



PROFESSIONAL JUDGMENT IN THE AGE OF ARTIFICIAL INTELLIGENCE

WHEN TECHNOLOGY CAN RECOMMEND ALMOST ANYTHING, WHO DECIDES?

Teaching has always involved tools. Textbooks organize knowledge, assessment systems generate evidence, digital platforms track performance, and instructional frameworks help educators translate research into practice. Artificial intelligence, however, introduces a different kind of tool. It does not merely provide resources; it can now recommend actions. A teacher can ask an AI system to design a lesson, differentiate an activity, generate feedback, construct an assessment, identify misconceptions, produce intervention strategies, adapt material for multilingual learners, or suggest what to teach next. The speed and apparent sophistication of these recommendations can create the impression that an increasing proportion of teaching can be reduced to selecting from technically generated options.

Yet teaching has never been simply the application of technically correct methods. The same instructional strategy may be highly effective with one class and inappropriate with another. Feedback that motivates one learner may discourage another. An assessment may be psychometrically sound yet reveal little about the understanding a particular curriculum claims to value. A recommendation may be supported by research but poorly matched to a student's language, prior knowledge, cultural context, emotional readiness, or immediate learning need. Educational decisions are therefore rarely questions of *what works* in the abstract. They are questions of **what is educationally appropriate for these learners, in this context, at this moment, for this purpose.**

That act of interpretation is professional judgment.

Professional judgment is sometimes mistaken for intuition or personal preference, as though it means that experienced teachers simply “know what to do.” A stronger understanding is much more demanding. Judgment draws upon disciplinary knowledge, pedagogical expertise, evidence, knowledge of learners, ethical reasoning, contextual awareness, and experience. It requires educators to weigh forms of evidence that may point in different directions, determine what is relevant, recognize uncertainty, and accept responsibility for the consequences of a decision. A teacher exercising professional judgment does not reject evidence or expertise; the teacher decides how they should be interpreted and applied within a situation that no guideline, algorithm, or research finding can describe completely.

This distinction has deep roots in scholarship on professional practice. Lee Shulman’s work on **pedagogical content knowledge** challenged the idea that effective teaching consists simply of possessing subject knowledge plus generic teaching techniques. Teachers must understand how particular ideas can be represented, explained, questioned, and adapted for particular learners. Donald Schön’s concept of the **reflective practitioner** similarly emphasized that professional work involves uncertain and indeterminate situations in which practitioners must think within action rather than merely execute predetermined rules. Research on **adaptive expertise**, originating in the work of Hatano and Inagaki and later applied to teaching, distinguishes experts who efficiently reproduce familiar routines from those who can modify their knowledge and invent appropriate responses when circumstances change.



These traditions become newly significant in the age of AI. UNESCO's AI Competency Framework for Teachers explicitly places a human-centred mindset, ethics, pedagogy, and human agency alongside technical knowledge of AI. Its underlying premise is important: increasing technological capability does not diminish the professional role of teachers; it changes the kinds of judgment educators must be prepared to exercise. Current OECD work similarly argues that increasingly powerful AI requires education systems to reconsider not only technological competencies but the knowledge, skills, attitudes, curriculum experiences, and human capabilities that remain educationally important.

The emerging challenge is therefore more complex than the familiar question, “*Will AI replace teachers?*” That question reduces teaching to a competition between human and machine capability.

A more consequential question is:

What happens to education when systems become increasingly capable of recommending what teachers should do, while teachers remain responsible for deciding whether those recommendations should be followed?

An AI system may propose an efficient instructional sequence, but it cannot independently determine whether efficiency is the most important educational value in that moment. It may identify a student's error pattern but cannot assume responsibility for deciding whether the learner needs direct correction, additional productive struggle, reassurance, peer dialogue, or a completely different representation of the concept. It may generate a technically sophisticated lesson on a controversial issue without fully understanding the relationships, histories, sensitivities, and power dynamics within the classroom in which that lesson will occur. The recommendation may be useful. The educational decision remains something more.

This is why professional judgment should not be treated as the residual human capacity left over after technology has automated everything else. It is better understood as the **integrating capacity of professional teaching**: the ability to bring knowledge, evidence, context, purpose, and ethical responsibility into relationship when making decisions about learners.

The central argument of this article is therefore not that teachers possess qualities machines can never imitate. Such claims are difficult to sustain as technologies evolve. The stronger argument is that education requires **accountable human judgment** because educational decisions concern purposes and consequences, not merely predictions and outputs. The more powerful recommendation systems become, the more important it will be for teachers to understand when a recommendation is useful, when it requires adaptation, when important information is missing, and when the educationally responsible decision is to reject it altogether.

The future-ready teacher will not be the educator who refuses artificial intelligence, nor the educator who follows it most efficiently. It will be the educator capable of using powerful tools without surrendering the professional responsibility to decide what learning, for these particular students, ought to become.

PROFESSIONAL JUDGMENT: MORE THAN EXPERTISE, INTUITION, OR EXPERIENCE

Professional judgment is difficult to define precisely because it operates at the point where knowledge meets uncertainty. Teachers rarely make decisions under perfectly controlled conditions. They work with incomplete information, competing priorities, individual differences, institutional expectations, ethical responsibilities, and situations that can change within minutes. A strategy supported by strong evidence may still require adaptation for a multilingual learner, a student with limited prior knowledge, or a class whose understanding has developed differently from what the lesson plan anticipated. Professional judgment is therefore not the rejection of research or established practice. It is the capacity to determine **what evidence means in a particular educational situation and what should be done with it**.

An important philosophical foundation for this idea can be found in Aristotle's concept of **phronesis**, commonly understood as practical wisdom. Phronesis differs from technical knowledge because it concerns decisions about how general principles should be applied within particular circumstances. Educational practice contains precisely this kind of complexity. Teachers need theoretical and disciplinary knowledge, but no universal rule can specify exactly when to intervene in a discussion, when to allow productive struggle to continue, when differentiation supports access, or when it unintentionally lowers intellectual expectations. Such decisions require attention not only to effectiveness but also to purpose, context, and consequence.



Donald Schön later developed a related argument through his conception of the **reflective practitioner**. Professional practice, he argued, frequently involves situations that are uncertain, unstable, and resistant to straightforward technical solutions. Practitioners therefore engage in reflection *in action*: they notice what is happening, interpret emerging evidence, adjust their response, and continue learning from the consequences of the decision. Teaching illustrates this vividly. A teacher may enter a classroom with a carefully designed lesson and recognize within minutes that students' misconceptions are different from those anticipated. Professional competence is revealed not by following the original plan faithfully, but by understanding when and why it should change.

Lee Shulman's scholarship on **pedagogical content knowledge** adds another dimension. Effective teaching requires more than knowing a subject and more than knowing general pedagogical strategies. Teachers must understand how particular concepts can be represented, explained, questioned, and made accessible to particular learners. This means that professional judgment is inherently disciplinary. The judgment required to respond to a misconception in mathematics differs from the judgment involved in supporting interpretation of a historical source or facilitating disagreement around a literary text. AI may generate pedagogical suggestions across all three contexts, but the teacher must determine whether those suggestions respect the epistemic practices of the discipline and the developmental needs of the learners.

Research on **adaptive expertise** further clarifies why professional judgment becomes particularly important during change. Hatano and Inagaki distinguished between routine expertise, which enables practitioners to perform familiar procedures efficiently, and adaptive expertise, which enables them to modify, reorganize, or generate approaches when familiar routines no longer fit the problem. In education, adaptive expertise matters because classrooms are inherently variable. New technologies, changing curricula, multilingual populations, emerging social conditions, and increasingly diverse learner needs make rigid application of established routines insufficient. The expert teacher is therefore not simply the person who has accumulated the largest repertoire of strategies, but the one who can determine **which strategy fits, why it fits, and when it should be changed**.

Gert Biesta's work on educational purpose introduces an equally important caution. Questions about teaching cannot ultimately be reduced to effectiveness because educators must first decide **effective for what?** Education simultaneously involves knowledge and skills, participation in social and cultural worlds, and the development of learners as persons capable of judgment and agency. A method may efficiently improve one measurable outcome while undermining another educational purpose that is less easily quantified. Professional judgment therefore involves negotiating purposes as well as selecting techniques.

Taken together, these traditions suggest that teacher judgment rests on several interacting forms of knowledge: **disciplinary understanding, pedagogical expertise, knowledge of learners, interpretation of evidence, contextual awareness, and ethical deliberation**. None is sufficient independently. Evidence without context can become mechanical prescription; experience without evidence can harden into habit; knowledge of learners without disciplinary rigor can lower expectations; and technical efficiency without educational purpose can optimize outcomes that were never worth prioritizing in the first place.

This distinction becomes especially consequential when artificial intelligence enters professional decision-making. AI systems can process large amounts of information, identify patterns, generate alternatives, and make recommendations with extraordinary speed. These capabilities can strengthen teacher practice, particularly when they reduce routine workload or broaden the range of options educators can consider. But a recommendation is not the same as a professional judgment. The recommendation answers something closer to **"What might be done?"** Professional judgment must still answer **"What ought to be done here, for these learners, and why?"**

That difference between generating an option and assuming responsibility for its educational consequences—is where the professional role of the teacher becomes most significant.

WHAT AI CAN SEE — AND WHAT IT CANNOT DECIDE

Artificial intelligence is particularly powerful when teaching is treated as a problem of pattern recognition. It can identify recurring errors in student responses, detect gaps in performance data, compare work against rubrics, generate differentiated examples, and surface instructional options that a teacher may not have considered. These capabilities are valuable because they can expand the information available to educators. Yet information and judgment are not equivalent. AI can often identify **what is happening** in observable terms; it is less able to determine what that evidence means in the full context of a learner's experience.

This is where the distinction between data and interpretation becomes critical. A student who participates rarely may be disengaged, but they may also be reflecting carefully, uncertain about the language of instruction, reluctant to compete for speaking time, or processing a difficult idea

internally. A learner who completes every task may appear highly engaged while contributing little original thought. Another student may speak frequently yet avoid genuine intellectual risk. Observable behaviour therefore provides only a partial account of learning. Professional judgment requires the teacher to interpret these signals in relation to the learner, the task, the classroom culture, and the purpose of the lesson.

The **Meaningful Presence Model** offers a useful lens for understanding this problem. The model distinguishes among **behavioral presence**, **emotional presence**, **cognitive presence**, and **agency presence**. These dimensions remind educators that participation cannot be reduced to visible activity alone. Behavioral presence concerns what learners do; emotional presence concerns how they experience belonging, confidence, and connection; cognitive presence concerns the depth of intellectual engagement; and agency presence concerns the extent to which learners exercise ownership, choice, and responsibility within the learning process. A student may appear behaviorally present while being cognitively or emotionally absent, and another may appear quiet while demonstrating deep cognitive presence.

This matters because AI-supported systems tend to privilege what can be measured reliably. Clicks, completion rates, response times, participation frequency, and correctness are easier to quantify than uncertainty, intellectual risk-taking, belonging, or emerging agency. The danger is not that these systems are useless, but that their outputs can acquire more authority than the evidence warrants. Once a metric is presented as a dashboard or recommendation, it can appear objective even when it captures only one dimension of learning.

The Meaningful Presence Model

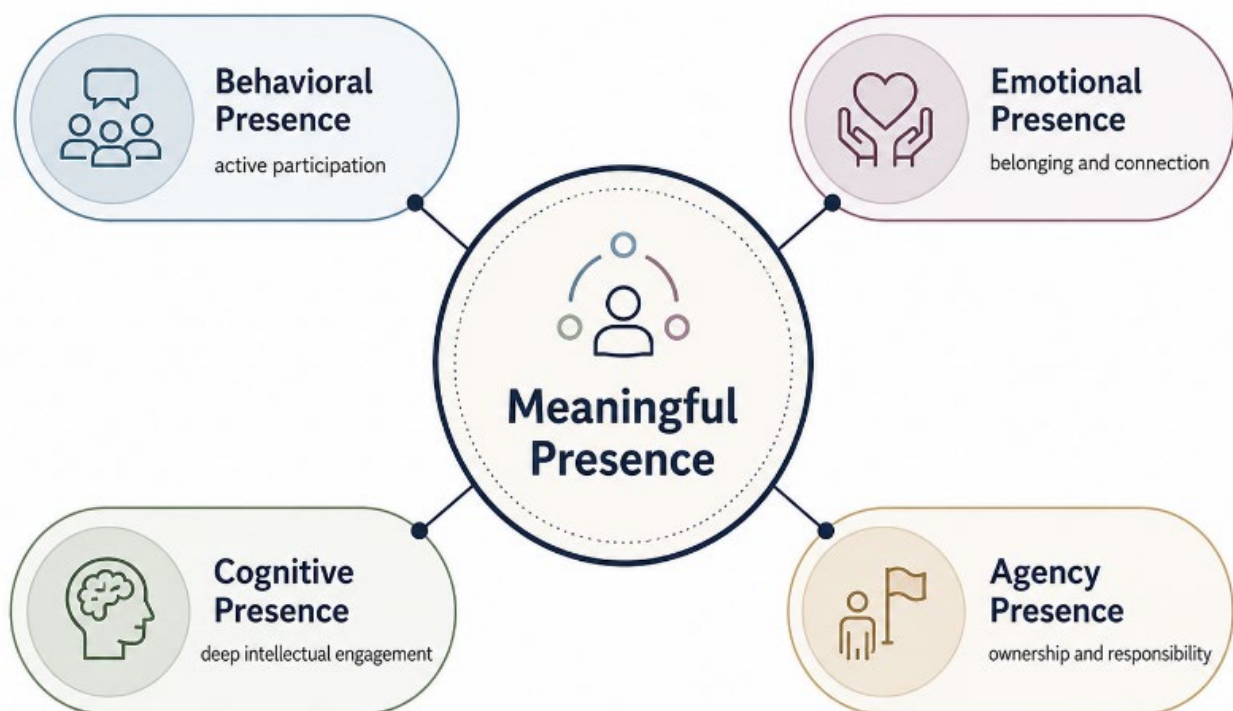


Figure 1. The Meaningful Presence Model. An original conceptual framework developed by **Javeria Rana**, illustrating four dimensions of student presence in learning: **behavioral presence**, **emotional presence**, **cognitive presence**, and **agency presence**. The model emphasizes that meaningful participation cannot be understood through visible activity alone; it must also be interpreted through belonging, intellectual engagement, and learner ownership.

Professional judgment therefore involves resisting the temptation to treat measurable behaviour as a complete representation of the learner. The teacher must ask what the data reveals, what it leaves invisible, and what additional evidence is needed before acting. This may require conversation, observation, student work, peer interaction, prior history, or contextual knowledge that no automated system possesses in full. In this sense, the teacher's role is not to compete with AI's ability to process information but to **situate that information within a richer understanding of human learning**.

The Meaningful Presence Model is especially useful here because it reframes the question from “*Is the student participating?*” to “*In what ways is the student present in the learning?*” That shift is central to professional judgment. It helps educators interpret AI-generated evidence more cautiously and more intelligently, ensuring that decisions are not made solely on the basis of what is easiest to measure. In an AI-rich classroom, the quality of teaching may depend increasingly on the teacher's ability to notice what the system cannot see clearly and to decide what those unseen dimensions mean for the learner.



WHEN EVIDENCE, CONTEXT, AND PURPOSE PULL IN DIFFERENT DIRECTIONS

Professional judgment becomes most visible when there is no single obviously correct instructional response. Educational decisions often involve competing forms of evidence and competing goods. Assessment data may suggest that a learner needs additional practice, while classroom observation indicates fatigue or declining confidence. A research-informed strategy may be effective on average but poorly suited to the language demands of a particular class. An AI system may recommend accelerating instruction because students are completing tasks successfully, while the teacher recognizes that the apparent fluency reflects procedural performance rather than conceptual understanding. These are not failures of evidence. They are situations in which evidence must be interpreted.

This is why evidence-informed teaching should not be confused with evidence-determined teaching. Research, assessment data, learning analytics, professional experience, student voice, and AI-generated recommendations can all strengthen decision-making, but none can remove the need for judgment. Evidence answers questions about patterns, probabilities, prior outcomes, and observable performance. Teachers must still decide which evidence is relevant, how much weight it deserves, what information is missing, and whether following it would serve the educational purpose at stake.

Context complicates these decisions further. The same instructional recommendation can produce very different consequences depending on learners' prior knowledge, linguistic resources, cultural expectations, classroom relationships, available time, and institutional conditions. A discussion strategy that works effectively in one classroom may silence learners in another. Immediate corrective feedback may help one student but interrupt productive reasoning for another. An AI-generated text may be technically appropriate for a specified reading level while remaining culturally unfamiliar or conceptually inaccessible to the students expected to use it. Professional judgment therefore requires educators to interpret recommendations through knowledge of the learners and environments for whom those recommendations were never originally designed in full.

Purpose introduces an even deeper layer. Gert Biesta's work reminds education that effectiveness cannot be considered independently of the question, **effective for what?** A strategy that increases short-term test performance may not necessarily strengthen intellectual independence. A highly personalized digital pathway may improve efficiency while reducing opportunities for dialogue, disagreement, and collective meaning-making. Automated feedback may help students correct errors quickly while inadvertently removing moments in which they might have developed self-monitoring or perseverance. The technically most efficient option is therefore not automatically the educationally most desirable one.

Ethical responsibility also cannot be separated from judgment. Decisions about grouping, intervention, prediction, personalization, or AI-supported assessment can affect how students are perceived and what opportunities they receive. If an algorithm identifies a learner as being at risk, should that prediction determine the level of challenge the student receives? If AI recommends different instructional pathways for different groups, what assumptions produced those recommendations? When does personalization become lowered expectation? When does efficiency begin to reduce student autonomy? Teachers do not need to become computer scientists to ask these questions, but they do need enough professional and ethical literacy to recognize that automated recommendations are never educationally neutral simply because they are data-driven.

The most capable professional response may therefore involve accepting an AI recommendation, adapting it substantially, combining it with other evidence, delaying action until more information is available, or rejecting it altogether. None of these choices is inherently more “human” than another. What matters is whether the educator can explain the reasoning behind the decision and accept responsibility for its consequences.

This is an important distinction for the future of teaching. Artificial intelligence can increasingly contribute to the **informational side** of educational decision-making by identifying patterns, generating possibilities, and reducing the time required to access resources or analyze data. Professional judgment remains responsible for the **interpretive and normative side**: deciding what the evidence means, what matters in this context, what educational purpose should take priority, and what action is defensible.

The question facing future-ready educators is therefore not whether they should trust professional judgment instead of evidence or artificial intelligence. It is whether they can develop judgment

sophisticated enough to **use evidence and AI without allowing either to become a substitute for educational responsibility.**



THE RISK OF OUTSOURCING JUDGMENT

The growing sophistication of artificial intelligence creates a subtle professional risk: not that teachers will suddenly become unnecessary, but that some of the interpretive work of teaching may gradually be delegated to systems whose recommendations are treated as authoritative. When lesson planning, feedback, grouping, intervention, differentiation, and assessment decisions are increasingly mediated by AI, educators may begin to accept suggested actions without fully interrogating the assumptions behind them. Over time, convenience can become dependency, and dependency can weaken the very professional capacities that technology was intended to support.

This matters because judgment develops through use. Teachers become more discerning by comparing evidence, observing consequences, revising decisions, and reflecting on why a particular approach succeeded or failed. If an algorithm routinely supplies the next instructional move, the teacher may become more efficient while having fewer opportunities to practise the reasoning that underpins adaptive expertise. The danger is therefore not simply technological error. It is the possible erosion of professional agency when educators stop asking why a recommendation has been made, what evidence it rests upon, and whether another response might better serve the learner.

The problem is intensified by the appearance of objectivity. AI-generated recommendations can seem neutral because they are produced through data analysis rather than personal intuition. Yet every system reflects choices about what information is collected, which outcomes are prioritized, how patterns are interpreted, and what counts as success. A recommendation to provide additional practice, accelerate learning, change grouping, or modify feedback is never completely detached from assumptions about learning and performance. Teachers therefore need to approach algorithmic outputs as **evidence to be interpreted**, not instructions to be obeyed.

Professional autonomy does not mean rejecting external guidance. Teaching has always depended upon curriculum frameworks, research evidence, specialist expertise, assessment systems, and collaborative decision-making. The distinction lies in whether these resources strengthen or replace professional reasoning. A teacher who rejects evidence simply because it conflicts with personal preference is not exercising strong professional judgment. Neither is a teacher who accepts a recommendation solely because it was generated by an apparently sophisticated system. In both cases, responsibility has been displaced rather than exercised.

The most productive relationship between teachers and AI is therefore one of **augmentation rather than delegation**. AI can broaden the range of possibilities a teacher considers, identify patterns that might otherwise remain unnoticed, and reduce the burden of routine work. The teacher retains responsibility for interpreting those possibilities through disciplinary expertise, knowledge of learners, educational purpose, and ethical judgment. This relationship allows technology to increase professional capacity without becoming a substitute for professional agency.

The central question is not how much teaching can be automated, but **which decisions should remain meaningfully contestable by the teacher**. Future-ready systems should preserve spaces in which educators can question recommendations, override them, explain their reasoning, and learn from the consequences of their choices. If teachers become merely the final human link in an automated decision chain, professional judgment has already been weakened. If they remain active interpreters of evidence and responsible authors of educational decisions, AI can become a powerful professional resource rather than an invisible authority.

PROFESSIONAL JUDGMENT MUST BE DEVELOPED, NOT ASSUMED

If professional judgment is central to teaching, education systems cannot simply expect teachers to possess it by virtue of experience. Years in the classroom may provide valuable knowledge, but experience does not automatically become expertise. Teachers develop stronger judgment when they have opportunities to examine decisions, compare interpretations, encounter alternative perspectives, study evidence, and reflect on the consequences of their actions. Professional judgment is therefore not an innate quality or a private instinct; it is a capacity that can be deliberately cultivated.

This distinction is particularly important for novice teachers. Early-career educators often depend more heavily on established routines, curriculum materials, mentor advice, or procedural guidance because they have not yet accumulated the contextual knowledge that allows experienced teachers to recognize patterns quickly. Such support is necessary, but professional learning should gradually move beyond telling teachers what to do toward helping them understand **why a particular decision is appropriate and under what conditions it might need to change**. Otherwise, teachers may become proficient at implementing strategies without developing the adaptive expertise required when familiar strategies stop working.

Case-based professional learning can be especially valuable because judgment develops around dilemmas rather than abstract prescriptions. Teachers might examine a situation in which assessment data recommends intervention while classroom evidence suggests that the learner needs greater challenge, or an AI system proposes differentiated material that inadvertently lowers cognitive demand for a particular group. Instead of searching immediately for the “correct” response, educators can analyse what evidence is available, what is missing, which educational purposes are in tension, and what consequences different decisions might produce. Such deliberation exposes the

reasoning behind professional action and allows teachers to encounter complexity before facing it alone.

Collaborative professional cultures also matter. Judgment becomes stronger when it can be explained, questioned, and refined in conversation with colleagues. Professional learning communities, instructional coaching, lesson study, mentoring, and collaborative analysis of student work can prevent individual judgment from becoming insulated personal preference. A teacher should be able to say not only *“This worked for my students,”* but also *“Here is the evidence I considered, here is why I made this decision, and here is what would cause me to revise it.”* Professional autonomy becomes more credible when it is accompanied by professional accountability.

Artificial intelligence itself can contribute to this development when used deliberately. Rather than asking AI only for solutions, teachers can use it to generate competing instructional approaches, identify possible weaknesses in a lesson, simulate alternative interpretations of student work, or challenge an initial decision. The teacher can then compare these possibilities against disciplinary knowledge, learner evidence, context, and educational purpose. Used in this way, AI does not eliminate judgment; it creates additional material upon which judgment can operate.

The Ripple Question Model, which I developed as a five-move structure for inquiry—Notice, Reason, Justify, Apply, and Extend can also provide a useful questioning discipline for professional judgment. When an educator reviews an AI-generated recommendation, the model can interrupt automatic acceptance by requiring the recommendation to be examined, interpreted, evidenced, contextualized, and extended before action is taken.

APPLYING THE RIPPLE QUESTION MODEL TO AI-SUPPORTED PROFESSIONAL JUDGMENT

Ripple	Professional judgment question
Notice	What is this recommendation emphasizing, and what information or learner context might it be overlooking?
Reason	Why might the system have produced this recommendation, and what assumptions appear to underpin it?
Justify	What evidence supports accepting, modifying, or rejecting the recommendation?
Apply	How would this recommendation need to be adapted for these learners, this discipline, and this context?
Extend	What new question, consequence, risk, or possibility does this decision create?

Used in this way, the Ripple Question Model does not determine the teacher’s decision. It structures the inquiry surrounding that decision. Professional judgment remains necessary because educators must still weigh competing evidence, educational purposes, contextual knowledge, and ethical consequences before deciding what action is defensible.

Reflection after action is equally important. Teachers need opportunities to examine not only whether a decision produced the expected outcome but what the decision revealed about their assumptions. Did a student respond differently than anticipated? Was an AI recommendation useful because it identified something the teacher had missed, or misleading because it lacked contextual

information? Did adaptation increase access while preserving intellectual challenge? Judgment improves when teachers treat decisions as hypotheses open to revision rather than demonstrations of professional certainty.

The goal of professional learning in the AI era should therefore extend beyond teaching educators how to operate new technologies. Teachers need to develop the capacity to **interrogate, contextualize, adapt, and sometimes refuse technological recommendations**. As AI becomes more capable, the quality of education may depend less on whether teachers can access sophisticated tools and more on whether they possess the professional judgment required to use those tools without becoming governed by them.

WHAT SCHOOLS MUST PROTECT: THE CONDITIONS FOR PROFESSIONAL JUDGMENT

Professional judgment cannot flourish in systems that demand professional responsibility while simultaneously removing professional discretion. Teachers may be expected to respond to individual learners, exercise ethical judgment, and adapt instruction, yet work within tightly prescribed pacing guides, standardized intervention protocols, automated dashboards, or accountability structures that leave little room for interpretation. If education systems genuinely value judgment, they must create conditions in which teachers are able to exercise it responsibly rather than merely comply with increasingly sophisticated recommendations.

School leaders therefore have an important role in distinguishing between **support for decision-making and substitution for decision-making**. Data systems, curriculum resources, instructional frameworks, and AI tools should help teachers see possibilities, identify patterns, and access evidence. They should not become mechanisms through which professional reasoning is quietly replaced by procedural compliance. The quality of a system should not be judged by how consistently every teacher makes the same decision, but by whether teachers can explain why their decisions are educationally defensible within shared professional standards.

Time is one of the most overlooked conditions for sound judgment. Interpretation requires opportunities to examine student work, discuss evidence with colleagues, revisit assumptions, and consider alternatives. When teachers are expected to move immediately from data to action, the process can collapse into reaction rather than deliberation. Collaborative planning, coaching, lesson study, and professional dialogue are therefore not peripheral forms of development; they are infrastructures through which professional judgment becomes more rigorous and accountable.

Leaders also need to preserve the teacher's right to challenge automated recommendations. If an AI-supported system identifies a student for intervention, changes the level of a task, predicts performance, or recommends a particular instructional pathway, teachers should be able to ask what evidence produced that conclusion, what limitations are known, and what contextual information may be missing. Override mechanisms are important, but so is a professional culture in which disagreement with technology does not require teachers to prove that the machine was "wrong." A recommendation may be statistically reasonable and still be educationally inappropriate for a particular learner.

This also has implications for accountability. Professional judgment should not become a justification for unexamined personal preference, inconsistency, or lowered expectations. Teachers who exercise discretion should be expected to articulate the evidence, purpose, and reasoning behind important decisions and to remain open to revision. The goal is **responsible autonomy**: enough

professional freedom to respond intelligently to context, combined with sufficient professional accountability to ensure that decisions can be questioned, explained, and improved.

As AI becomes more embedded in curriculum, assessment, learning analytics, and instructional planning, schools will need to decide which decisions can be automated, which can be supported by automation, and which should remain under meaningful human authority. That distinction should not be made solely on the basis of technical feasibility. A decision may be automatable and still carry consequences for learner identity, opportunity, belonging, or educational purpose that require human deliberation.

The future of professional judgment therefore depends not only on the competence of individual teachers but also on the architecture of the institutions in which they work. Schools that want adaptive, ethical, and intellectually responsible teachers must design systems that allow educators to interpret evidence, challenge recommendations, exercise discretion, and learn from the consequences of their decisions. Professional judgment is not simply something a teacher possesses. It is something an educational system must be willing to protect.



A FUTURE-READY PROFESSION REQUIRES HUMAN ACCOUNTABILITY

The strongest argument for preserving professional judgment in the age of artificial intelligence is not that human teachers will always outperform machines at every task. That claim is too fragile. AI systems will continue to improve at analysis, prediction, content generation, pattern recognition, and recommendation. The more important distinction is that educational decisions carry responsibilities that cannot be reduced to technical performance alone. Someone must remain accountable for what is prioritized, whose needs are considered, what risks are accepted, and how consequences are interpreted when a decision affects a learner.

This is especially important because teaching is fundamentally normative. Educators are not only deciding how to produce learning outcomes; they are deciding which outcomes matter, what forms of participation are worthwhile, what kinds of knowledge deserve emphasis, and how individual success should be balanced against collective, ethical, and developmental purposes. These decisions cannot be resolved through optimization alone. A system may identify the most efficient route to a measurable target, but efficiency does not determine whether the target itself is educationally desirable.

Human accountability also matters when AI systems produce recommendations that are difficult to explain. Teachers should not be placed in the position of implementing high-impact decisions they cannot interrogate. If an automated system influences grouping, intervention, assessment, or learner pathways, the educator using that system needs sufficient understanding to question the evidence, identify uncertainty, and communicate the rationale for the final decision. Professional judgment therefore includes not only choosing among options but also ensuring that the decision remains **explainable, contestable, and revisable**.

This places an important boundary around the role of AI in education. Artificial intelligence can advise, generate, compare, flag, predict, and assist. It can widen the evidence base available to teachers and reduce the cognitive burden of routine work. But where decisions affect learner opportunity, identity, belonging, progression, or educational purpose, meaningful human responsibility should remain visible. The educator should be able to say: *I considered the recommendation, I examined the evidence, I accounted for the context, and I can explain why this decision was made.*

That standard is more demanding than simply keeping a “human in the loop.” A teacher who automatically approves an algorithmic recommendation is technically present but professionally absent. Human oversight becomes meaningful only when the educator retains the authority, knowledge, and confidence to challenge the system. The goal is therefore not symbolic human involvement, but **substantive professional agency**.

Future-ready teaching will require a new kind of confidence: not confidence that human judgment is infallible, but confidence that educators can reason transparently, revise decisions when evidence changes, and remain accountable for choices made with the support of intelligent systems. That is what distinguishes professional judgment from automated recommendation. The teacher does not merely select an option. The teacher assumes responsibility for what that option means in the life of a learner.

CONCLUSION: THE IRREPLACEABLE ACT OF JUDGMENT

Artificial intelligence will continue to change the mechanics of teaching. It will make planning faster, feedback more scalable, data more accessible, and instructional options more abundant. What it will not remove is the need to decide which option is educationally appropriate, which evidence deserves trust, which learner need should take priority, and which consequences matter enough to shape the decision. Those are questions of professional judgment.

This article has argued that judgment is not simply intuition, seniority, or resistance to technology. It is the disciplined integration of **knowledge, evidence, context, purpose, and ethical responsibility**. Shulman helps us understand why pedagogical decisions are inseparable from disciplinary knowledge; Schön shows why professional work requires reflection within uncertain situations; adaptive expertise explains why routines must sometimes be modified; and Biesta reminds us that

educational effectiveness is meaningless unless we first ask what education is trying to achieve. Together, these traditions make clear that professional teaching cannot be reduced to the execution of recommendations, however sophisticated those recommendations become.



AI can strengthen this work when it expands what teachers can see, compare, generate, and analyse. It can also weaken it if teachers begin to outsource interpretation along with routine work. The distinction between augmentation and delegation therefore matters. A system that helps a teacher notice a pattern can increase professional capacity. A system that quietly determines how that pattern should be interpreted can diminish it. The difference lies not only in the technology but in whether the teacher retains meaningful authority to question, adapt, and reject the recommendation.

This is also why the future of teaching should not be framed as a contest between human and artificial intelligence. The more productive question is how professional expertise must evolve when powerful computational systems become part of everyday educational practice. Teachers will need greater AI literacy, but they will also need stronger disciplinary judgment, ethical reasoning, contextual intelligence, and the capacity to recognize dimensions of learning that remain poorly represented by data. The Meaningful Presence Model illustrates one aspect of this challenge: visible participation is not identical to cognitive engagement, emotional connection, or learner agency. Professional judgment is often required precisely because what matters most in learning is not always what is easiest to measure.

The same principle applies to decision-making itself. Teachers should be able to explain not only what they decided but why. They should be able to identify the evidence they considered, the assumptions they questioned, the context they accounted for, and the conditions under which they would revise their judgment. Such transparency does not weaken professional autonomy; it gives that autonomy intellectual and ethical credibility.

The future-ready teacher, then, is neither the educator who rejects AI nor the educator who follows it uncritically. It is the educator who can use intelligent systems while remaining professionally responsible for the educational decisions those systems inform.

When technology can recommend almost anything, the defining question of professional teaching becomes not “What can the system do?” but “Who is prepared to decide what ought to be done, for whom, and why?”

That responsibility remains at the heart of the profession.

FURTHER READING

The following works provide useful foundations for educators who want to explore professional judgment, teacher expertise, reflective practice, educational purpose, and responsible AI use in greater depth.

Donald A. Schön — *The Reflective Practitioner*

Schön’s work is foundational for understanding professional practice in situations that cannot be resolved through rules alone. His concepts of reflection-in-action and reflection-on-action are particularly relevant to teaching, where educators constantly interpret emerging evidence and adjust decisions while learning is taking place.

Lee S. Shulman — “Knowledge and Teaching: Foundations of the New Reform”

Shulman’s influential work on pedagogical content knowledge explains why teacher expertise cannot be reduced either to subject knowledge or to generic instructional technique. Effective teaching requires educators to understand how particular ideas can be represented, interpreted, questioned, and made accessible to particular learners.

Gert Biesta — *Good Education in an Age of Measurement*

Biesta challenges the tendency to judge education primarily through measurable effectiveness. His work raises the essential question, “Effective for what?”, reminding educators that professional judgment must remain connected to educational purposes rather than becoming a search for increasingly efficient techniques.

Adaptive Expertise — Hatano and Inagaki

The scholarship of Giyoo Hatano and Kayoko Inagaki provides an important distinction between routine expertise and adaptive expertise. Routine experts become highly efficient within familiar conditions; adaptive experts are capable of understanding underlying principles, modifying established approaches, and responding intelligently when circumstances change. This distinction has significant implications for teacher professionalism in rapidly changing educational environments.

UNESCO — *AI Competency Framework for Teachers*

UNESCO’s framework provides a contemporary reference point for thinking about teacher professionalism in AI-enabled education. Its emphasis on a human-centred mindset, ethics, AI foundations and applications, AI pedagogy, and professional learning reinforces the argument that

AI competence should extend beyond operating technological tools to include responsible professional decision-making.

Taken together, these works point toward a conception of teacher expertise that is neither purely intuitive nor merely technical. Professional judgment develops at the intersection of **knowledge, reflection, adaptive expertise, educational purpose, ethical responsibility, and contextual understanding**. In an age when intelligent systems can increasingly recommend instructional action, these capacities become more rather than less important.



Future-Ready Schools is an exclusive feature by Javeria Rana on The Worthy Educator.
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