JOURNAL OF INTERACTIVE MEDIA IN EDUCATION

COLLECTION: METAPHORS OF AI IN HIGHER EDUCATION: DISCOURSES, HISTORIES AND PRACTICES

ARTICLE

Autotune for Knowledge: A Generative Metaphor for AI in Education

JACK WALTON

DAVE CORMIER

*Author affiliations can be found in the back matter of this article

ubiquity press

ABSTRACT

This paper explores how Donald Schön's concept of generative metaphor can serve as a conceptual frame for problematising AI in education. Our focus is on the metaphor of AI as autotune for knowledge, as originally proposed by educator Dave Cormier. Through a close reading and exploration of the metaphor, we draw on Schön's conceptual materials to surface underlying assumptions and reframe key issues at play in Cormier's story. We show that the autotune metaphor, while intuitively appealing, oversimplifies the analogy between autotune as a tool for professional music-making and the relationship between expertise and use of AI tools. Drawing on a more nuanced view of autotune in music production, we elicit several points of conflict with Cormier's original metaphor to generate a richer problematisation of issues posed by AI in education.

CORRESPONDING AUTHOR:
Jack Walton
Centre for Research in Assessment and Digital Learning, Deakin University, AU
j.walton@deakin.edu.au

KEYWORDS:
artificial intelligence; metaphor; AI in education; autotune; knowledge

TO CITE THIS ARTICLE:
Walton, J and Cormier, D. 2025. Autotune for Knowledge: A Generative Metaphor for AI in Education. *Journal of Interactive Media in Education*, 2025(1): 12, pp. 1–10. DOI: https://doi.org/10.5334/jime.998

DOI: 10.5334/jime.998

INTRODUCTION

Encounters with artificial intelligence (AI) have become part of the everyday educational experience. With ubiquity, however, comes conceptual difficulty. The situation is evocative, for us, of what Dewey (1938) called a *problematic* situation; a practically troublesome yet conceptually "vague and indeterminate reality" (Schön 1993: 146). One way in which people construct meaningful problems out of such realities is by telling stories about the troubles they experience (Schön 1993); and the educational discourse is awash with such stories indeed. Central to our interests in this paper are the metaphors that such stories bring into being. As metaphors find their pithy abbreviated forms they become increasingly portable. Recent examples of metaphors for AI that have 'found their form' include the calculator (Lodge et al. 2023), black boxes (Bearman & Ajjawi 2023; Bucher 2016), and even bullshit (Costello 2024), to name just a few. One very recent metaphor analysis of 277 postgraduate students' perceptions identified an initial suite of 53 metaphors, which the researchers divided into four categories that included high-heeled shoes, a compass, Spider-Man, and a drug (see Jin et al. 2025). Besides those metaphors documented in scholarly work, a cursory search of online spaces such as Reddit and LinkedIn provides an abundance of metaphorical utterances.

Our purpose in this paper, however, is not to canvas the growing range of metaphors for AI. Rather, our interest is in how the generation of metaphor affords opportunities not simply to solve existing problems, but to reconfigure problems themselves. Our main inspiration, in this respect, is Schön's (1993) notion of *generative metaphor*, and its attendant orientation to metaphor not as a resource for problem *solving* but for problem *setting*. To explore this interest, we focus our attention on one particular metaphor that Cormier (Author 2) generated in 2023: AI as autotune for knowledge (see Cormier 2023). In this paper, we revisit Cormier's provocation from the perspective of generative metaphor, to show what working with the concept in the context of AI in education might look like and what might be learned through the process.

The first part of this paper introduces several conceptual points of departure, detailing Schön's notion of generative metaphor to illustrate some of the theoretical componentry that helps us to see how metaphor can be approached as a problem-setting resource. A key idea introduced in this first part of the paper is that "[w]e set social problems through the stories we tell" (Schön 1993: 150)—the notion of *story* thus emerges as central to this approach. In the second part of the paper, we turn our attention to the metaphor of AI as autotune for knowledge, to work through in detail how a generative metaphor perspective can be brought to bear in analysing and problematising Cormier's original work. The paper will conclude by remarking on the opportunities for more nuanced thinking about AI in education that this inquiry inspires.

GENERATIVE METAPHOR

Dealing with new concepts is hard. As the field of education grapples with the impact of AI on our work, our responsibilities to our students, and our concerns about how knowledge gets made, it can be tempting to default to 'conceptual shouting' in an effort to explain how we feel about it. For AI, part of the difficulty lies in the combination between its newness and constant changeability (Looi 2024), and desires for clear-cut explanations about what it is, what it can do, and what should be done about it. As a wider sector, education is viscerally confronted by a deeper philosophical issue: "explanations come to an end somewhere" (Wittgenstein 1953: 3e). It is at these outer explanatory limits that metaphor serves us in "accounting for our perspectives on the world" (Schön 1993: 137). But what is the ontological status of metaphor itself (what 'is it'?), and what sorts of things might metaphorical inquiry have to offer? The main theoretical development worth noting here is a departure in recent decades from an interest in individual linguistic utterances alone (for example, '*AI is like a calculator*'), in favour of taking such utterances as symptomatic of a more elaborate underlying process whereby meaning has been (or is being) carried from one experiential context to another (Lakoff 1993; Schön 1993). Put another way, individual metaphoric utterances are seen to surface or signal certain aspects of more complex stories about the ways in which people understand the world, the fuller substance of metaphor often being left largely tacit.

When peering at metaphor so closely, it can be tempting to look past its everyday nature—indeed, language itself is in some sense metaphorical (Lakoff 1993), involving a carrying over of tacit worldly experience to linguistic forms. But, as Lakoff (1993) helps us to see, metaphor is

DOI: 10.5334/jime.998

not the exclusive province of language—rather, more contemporary thinking distinguishes "a system of metaphor that structures our everyday conceptual system, including most abstract concepts, and that lies behind much of everyday language" (1993: 204). While metaphor can be heuristically understood as implying some version of the statement *(A) is (B)* (for example: *AI is autotune for knowledge*), this explanation does not provide us with very much to work with in our attempt to see what metaphor *does*. We find the nuance we are lacking in Schön's (1993) argument that metaphor may be construed both as a kind of *product* and a kind of *process*. As a product, metaphor offers "a perspective or frame" (Schön 1993: 137), while as a process it offers an active means for generating perspectives on the world. This distinction matters if the aim is to do metaphorical work that actively seeks to generate new perspectives on real-world problems—it is by engaging with metaphor in the processual sense that we are able to leverage metaphor as a means for moving toward new conceptualisations of problems in the world. It is in this sense that Schön describes metaphor as *generative*.

Methodologically, this leaves us with at least two worthwhile directions for analysis:

1. To unearth and examine those metaphors that already exist, and
2. to come to some sense of the way in which generating metaphor can afford the making of new meaning.

The challenge inherent on both fronts is in bringing the tacit out into the open. The *stories we tell* (Schön frequently uses the word 'story') become a central object of interest in this sort of inquiry, since these stories help us to see how metaphors come into being, live and breathe, and are eventually discarded or reconfigured. In this paper we work in a relatively narrative fashion through passages of text that reflect different stories about AI in education. We take our cues here from Schön's own model (as in Schön 1993) but note that the challenge of bringing stories into a form stable enough for analysis could probably be handled in many other ways as well (for example, through multimodal approaches).

A FOCUS ON PROBLEM-SETTING

Is AI in education a problem to be solved? Though they may be an aid to social problem solving, metaphors are unlikely to constitute solutions to social problems in and of themselves. Following Schön (1993), we argue that metaphor is more usefully purposed to problem-setting, which has "more to do with the ways in which we frame the purposes to be achieved than with the selection of optimal means for achieving them" (1993: 138). The main rationale for this view owes to the fact that the making of metaphor (that is, 'doing' metaphor, in the processual sense) effectively involves redrawing the elements and relations by which something is understood: problems are, as such, not so much solved as re-cast. As we shall see below, metaphors can be powerfully persuasive because they can afford the displacement of meaning (Ferreira, Lemgruber & Cabrera 2023) while simultaneously obtaining a sense of obviousness to their audiences (Schön 1993). It is in this sense that metaphor can be understood in Schön's terms as *generative*; as processually giving rise to new ways of seeing the world which may or may not proceed beyond tacit dimensions. The resources that feed this process are what Schön calls *frames*; those perspectives brought to bear in the process of metaphor-making. It is through the interrogation of these frames—that is, laying out what 'frame A' and 'frame B' are, and then looking carefully at *how* A is or is not B—that entirely new conceptions of a problem become available. This process is what Schön calls *frame restructuring*.

To provide a tangible example of these concepts in action, we include here a brief excerpt from Schön himself, describing the how the generation of metaphor aided researchers developing paintbrush technology:

> Some years ago, a group of product-development researchers was considering how to improve the performance of a new paintbrush made with synthetic bristles. Compared to the old natural-bristle brush, the new one delivered paint to a surface in a discontinuous, "gloppy" way. The researchers had tried a number of different improvements. They had noticed, for example, that natural bristles had split ends, whereas the synthetic bristles did not, and they tried (without significant improvement resulting) to split the ends of the synthetic bristles. They experimented with bristles of different diameters. Nothing seemed to help.

DOI: 10.5334/jime.998

> Then someone observed, "You know, a paintbrush is a kind of pump!" He pointed out that when a paintbrush is pressed against a surface, paint is forced through the spaces between bristles onto the surface. The paint is made to flow through the "channels" formed by the bristles when the channels are deformed by the bending of the brush. He noted that painters will sometimes vibrate a brush when applying it to a surface, so as to facilitate the flow of paint ...
>
> ... This line of thought led them to a variety of inventions. Perhaps fibers could be varied so as to create greater density in that zone. Perhaps fibers could be bonded together in that zone. Some of these inventions were reduced to practice and did, indeed, produce a smoother flow of paint.
>
> Paintbrush-as-pump is an example of what I mean by a generative metaphor. (Schön 1993: 139–140)

This example shows, if briefly, how the researchers in Schön's account engaged in a process of frame restructuring, whereby the original framing of the issue (a focus on the bristles of the paintbrush) is brought into productive conflict with an alternative perspective (a focus on the spaces between the bristles). It is this process that we aim to explore in the next part of the paper.

THE ROLE OF AUTHORSHIP IN GENERATING METAPHOR

In his own analysis of productive frame restructuring, Schön (1993) argues that it is "significant that the participants are involved in a particular concrete situation" and that "at the same time that they are reflecting on the problem, they are experiencing the phenomena of the problem" (1993: 158). Thus, while this is primarily a conceptual paper, we feel it is also valuable to note some details about our own positionality in relation to the subjects of the metaphor we focus on in this paper. Notably, Author 2 (Cormier) was the original author of the metaphorical account we focus on in this paper. Cormier has been actively involved in the EdTech discourse for two decades, having published many writings and given many presentations on educational technology, as well as having organised global conference events focussed on generating new perspectives on issues including but not limited to AI. Author 1 (Walton) is a musician by formal training, with experience of writing, performing, and recording popular music. Notably, Walton brings personal experience of working with autotune technologies in music production contexts. Walton is also a higher education researcher who has specialised in research about assessment in higher education since 2016, with a particular interest in music assessment practices. This paper was galvanised by the authors' mutual interests and professional relationships with autotune and AI technologies, and much of the discussion that follows is reflective of their personal perspectives obtained in working at this intersection.

AI AS AUTOTUNE FOR KNOWLEDGE

We turn now to Cormier's original metaphor of AI as autotune for knowledge, to see how the theoretical resources discussed in the previous section can be put to work. Cormier's original metaphorical excursion was inspired by the debate about AI in relation to knowledge-building, and in particular, the role of setting knowledge out in text—an artefact ripe for 'autotuning'. Cormier's original concern was about the relationship between product and process, and particularly the place of writing as a process of thinking (see Warner 2025). In developing a metaphorical story about AI as autotune for knowledge, Cormier sought to bring attention to the fact that, while working with AI systems *can* include the kind of development that thinking through writing provides, this is far from a sure thing. Here is a passage from Cormier's original presentation of the autotune metaphor which captures key sentiments that we will respond to as our investigation proceeds.

AI as Autotune for knowledge

> In 1998, Cher's 'Believe' hit it big as the first autotuned song to sell tons of, I guess, CDs. Autotuning takes the human voices and 'removes the flaws' that are there. Any place where you might be off key, pitchy, where you might have slowed down or sped up in your singing. Musical purists have been decrying the process since as they say

> that it removes the human part of the process from the music. It's everywhere now. If you listen carefully to most popular songs you can hear the uniformity in the sound.
>
> That's what's going to happen to our daily knowledge use.
>
> This, to me, is the real danger. These tools are so convenient, so useful, save so much time, how is anyone going to rationalized taking the time to actually look into issues to check for nuance? Who is going to pay you to take a week to learn about something enough so you can give an informed opinion when something that looks like an informed opinion can be generated in seconds?
>
> The real danger is not to people who are experts in their fields. Super experts in every field will continue to do what they have always done. All of us, however, are novices in almost everything we do. Most of us will never be experts in anything. The vast majority of the human experience of learning about something is done at the novice level.
>
> That experience is about to be autotuned.
>
> (Cormier 2023)

This story names its guiding metaphor explicitly: *autotune*. It includes a few key characters, not least of which include Cher and 'musical purists' (we discover this is Neil Young, if we follow the embedded link), and later in the story we find mention of a wider cast of experts and novices. Knowledge, also a leading character, once beautiful and complex is at risk of being glossed over by the advent of the new technology. The problem set in this story is subtly multifaceted: At the conclusion of the post, Cormier leaves the reader to wonder about the consequences of working with AI in contexts where we are novices, and by implication, what this might mean for educative contexts which by nature involve novitiate learners. But Cormier's story goes further than this; beyond furnishing an epistemic issue, Cormier seems to allude to an aesthetic or humanistic aspect to the problem: "Musical purists have been decrying the process since as they say that it removes the human part of the process from the music... If you listen carefully to most popular songs you can hear the uniformity in the sound".

This last quote helps us to identify how autotune does a kind of metaphorical double duty. Cormier has, cleverly, leveraged autotune not only for its technical but also its social qualities. Despite Cher's decisive use of the new technology, autotune would go on to become (and remain) socially and aesthetically divisive. Provenzano's (2019) detailed treatment of the subject offers us a tidy illustration: "Sandwiched between the toxic chemicals 'DDT' and 'Red Dye No. 2' on Time Magazine's 2010 list of 'The 50 Worst Inventions' is 'Auto-Tune'" (2019: 3). In developing a metaphor of AI as autotune for knowledge, Cormier sets a problem both epistemic and affective.

Returning more directly to our conceptual focus on generative metaphor, several aspects of Cormier's original story turn out to be of particular interest:

1. Cormier's account "constructs its view of social reality through a complimentary process of *naming* and *framing*" in the sense that "[t]hings are selected for attention and named in such a way as to fit the frame constructed for the situation" (Schön 1993: 146).
2. The story generates impact on the basis of ideas and images that already have established cultural force—the contentious status of autotune in music, the logistic nightmare of getting things done in the pressure-cooker of modern education. Both of these issues carry with them an established 'everydayness' that enhances the relatability of the stories in which they are invoked.
3. On encountering these stories and surfacing their metaphors for ourselves (even if tacitly), we may find ourselves experiencing an uncanny sense of "what is wrong and what needs doing" (Schön 1993: 147). Once we see AI as autotune for knowledge, we know (and indeed, feel!) its sticky-sweet yet emotionally flattened quality, and we wonder about the concessions to good taste we might be making.

What need might there be to restructure this metaphor? Part of the issue lies in the intuitive obviousness that Schön (1993) warns us about, and which we now take as critical inspiration. As reflective individuals, one of the most useful counters to this sense of the obvious is to

DOI: 10.5334/jime.998

ask a standard qualitative question about the validity of our assertions: *How might this be wrong?* (Maxwell 2013). The central aim in such an inquiry is to "interpret our problem-setting stories so as to bring their generative metaphors to awareness and reflection" such that our "diagnoses and prescriptions cease to appear obvious and we find ourselves involved, instead, in critical inquiry" (Schön 1993: 150). Take, for example, Cormier's riff on "musical purists": while many high-profile artists have serious concerns about the moral and aesthetic implications of autotune technology, many working musicians nonetheless experience autotune as one part of a suite of tools that simply supports the creative process (Provenzano 2019). Part of the richness of autotune as a metaphor for AI in education owes to the difficulty one has in coming to a decisive conclusion about the goods and ills of the technology. It is this very difficulty that we think it worthwhile to bring out rather than to depress, the better to see how closer examination of the metaphor might eventually prompt new ways of thinking about Cormier's original problem. To bring out this difficulty, we introduce several points into conflict with Cormier's original text.

CONFLICT 1: PROBLEMATISING PROFESSIONAL AND POPULAR CONCEPTIONS OF AUTOTUNE

A popular contention about autotune is that it is used behind the closed doors of the studio as something of a 'polish switch' that requires little creativity or effort to use effectively. Briefly examining the history of the technology helps us to see some of the issues with this perspective. The early autotune product that became available to Cher in the late 80s (called Auto-Tune) was founded on a signal processing approach originally developed to search for oil deposits (see Diaz 2009; McGowan 2012; and especially Provenzano 2019). The success of this product led to the establishment of the music technology company Antares, which retains ownership over the original product and the name Auto-Tune. Auto-Tune and its technological kin (for example, Melodyne; see Celemony 2025) are today generally produced as *plugins*, meaning that they constitute add-on software modules that can be purchased and loaded into mainstream software environments typically used in music production. A key feature of plugins (including but not limited to autotune) is that they generally operate via digital signal processing, meaning that a signal is required in the first instance for the technology to have an objective effect—the signal is the artefact that is 'tuned'. Like other technologies of the moment, Auto-Tune is no longer a single product but is offered via a subscription model at a range of tiers (Antares currently offers 11 models; see Antares Audio Technologies 2025), and many alternative companies have established autotune and autotune-like products.

The point of this small historical recount is to show that, in contrast to popular concepts of autotune as a homogenous practice, there are in fact many different signal processing technologies available, each developed and marketed according to contrasting specifications and preferred by artists for different reasons. In some respects, this is reminiscent of the proliferation of AI tools now on the market, which have also come to be known (and marketed) according to their own peculiarities. Importantly, simply 'switching on' autotune plugins is unlikely to guarantee a particularly effective musical outcome. Autotune plugins typically include a range of parameters which requiring careful tweaking of settings in order to achieve a useable outcome.

It is tempting to suppose that, as Cormier writes, "[t]he real danger is not to people who are experts in their fields" and that "[s]uper experts in every field will continue to do what they have always done". Expertise is not, however, apportioned equally in social contexts. As Cormier's own examples illustrate, what counts as quality to experts may differ over time, and against a changeable public discourse (whether around music or AI) yesterday's purists rarely remain the arbiters of quality. To quote Provenzano (2019): "pop music's voices, I would argue, are very much alive; their vitality simply hinges on a new set of criteria… the process of moving toward consensus around these criteria is gradual" (2019: 25).

CONFLICT 2: CULTIVATING EXPERTISE

As mentioned at the beginning of this paper, the dual promise-and-peril that inspires Cormier's original metaphor reflects the lack of certainty we can have about the sorts of knowledge practices that AI might inspire in educational settings. As Cormier writes: "These tools are so

convenient, so useful, save so much time, how is anyone going to rationalize taking the time to actually look into issues to check for nuance?"

And yet, autotune itself, far from producing a mindless lack of nuance, continues to galvanise debates about quality, and sometimes produces attention to musical nuance in musical artists and their audience. Unlike the newer forms of generative AI, autotune has existed for long enough that fairly precise creative practices have had time to grow around it. Perhaps most importantly, the public nature of music publishing and the semi-public nature of music production has afforded, over time, opportunities for standard ways of working with the technology to become collectively established. While learners now have unprecedented access to autotune technology (some version of autotune comes packed with most digital audio recording software), aspiring musicians generally also have exposure to a wider range of exemplars and educational materials that discuss and debate the criteria for successful production than has ever been available before.

Access to standards, criteria, and exemplars is a perennial topic for education, and learning is mediated by the ways in which performances are evaluated in relation to these points of reference. In musical contexts, however, it is not solely musicians themselves who are the arbiters of the standards, criteria, and exemplars that matter. One of the quirks of so called 'popular music', where autotune has perhaps had the greatest uptake, is that it is, in fact, *popular*. This is to say that the tastes of listeners who are not themselves expert performers may nonetheless be considered a valid and reliable subjective measure of the quality of a piece of music, and ultimately influential over time on the socially-held criteria about what counts as quality (Provenzano 2019). In Cormier's original framing of the issue, a key implied question relates to whether a novice user of AI tools may be led astray by their lack of access to knowledge of the nuances of a given domain—in other words, whether their lack of domain-specific *evaluative judgement* (in the sense of Tai et al. 2018) hampers their capacity to make informed decisions. This question, applied to the context of autotune and novice music-making, leads us to think about the difference between the capability to notice quality and the capability to make creative decisions based on access to expertise. It is unfair to suggest that everyday listeners of popular music are so unskilled in their listening that, given the propensity to engage in some music-making of their own, they would fail to *notice* whether the effects of readily available audio plugins affected their music for better or worse. It is entirely reasonable, however, to suggest that amateur bedroom songwriter-producers may not have obtained the necessary expertise to make creative decisions based on what it is that they notice, or that they have cultivated the *type of noticing* available to an experienced producer of popular music.

CONFLICT 3: AESTHETIC CHOICE AND SKILL

Why did Cher think it was a good idea to employ the then-new technology of Auto-Tune on *Believe* in 1998? It seems far-fetched to suggest that Cher was looking for a shortcut to a polished result. Might it be possible that this was, at least in part, a creative aesthetic move? Indeed, many contemporary artists since have employed an intentionally gratuitous form of autotuned production to acclaimed effect—recent examples include, Imogen Heap (who is at present a face of Antares' Auto-Tune product), Kanye West, and Bon Iver, to name but a few. Some experts have no need for certain tools, because they make little sense within more specific creative domains—jazz musicians, for instance, typically make far less use of autotune technology owing to the fact that live, improvised performance (usually involving multiple performers) is central to the idiom. In other domains, the technology is fundamental to the work produced (as in the examples given above). This issue speaks in part to Cormier's original observation that "[s]uper experts in every field will continue to do what they have always done" (Cormier 2023). Will super experts continue to do what they have always done, albeit differently? And what will be the effects implied by these differences?

DISCUSSION

In this final part of the paper, we move to consider how the brief investigation we have just conducted can help us to refine the stories we tell to help us make sense of the sorts of issues that originally motivated Cormier's metaphorical excursion. Perhaps the most important point of departure is this: in disrupting our metaphorical starting point (the purist view of autotune),

DOI: 10.5334/jime.998

we arrived at the possibility that autotune itself is also seen as a legitimate contributor to musical quality. But to what extent does this reflect our conceptualisation of AI as a legitimate resource for knowledge-building and/or knowledge work in educational settings? Cormier's simplistic application of the autotune metaphor echoes both the challenges that AI presents to the field of education and uncovers the possibility that we already have many of the tools we need to adapt an education system to a world where AI is commonplace. AI, like autotune, *can* allow us to present texts that imitate a sense of competence and understanding, but this is by no means mutually exclusive to exercising care in thought and work. Indeed, just as in the case of autotune technology, an absence of care in the use of AI technology seems like a good recipe for producing poor and/or forgettable work. This is particularly the case given that both technologies tend to perform best with some tweaking. While making no change to stock settings will still yield a result, introducing some shaping (for example, providing a generative AI tool with context, or even setting up a custom GPT in ChatGPT) will probably be necessary to produce an intentional result. Importantly, this process might be somewhat experimental—as in musical contexts, a degree of randomness in the situational setup can sometimes produce very useful results, if the potential of the output is able to be noticed by the expert.

As we allude to earlier in this paper, one of the main risks to learners working with AI tools is an absence of access to evaluative capabilities that enable recognition of quality. A particular risk in the case of text-generation tools is that we conflate 'correctness' with intelligence when we look at generated texts (Warner, 2025). Without access to requisite evaluative capabilities (including knowledge of field standards and criteria) both autotune technologies and AI tools can produce in learners a misleading sense of competence. At the same time, these tools afford creative possibilities and practical efficiencies that, in competent hands and alongside critical and creative minds, may enable novel accomplishments. An important affordance of the autotune metaphor is to see that not all works are (or should be) satisfying and acceptable to *all* audiences. In this respect, expertise becomes difficult to appreciate as a homogenous concept: what one audience conceives of as a legitimate and innovative use of the technology may rankle with another. While technologies like autotune and AI lower certain barriers, they simultaneously introduce others. Some of the new barriers are technical, including for instance the need to acquire knowledge about the various ways that autotuning (of sound or of text) can be achieved, what effects alterations to various parameters have, and so forth. At the same time, exposure to the technology may throw up affective, aesthetic, and emotional barriers that have more to do with how one's values intersect with existing cultural norms alongside new opportunities to 'perform' in ways that have not been traditionally available. The situation becomes more complex when individuals work in groups that involve a mix of value-positions and skill sets. It follows that curating knowledge work with AI requires not just the cultivation of domain-specific editorial judgment, but of the capacity to make sense of the social relations at play amongst the actors involved in a work setting (both human and otherwise).

The story here is not a simple cautionary tale about skill being rendered irrelevant and knowledge outsourced. Whether learners' experiences turn out "to be autotuned" as Cormier originally suggested seems contingent, like musicians' use of autotune itself, on intentionality and access to robust standards. Perhaps it is the ways in which that intentionality and those standards are practiced that is really at stake.

CONCLUSIONS

Our aim in this paper has been to explore the use of generative metaphor as a tool for problematising and reframing key issues around AI in education, focussing in particular on Cormier's original metaphorical depiction of AI as autotune for knowledge. In the process of this exploration, we have shown how metaphorical inquiry can surface underlying assumptions, reveal oversimplifications, and point towards more nuanced and situated understandings of the relationship between technology, expertise, and creative practice. The original autotune metaphor, while intuitively appealing, leaves a number of complexities unrealised, which in turn limits its potential as a resource for problematising AI in education. These complexities include differences in popular and professional conceptions of autotune technology, alongside nuanced issues around the cultivation of expertise and tensions between aesthetic and skill-oriented decision-making. In seeking to bring out these complexities, our analysis points towards the need for more

situated and context-sensitive approaches to understanding the implications of AI for education. We suggest that while metaphors can be powerful tools for making sense of AI, they must be continually interrogated and elaborated in light of evolving technological and social realities.

In addition to opening up Cormier's metaphor to further elaboration, this paper sought to explore the value of metaphorical inquiry as a means of navigating the conceptual challenges posed by AI. We suggest, in concert with Schön (1993), that attending to the broader stories that underpin seemingly pithy metaphors can generate new ways of problematising social issues, ultimately helping us to produce better lines of inquiry into the issues that concern us. Our goal in this respect has not been to 'arrive' at a definitive metaphorical end point, but rather, to cultivate a more reflexive and critical stance towards the metaphors we choose to explore. As AI technologies continue to evolve and shape educational practices in new ways, it is likely that the metaphors by which we understand the problems that arise will require renewed interrogation and elaboration.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Jack Walton orcid.org/0000-0002-9885-8448
Centre for Research in Assessment and Digital Learning, Deakin University, AU
Dave Cormier orcid.org/0000-0001-9486-1087
Thompson Rivers University, Open Learning, CA

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TO CITE THIS ARTICLE:
Walton, J and Cormier, D. 2025. Autotune for Knowledge: A Generative Metaphor for AI in Education. *Journal of Interactive Media in Education*, 2025(1): 12, pp. 1–10. DOI: https://doi.org/10.5334/jime.998

Submitted: 17 January 2025
Accepted: 27 May 2025
Published: 26 August 2025

Journal of Interactive Media in Education is a peer-reviewed open access journal published by Ubiquity Press.