rickinson, Cirkony, Walsh, Gleeson, Salisbury, & Boaz, 2021; Rickinson, Cirkony, Walsh, Gleeson, Cutler, & Salisbury, 2022).

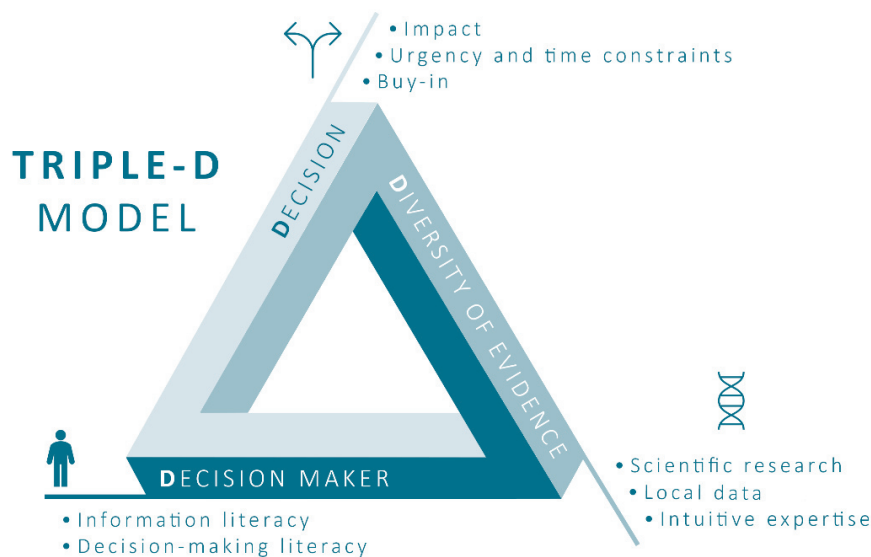
Together, this work points to both the promise of evidence-informed decision-making and the need to understand how professionals make sense of and use different forms of evidence in complex practice settings. Evidence-informed practice, understood as grounding decisions in evidence from different sources, is not self-evident (Farley-Ripple, 2024). Educators may have extensive professional experience, access to school and student data, and knowledge of relevant research literature. Yet the question is which information is relevant, reliable, and useful, for whom, and under what circumstances.

The Triple-D model, as visualized in Figure 1, is an attempt to capture this complexity. It was developed through an iterative synthesis of the authors' empirical work on data use, professional expertise, research use, and sensemaking, combined with a targeted review of influential literature on educational decision-making and evidence use. The purpose is not to offer a systematic literature review, but to integrate recurring insights, conceptual tensions, and explanatory patterns across these domains into a practical framework for education professionals. For example, we build on conceptual work by Farley-Ripple, May, Karpyn, Tilley, and McDonough (2018) and Brown, Schildkamp, and Hubers (2017), who conceptualize evidence use as a dynamic and complex process shaped by the interplay between multiple sources of evidence.

The model is rooted in professional decision-making and is organized around three dimensions that scaffold evidence-informed practice in education. In the following sections, these dimensions are discussed in detail. We begin with the different types of decisions that educators make and what these mean for the decision-making

process. We then examine the diversity of evidence sources that can support thoughtful professional judgment, with a focus on scientific research, local data, and intuitive expertise. Finally, we consider what educators as decision-makers need to engage effectively in evidence-informed decision-making.

Figure 1. Triple-D for evidence-informed practice in education



Decision: Mechanisms and types of decisions

Some of the decisions that educators make on a day-to-day basis carry high stakes, for example: decisions on whether a student is allowed to progress to the next grade. Other decisions are (or seem) more mundane, such as choosing who can contribute during a lesson or a meeting. Decisions are often made without explicitly reflecting on how decision processes actually *work*. With this in mind, this article explores two key decision-making mechanisms (intuitive and analytical decision-making) before turning to different types of decisions educators (teachers, school leaders, teacher leaders) encounter in practice.

Decision mechanisms: Fast intuitive and slow analytical

Everyone makes *decisions* every day, in education and beyond. The human brain uses different strategies to do this. A useful distinction is that between system 1, which works intuitively, and system 2, which works analytically (Kahneman, 2013; Kahneman & Frederick, 2005). Both systems have strengths and weaknesses, and shape how people choose and decide.

System 1 supports fast, automatic decision-making with little conscious effort. For educators, it may come into play in situations involving time pressure, stress, or multiple demands. Examples are needing to respond immediately in a classroom or making a quick call during a meeting. In such situations, fast intuitive thinking can be valuable, especially when it builds on substantial prior experience in similar contexts. However, speed also brings risks: because these judgments feel reasonable, logical and sound in the moment, they may appear more reliable than the evidence supports.

System 2 operates more slowly and deliberately, requiring conscious attention and cognitive effort. It reflects analytical thinking, where educators weigh information, reason logically, and make their considerations explicit. This mode is especially im-

portant for complex decisions that cannot be handled intuitively, as it allows for careful judgment and critical analysis. However, it also has a limitation: it is sometimes used to rationalize an intuitive judgment after the fact, rather than to arrive at a well-considered decision through genuine evaluation (Kahneman & Frederick, 2005).

Research shows that teachers and leaders are prone to placing too much trust in their intuitive judgments (Vanlommel, Van Gasse, Vanhoof, & Van Petegem, 2017). Relying solely on intuition can lead to flawed conclusions and can, in some cases, negatively affect student learning. Various fallacies, biases and decision-making errors can subtly shape practice (Korte, 2003; Hill & Jones, 2021; Berthet, 2022). For instance, confirmation bias leads people to favour information that supports existing beliefs and ignore contradictory evidence. Self-fulfilling prophecies can arise when expectations about a student influence behaviour in ways that make those expectations come true. Availability bias is another common pitfall, where recent or easily accessible information is given more weight than less visible data that is potentially more relevant. For example, a school leader might base decisions mainly on input from a small group of vocal teachers, overlooking the perspectives of others.

Beyond general cognitive biases, evidence-informed decision-makers should be aware of how implicit biases may influence the selection, interpretation, and weighting of evidence in decision-making processes (Thompson et al., 2023). This is particularly important in diverse educational settings, where decision-makers may serve students, teachers, or communities whose identities, experiences, or backgrounds differ from their own. Developing awareness of implicit assumptions and critically reflecting on how these may shape interpretations of evidence and professional judgment is therefore an important component of evidence-informed decision-making.

Evidence-informed decision-making offers a robust approach to enhancing the quality of educational decisions. It mitigates the limitations of relying solely on intuitive judgment, including the risks of cognitive biases (Kahneman, 2013), while also recognizing intuition as a valuable form of professional expertise. Rather than replacing intuition, other sources of evidence, such as research and data, can serve to refine or challenge intuitive judgments. However, integrating these different sources of evidence in a systematic and deliberate manner is not straightforward. The extent to which this integration is feasible and appropriate depends largely on the nature of the decision at hand. Decisions in educational practice vary in their stakes, consequences, and complexity. Consequently, they differ in the level of justification required and in the time available for careful deliberation. In the next section, we examine how different types of decisions shape both the decision-making process and the ways in which evidence can be meaningfully used.

Decisions differ

There is no single right answer to the question of which evidence is needed to make informed decisions in educational practice. Not all decisions require the same approach, and different sources of evidence do not have the same evidential strength in every situation (Coburn & Turner, 2011; Rickinson et al., 2022). It is therefore essential for education professionals to be able to critically weigh alternative courses of action. This involves considering multiple factors, including the anticipated impact

of the decision, the time available for deliberation, and the extent to which collaboration or consultation with others is warranted.

The expected impact of a decision is closely linked to its purpose (Mandinach & Schildkamp, 2021; Vanlommel & Schildkamp, 2019). Educational decisions can vary significantly in their stakes and consequences. For example, decisions related to student selection, admission, or graduation, as well as those concerning curriculum reform, assessment policy, staffing, or school funding, are typically considered high stakes. Such decisions carry substantial implications for students, teachers, and the broader school organization, and therefore require careful deliberation and robust justification.

In contrast, some decisions involve more limited consequences, such as temporary class groupings, the organization of a one-off event, communication with an individual parent, or the selection of a specific activity. These are generally characterized as low-stakes decisions. They tend to have fewer long-term implications and are more easily reversible, allowing for a more pragmatic and time-sensitive approach to decision-making.

For decisions with more limited impact, the evidential rigour required and the degree of stakeholder involvement desired tend to be less critical. While it remains important to ground decisions in the best available evidence, lower-stakes situations may allow for a degree of uncertainty and the acceptance that not every claim can be fully substantiated. In this sense, the anticipated impact of a decision shapes the time invested in the decision-making process, the required strength of evidence, and the extent to which others need to be involved.

In practice, education professionals do not always have the time to engage in extensive and systematic decision-making processes (Coburn & Turner, 2011; Marsh, Pane, & Hamilton, 2006; Torres, 2022). Many situations call for immediate and pragmatic responses, such as responding in real time to emerging classroom dynamics. In urgent cases, such as when a situation risks escalation, speed and feasibility may take precedence. By contrast, other decisions allow for more deliberate reflection and inquiry. Strategic decisions, including setting policy priorities, designing curriculum or language policies, or providing career guidance, typically require a more thorough and time-intensive approach.

The greater the potential impact of a decision, the more important it becomes to allocate sufficient time for careful consideration. Time pressure may be inherent to the situation itself, but it can also stem from broader contextual factors such as workload. Moreover, time pressure is not always objective; it may also be perceived, as decision-makers prioritize competing demands or underestimate the value of a more deliberate process (Spillane & Miele, 2007).

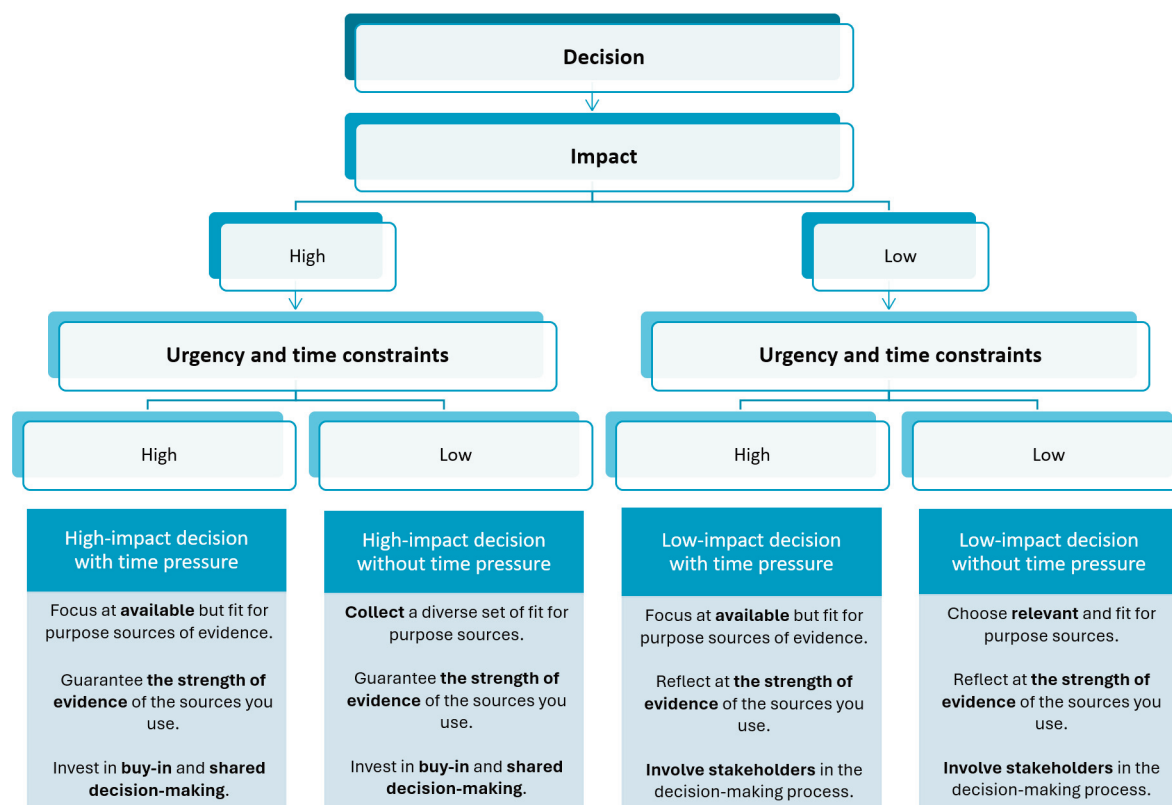
High-impact decisions made under time pressure increase the risk of significant errors in judgment. In such cases, involving others in the decision-making process can serve as an important safeguard. Engaging multiple stakeholders enables critical reflection and helps surface potential blind spots, as well as individual and cultural biases (Bertrand & Marsh, 2015; Coburn, 2001; Spillane & Miele, 2007).

In addition, stakeholder involvement is essential for securing the commitment required to implement and sustain decisions, particularly in areas such as educational

reform, vision development, or curriculum change. This commitment, often referred to as buy-in, implies that stakeholders, including teachers, students, and parents, not only accept but actively support the decision (Coburn & Turner, 2011; Lasater, Albiladi, Davis, & Bengtson, 2020). Without such support, resistance may emerge, potentially undermining or even preventing effective implementation.

In sum, as the impact of a decision increases, so too does the importance of strong evidential support, sufficient time for a systematic and transparent decision-making process, and meaningful stakeholder involvement. This logic is outlined in the flowchart in Figure 2.

Figure 2. Flowchart: Evidence in relation to the nature of the decision



Diversity of evidence: Scientific research, local data, and intuitive Expertise

Having established that decision-making is strongly influenced by intuitive processes, and that certain types of decisions call for a more deliberate and evidence-informed approach, it is essential to consider the different sources of evidence that can inform such decisions. In this article, evidence is understood as information that can support or challenge a particular claim. Decisions are then based on one or more such claims, allowing for conclusions that are both well-founded and transparently justified. This implies that decision-makers can articulate which forms of evidence underpin their judgments.

Our perspective adopts a broad and inclusive understanding of evidence in education. It encompasses scientific research evidence, including findings from academic studies on learning, instruction, and educational effectiveness. It also includes local data, such as information generated within the school or classroom context (for ex-

ample, student performance data, results from school self-evaluations, or indicators about the neighbourhood or local community). Finally, it incorporates the intuitive expertise of education professionals, developed through experience and professional practice (Vanlommel, 2025). So, within this framework, “Triple-D” refers not only to the interplay between decisions, decision-makers, and diversity of evidence but also to the deliberate integration of the three aforementioned sources of evidence. The model thus advances a comprehensive view of evidence-informed decision-making, in which professional expertise is not treated as secondary, but as a central and indispensable component of professional judgment.

Scientific research

A first source of evidence is academic knowledge derived from scientific research (Van Schaik, Volman, Admiraal, & Schenke, 2018). This includes both theory-oriented and practice-oriented studies conducted by researchers who follow systematic and transparent methodological procedures, which serves to ensure the quality and trustworthiness of their findings. Note that, in this article, we distinguish academic knowledge derived from scientific research from local inquiry conducted by teachers or other inquiry-minded practitioners in their own practice (Van Gasse, Goffin, Peeters, & Vanhoof 2024). Although such local inquiry can also be systematic and valuable, we discuss it in the next section as part of local data. Scientific research can provide valuable insights into effective teaching, learning processes, educational inequalities, school improvement and the impact of educational interventions. However, not all research is equally useful for decision-making. The evidential value of scientific research depends on both methodological quality and fitness for purpose (Rickinson et al., 2022). Methodological quality refers to how rigorously, carefully, and systematically the study was conducted. Fitness for purpose reflects the degree to which the study is relevant to the question it proposes to answer or the claim it proposes to support or refute (Rickinson et al., 2022).

This implies that there is little point in ranking research methods in a single hierarchy of general evidential strength. Rather, the strength of evidence depends on the relationship between the research question, the study design, and its research aim. For example, if the aim is to understand how and why an intervention to increase students’ learning motivation works, qualitative observations, interviews, case studies, quantitative surveys, or mixed-methods designs may all offer relevant evidence. If the aim is to determine whether the intervention has a causal effect on learning motivation, experimental or quasi-experimental designs are better suited.

In experimental research, outcomes are compared between a group that receives the intervention and a group that does not. Ideally, participants are randomly assigned to these groups, as in a randomized controlled trial (RCT). Such designs are particularly useful for investigating causal claims, although their findings still need to be interpreted in relation to the contexts in which the study was conducted and the conditions under which the intervention was implemented. From an evidence-informed perspective, research use is not a straightforward process of applying findings but involves interpretation and contextualization by decision-makers (Brown, 2017; Farley-Ripple et al., 2018). Different types of research serve different purposes: some

studies describe or explain educational phenomena, some examine how processes unfold in specific settings, and others evaluate the effectiveness of interventions. Systematic reviews can further strengthen the evidence base by synthesizing findings across multiple studies and offering a more comprehensive overview of what is known on a given topic. Even then, decision-makers need to consider how relevant, reliable, and applicable the evidence is for their own question and context. The value of scientific research, then, lies not only in methodological rigour, but also in its thoughtful and context-sensitive use within educational decision-making processes.

Local data

Schools routinely gather information about their work, from student attendance reports and test results to parent meeting notes, surveys, and feedback from external sources such as the inspectorate. These local data are a form of evidence grounded in the school's own context (Brown, 2017).

While academic research aims to provide broader insights that can inform decision-making beyond a single context, local data is highly context-specific. Here, teachers, school leaders, and policy staff act as inquiry-minded professionals, systematically analyzing information to inform learning, teaching, and school improvement (Van Gasse, Goffin, Peeters, & Vanhoof, 2024). As with doctors considering patient preferences, educators must consider the goals and values of different stakeholders such as students, parents, and colleagues. Sensitivity to needs and perspectives within one's own context is essential, for evidence of something being successful elsewhere does not guarantee local effectiveness.

Local data can be quantitative (e.g., test scores, attendance) or qualitative (e.g., observations, student or parent feedback) in nature and can originate from internal or external sources. They refer primarily to the school or classroom context but may also include broader contextual data (Mandinach & Schildkamp, 2021). As with scientific research, the evidential value of local data depends on the rigour with which they are collected and interpreted, and their fit with the question at hand. Poorly selected or interpreted data can lead to flawed conclusions.

Rigorous local data use requires attention to validity (i.e., measuring what is intended) and reliability (consistent and accurate data), and, where possible, triangulation: combining evidence from multiple sources to strengthen conclusions. Using data without considering their quality or relevance adds little value. In complex educational settings, it is therefore essential to select and use data purposefully, ensuring alignment with the question or decision at hand (Van Gasse et al., 2024).

Intuitive expertise

A third source of evidence is conceptualized in the literature as "intuitive expertise" (Kahneman & Klein, 2009). Over the course of a professional career, practitioners encounter a wide range of recurring situations. As such, they gradually develop a repertoire of experience-based patterns. For instance, certain types of student responses may be linked to specific behaviour, or specific mistakes can signal underlying learning difficulties. Through repeated exposure to such combinations of behaviours, occurrences and contextual factors, experiences become internalized as

structured patterns in memory. These patterns enable practitioners to recognize relevant signals quickly and to make timely judgments, as they support a rapid interpretation of complex situations. In this sense, intuitive expertise functions as a form of tacit knowledge that complements more formal sources of evidence. As professional experience accumulates, this repertoire becomes increasingly refined, enhancing the decision-maker's ability to respond effectively to context-specific challenges.

Intuitive expertise consists of patterns built through experience that are automatically triggered in familiar situations and guide action (Kahneman & Klein, 2009; Simon, 1987). It can be a valuable source of evidence, but intuition is also prone to biases and heuristics, quick rules of thumb that may lead to errors (Kahneman & Frederick, 2005). The strength of intuition depends on how it is developed and applied: it is only reliable when it is both rigorously acquired and fit for purpose when called upon (Kahneman & Klein, 2009).

In intuitive expertise, rigour builds as there is sufficient feedback to help form accurate patterns, such as input from colleagues or students, or reflection on unsuccessful actions. Fitness for purpose means that intuitive expertise is called upon in situations that align with those in which the patterns were built in the first place. In educational practice, this is a challenge due to context variability, and experienced professionals may become overconfident, relying too heavily on intuition and overlooking other evidence (Hammond, Keeney, & Raiffa, 2006). Therefore, intuitive judgments should be scrutinized and complemented with other sources of evidence. Combining multiple forms of evidence helps to refine professional judgment and strengthens decision-making.

When to choose which source?

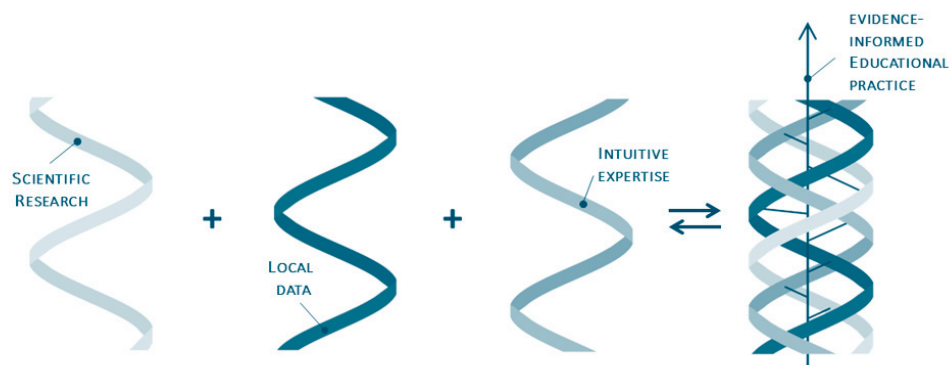
The different sources of evidence discussed here should not be seen as competing, but as complementary. In practice, it is rare for a single source to offer conclusive proof on its own, and few sources are entirely without value. What matters is how strongly and relevantly a particular source supports a decision in a specific context. Professionalism in evidence-informed practice involves recognizing key sources of evidence (scientific research, local data, and intuitive expertise) while also understanding when and how each source is most appropriate. The central question is not simply whether something counts as evidence, but under which conditions it provides strong and relevant support for a decision.

Importantly, the quality of evidence-informed decision-making depends not only on individual judgment, but also on collective sensemaking (Goffin, Janssen, & Vanhoof, 2022). Engaging in structured dialogue with others allows decision-makers to critically examine the evidential strength of different sources, to explore how these sources complement or challenge one another, and to surface underlying assumptions or biases. Such collaborative deliberation is crucial for arriving at well-founded and context-sensitive decisions.

Evidence-informed practice is therefore as much about the conditions under which evidence gains sense and meaning as it is about the identification of evidence itself. As illustrated in Figure 3, the three sources can be distinguished analytically, but effective practice requires their integration. At each stage of the decision-making

process, it is essential to balance and interweave these sources in a thoughtful and transparent manner.

Figure 3. Three sources of evidence in evidence-informed decision-making



In sum, scientific research, local data, and intuitive expertise are not optional but essential components of professional decision-making in education. Each source contributes distinct forms of knowledge, and effective practice depends on their deliberate and context-sensitive integration. Without intuitive expertise, decision-making would become slow and disconnected from the realities of practice; without scientific research and local data, it risks becoming uncritical and prone to bias. Education professionals navigate a continuous stream of decisions, often under significant time constraints. The relative weight of each source of evidence will therefore vary depending on the stakes of the decision, the time available, and the need for justification and support.

Determining which sources to draw on, how to assess their evidential strength, and how to combine them in a coherent way is a complex task. It demands more than access to evidence; it requires specific competencies in evaluating, interpreting, and integrating different forms of knowledge. These competencies are central to evidence-informed practice and are discussed in the next section.

Decision-maker: From information literacy to decision-making literacy

Weighing different sources of evidence and evaluating their evidential strength in relation to a decision is not easy. Evidence-informed educational practice requires a substantial set of competencies: knowledge, skills, dispositions, and behaviours that enable education professionals to make well-founded decisions. We can translate these competencies into forms of literacy. Literacy refers to a set of competencies that allows you to participate appropriately in a professional or societal process.

As evidence-informed decision-makers, school leaders and teachers require information literacy to engage critically with relevant forms of evidence. This is the capacity to independently recognize an information need, and then to locate, evaluate, and use the information needed (American Library Association, 1989; Rosman, Peter, Mayer, & Krampen, 2018). Information literacy focuses on the sources of evidence. In addition, educators need the competencies to navigate a decision-making process effectively, so they can reach a well-founded decision appropriate to the situation. We consolidate these competencies into the concept of decision-making literacy.

Within the context of evidence-informed practice in education, considerable attention has been devoted to data literacy. Data literacy is often emphasized in training and support initiatives, although sometimes in a relatively narrow way. For example, it may be reduced to statistical literacy, such as the ability to interpret a mean or a histogram, or to the analysis of quantitative data, often limited to student grades or assessment scores.

Contemporary perspectives acknowledge that quantitative data can be a strong source of evidence for certain decisions, but they also stress that data literacy is far more than the technical processing of numbers (Mandinach & Schildkamp, 2021). Being data literate means that teachers and school leaders are able and motivated to identify a relevant problem or question in relation to their objectives, recognize and collect high-quality data, interpret those data in context, make a decision that is fit for purpose, take action, and examine what that decision or action has resulted in (Beck & Nunnaley, 2021; Gummer & Mandinach, 2015; Mandinach & Gummer, 2016). So, making sense of data requires more than access to information or basic statistical skills. It requires agility, subject knowledge, knowledge of learning and instruction, and the willingness to make data use a routine part of daily professional practice (Brown & Vanlommel, 2022; Schildkamp, 2019). It is also important to remember that data are a means, not an end. Data are not synonymous with numbers, and not every educational question can be answered with data alone (Mandinach & Schildkamp, 2021).

Alongside data literacy, research literacy is also gaining importance in evidence-informed education. We use this concept to refer to educators' capacity to search for, understand, critically appraise, and use insights from relevant scientific studies in educational decision-making and action (Brown & Vanlommel, 2022; Groß Ophoff & Egger, 2021). Research literacy includes competencies in information seeking and processing, such as knowing how to locate relevant studies and assess whether they are rigorous and fit for purpose. It also includes basic knowledge of research methodology, such as knowing what makes research findings trustworthy, as well as argumentation and reasoning skills, such as drawing valid conclusions from research results (Groß Ophoff, Wolf, Schladitz, & Wirtz, 2017).

Data literacy and research literacy are closely related. Both can be developed through formal and informal learning, and both are necessary for working thoughtfully with sources of evidence in educational decision-making. However, neither captures the full range of information that educators may need to consider. For this reason, we use the broader term information literacy. By this, we refer to educators' capacity to identify, evaluate, interpret, and use different forms of information in support of professional decision-making. Information literacy positions data use and research use as part of a broader process of professional inquiry and evidence-informed decision-making.

Decision-making literacy: Deliberate and evidence-informed practice

Decision-making literacy does not start with evidence, but with the decision that needs to be made, and it transcends the technical aspect of searching for and interpreting information. Decision-making literacy requires understanding the complexity

of human decision-making, including cognitive biases and the influence of normative and social factors. Education professionals who are decision-making literate consider it self-evident and valuable to compare diverse, sometimes contradictory, sources of evidence. They critically discuss their intuitive judgments and their interpretation of evidence, and they collaborate to arrive at better-founded and reproducible decisions.

Decision-making literacy therefore includes the knowledge and skills needed to initiate and carry through a decision process. It also includes the disposition to consciously and critically reflect on decisions, potential bias, and the role of evidence and its conclusiveness in a decision-making process (Austin, Lee, McCarthy, & Sprong, 2023; Lasater, 2007). Willingness, motivation, and readiness to examine and change practice through critical reflection are crucial (Brown & Vanlommel, 2022; Gummer & Mandinach, 2015). It therefore involves a broader range of competencies, with sound decision-making at the heart of the process, rather than simply collecting and analyzing evidence.

Teachers and leaders often make decisions in complex and unpredictable settings. Moreover, these decisions can have a large impact on educational quality. Decision-making literacy enables education professionals to identify problems, to combine diverse sources of evidence, to weigh alternatives within their social and organizational context, and to take transparent decisions using shared criteria. Professionals with decision-making literacy also have the confidence to make decisions in the face of uncertainty or with incomplete information. They consider it self-evident to discuss decisions with colleagues, to make their assumptions and emotions explicit and to account for the social impact of their decisions. They also recognize the process of collective sensemaking when interpreting information and weighing options for action.

As a practical tool for educational practice, we add decision-making literacy to information literacy and combine them in a competency profile for the evidence-informed education professional. We distinguish five crucial dimensions (based on Riva, Iannello, Pravettoni, & Alessandro, 2015).

First, evidence-informed decision-making requires a grasp of the phases of the decision-making process, an understanding of how human judgment is shaped by fast and intuitive cognitive processes, and a sensibility to the recognition and mitigation of potential biases.

Second, self-regulation is important. Self-regulation includes the skills and willingness to autonomously take the steps needed to reach an informed decision process and to take responsibility for it. Evidence-informed decision-makers with strong decision-making literacy demonstrate confidence in their ability to make evidence-informed decisions, recognize their strengths and limitations, and actively mitigate factors that may undermine the quality of the decision-making process.

A third dimension is emotion regulation. This refers to the extent to which decision-makers are aware of the influence of their emotions and those of others on the decision-making process, on the selection and acceptance of evidence sources, and on the trade-offs that lead to the final decision. As a teacher or a school leader, it is important to recognize, understand, and deal with the role of emotions in decisions.

Table 1. Competency profile for the evidence-informed decision-maker

	Knowledge	Skills	Attitudes
Information literacy: The competencies to search, appraise, and use sources of evidence, targeted to a specific question or problem in the educational context.			
	You understand different sources of evidence: scientific research, local data, intuitive expertise.	You can identify and formulate information needs.	You are open to using of various sources of evidence.
	You understand that sources of evidence must meet quality requirements to carry evidential strength. Concretely, they must be rigorous and fit for purpose.	You can find relevant sources of evidence, compare them and assess their quality and evidential strength.	You adopt a critical stance toward the quality and usability of potential sources of evidence.
	You have a basic knowledge of methodology, and you know how to read and interpret information correctly (for example, how to read and understand graphs, tables, or summaries).	You can interpret evidence from sources within your context and translate the result of that exercise to your context.	You are willing to use sources of evidence as a basis for professional action.
Decision-making literacy: The competencies to make complex decisions in an educational context and to substantiate these decisions with evidence.			
Knowledge	You understand the intricacies of human decision-making.	You can balance between intuitive and analytical decision-making.	You are open to considering the advantages and disadvantages of the two 'systems' in human decision-making.
	You understand different phases in a decision-making process.	You can work through the different phases of a decision-making process.	You are willing to consciously shape and reflect on the different phases of decision-making.
	You know how fast, intuitive processes can affect a decision.	You can recognize bias.	You adopt a critical stance toward fast pattern recognition and intuitive decisions.
Self-regulation	You have insight into your own strengths and weaknesses regarding to decision-making.	You can take action to compensate for your own weaknesses or take these weaknesses into account.	You are willing to take action to compensate for your own weaknesses.
		You can autonomously arrive at an informed decision-making process.	You are willing to autonomously arrive at an informed decision-making process.
		You can recognize and minimize bias.	You have confidence in your own competencies to decide in an evidence-informed way.

Table 1. (continued)

	Knowledge	Skills	Attitudes
Emotion regulation	You are aware of the influence that emotions have on the course of a decision-making process, on the choice of sources of evidence, and on the considerations that lead to a final decision.	You recognize the influence of emotions on the course of a decision-making process, on the choice of sources of evidence, and on the considerations that lead to a final decision.	You are willing to deal with the influence of emotions on the course of a decision-making process, on the choice of sources of evidence, and on the considerations that lead to a final decision.
	You are aware of the influence that emotions have on the acceptance of a decision.	You recognize the influence of emotions on the acceptance of a decision.	You are willing to deal with the influence of emotions on the acceptance of a decision.
Reasoning ability	You understand why it is important to make intuitive judgments and reasoning explicit.	You can make your own intuitive judgment and reasoning explicit.	You are willing to make your own intuitive judgment and reasoning explicit.
		You can substantiate your judgment and your reasoning with evidence.	You adopt a critical stance toward your own reasoning and that of others.
		You can connect evidence from different sources.	You are open to different lines of reasoning.
Social awareness	You understand how a decision can affect your social environment (e.g. the students and their parents, colleagues at school).	You can view and weigh your decision from different perspectives.	You are willing to view and weigh your decision from different perspectives.
		You can communicate your decision in an appropriate way to different audiences.	You are open to different forms of communication about your decision.
		You can discern how social norms and culture influence your decision.	You are willing to consider the impact of your decision on others.

The fourth dimension, reasoning capacity, encompasses the agility and willingness to make intuitive judgments and to make underlying reasoning explicit, while recognizing and creating connections across different sources of evidence. Making sense of complex information requires more than technical interpretation skills alone and depends on processes of sensemaking through which evidence is interpreted and connected within context (Weick, 1995).

Finally, decision-making literacy relies on social awareness. This means understanding how one's decision affects others, such as students and their parents or colleagues in the school team. It means viewing and weighing a decision from multiple perspectives. It also means communicating a decision appropriately to different audiences and being aware that evidence-informed decision-making is rarely a one-way street: it is also influenced by school culture and social norms (Goffin, Janssen, & Vanhoof, 2022; Spillane & Miele, 2007; Weick, 1995). Many decisions require coordination or collaboration with colleagues, team members, or external partners.

In Table 1, we bring together information literacy and decision-making literacy in a competency profile for evidence-informed decision-makers in educational practice.

Conclusion and discussion

This article advances the Triple-D model as an operational framework for evidence-informed practice in education. It positions decision-making as a dynamic process shaped by the interaction of three core elements: the nature of the decision, the integration of multiple sources of evidence, and the competencies of the decision-maker. By conceptualizing evidence not as a singular entity but as the deliberate combination of scientific research, local data, and intuitive expertise, the framework responds to ongoing calls within scholarship on education policy and leadership for more nuanced and context-sensitive approaches to evidence use.

The Triple-D model contributes to the field in three ways. First, it offers a structured yet flexible framework to reflect the complexity of real-world educational decision-making, moving beyond linear or technocratic interpretations of evidence use. Second, the accompanying visuals provide heuristics that can support educators in navigating competing demands, uncertainties, and contextual constraints. Third, the competency profile foregrounds the capacities required of evidence-informed decision-makers, emphasizing not only technical skills (e.g., data literacy and research appraisal) but also judgment, reflexivity, and the ability to broker and integrate diverse forms of knowledge.

For policymakers and educational leaders, this work underscores that strengthening evidence-informed practice is not solely a matter of increasing access to research or data infrastructures. It also requires sustained investment in professional capacity building, organizational routines, and cultures that value critical engagement with evidence in its multiple forms. Strengthening evidence-informed practice requires not only individual competencies, but also leadership and organizational conditions that enable collaborative and sustained engagement with evidence (Farley-Ripple, 2024; Brown, 2017). Evidence-informed practice must be understood as a system-level endeavour: it depends on alignment and coordination across policy frameworks, leadership practices, and professional learning environments

(Vanlommel & van den Boom-Muilenburg, 2024). As Brown and Malin (2022) underline, such coordination is essential for enabling sustained and meaningful engagement with evidence across educational systems.

A key implication is that educational systems need to move beyond fragmented or ad hoc approaches to evidence use and instead invest in coherent infrastructures that connect decision-making processes, evidence sources, and professional capacity. This includes advocating for collaborative inquiry, embedding evidence use in leadership practices, and aligning policy expectations with the realities of practice. Importantly, research on educational change highlights that the availability of evidence alone does not guarantee meaningful improvement, as change processes often fail when the tensions between decision-makers or between different sources of evidence, such as research and expertise, are ignored (Schaap & Vanlommel, 2024). Future research could further examine how the proposed framework operates across different governance systems and cultural contexts, as well as how the competency profile can be developed, implemented, and assessed within leadership preparation, pre-service and in-service training, and broader professionalization initiatives. By bridging conceptual clarity with practical applicability, this article aims to contribute to ongoing debates on how evidence can more effectively inform educational policy and leadership practice across diverse settings.

At the same time, educational decision-making reflects a complex interplay of psychological, social, and contextual factors that shape how evidence is interpreted and used in practice. In this article, we deliberately adopted a specific lens by focusing on the interaction between decisions, evidence sources, and the decision maker as an important step toward operationalizing evidence-informed practice. However, future research should continue to expand this perspective by examining additional mechanisms that may shape evidence engagement. One such perspective concerns the role of professional identity and motivated reasoning. Research suggests that individuals do not always evaluate evidence in a purely accuracy-oriented manner. Rather, evidence search and interpretation may also be influenced by motivations to maintain coherence with existing beliefs, values, or professional identities (Kunda, 1990). In educational settings, this implies that teachers' and school leaders' engagement with evidence may at times be shaped by how evidence aligns with established pedagogical beliefs or perceived professional roles. Exploring how such identity-related mechanisms interact with governance structures, organizational cultures, and professional learning contexts may provide a richer understanding of evidence-informed educational decision-making.

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