

Jennie Mills, UNIVERSITY OF WARWICK, j.mills.3@warwick.ac.uk
Tina Beynen, CARLETON UNIVERSITY, tinabeynen@cmail.carleton.ca
Ivy Chia Sook May, SINGAPORE UNIVERSITY OF SOCIAL SCIENCES, ivychiasm@suss.edu.sg
Rachel Fitzgerald, UNIVERSITY OF QUEENSLAND, rachel.fitzgerald@uq.edu.au
Kimberly A. Hall, WOFFORD COLLEGE, hallka@wofford.edu
Evelyn Lai, UNIVERSITY OF NEW SOUTH WALES, evelyn.lai@unsw.edu.au
Jon Mason, CHARLES DARWIN UNIVERSITY, jon.mason@cdu.edu.au
Samantha Newell, UNIVERSITY OF ADELAIDE, samantha.newell@adelaide.edu.au

Re-thinking SoTL for the Age of GenAI: Diffracted, Entangled, and Human

ABSTRACT

The rapid advancement of generative artificial intelligence (GenAI) necessitates a re-evaluation of established Scholarship of Teaching and Learning (SoTL) frameworks. This paper presents a novel approach to pedagogical research through the lens of diffraction, enabling educators to embrace uncertainty, build trust with technology, and reconceptualize practices within a GenAI-led education landscape. We offer five key propositions, each paired with prompts to support collaborative exploration of GenAI. These propositions advocate for a multidisciplinary and context-aware methodology that moves beyond traditional SoTL perspectives and reflective practice. Framing GenAI as both a challenge and an opportunity, we call for a reimagining of SoTL as a dynamic, inclusive and entangled field capable of addressing the complexities of AI-enhanced learning environments. The diffractive approach foregrounds human and non-human entanglement, creating transformative pedagogical practices. Designed as a practical and theoretical guide, our propositions and prompts offer SoTL scholars new ways to engage with GenAI through posthuman, critically informed lenses.

KEYWORDS

GenAI, generative artificial intelligence, diffraction, fifth wave, pedagogy

INTRODUCTION

This paper evolved from an international collaboration of SoTL practitioners as part of an international collaborative writing group (ICWG) that set out to investigate SoTL in an AI world. We anticipated that our work might lead us to new data, research methodologies, ethics, analytical frameworks, and/or evaluative models. However, very early in the collaborative process we recognized that the emergence of ChatGPT and other large language models (LLMs) signaled a paradigm shift for the field of education and indeed humanity. There has been no shortage of commentary in both academic and public discourse regarding the implications. As our exploratory conversations developed into meaningful dialogue, two interdependent and slightly counter-intuitive conceptual pivots emerged: one that GenAI technologies will entangle with thinking, learning, and creating in ways that take us far beyond “humans,” using “non-human” tools transforming higher

education; and two that we need to identify and lean in to “the human” to understand, know, and share our knowledge of teaching and learning.

These pivots challenge conventional approaches to SoTL, which constantly evolves as a field. Our paper reframes SoTL through the theoretical lens of posthumanist and materialist thought, specifically through the concept of diffraction. Drawing on diffractive thinking from posthumanist scholarship, we propose an approach to SoTL that resists theoretical systematization in favor of generative engagement with complexity. Diffraction as a methodology borrows from the concept from physics of waves bending around obstacles or the edges of an opening and the interference, overlapping, and new creations that result (cf Barad 2007; Haraway 1988).

Our contribution is less a new theory than a way of thinking differently or a new perspective which enables SoTL to respond to the entangled realities of GenAI in educational contexts. This perspective allows us simultaneously to leverage SoTL as an agent for social change and a locus of community—honoring what makes humans distinctly human whilst also establishing SoTL as a headwater of methodological innovation that enables productive rather than destructive entanglements between humans and AI systems. Through this approach, we can analyze two entangled transformations. First, how teaching and learning practices are fundamentally changed through human-AI interactions. Secondly, how SoTL itself must evolve in response to these new entanglements. A diffractive approach enables us to address the recursive relationship between these phenomena in a world with GenAI in order to generate new insights at points of entanglement, working with, rather than against, the complexity and uncertainty that characterizes human-AI educational interactions. This situates human work as supported by technology and GenAI in a collaborative way, recognizing that much of our work is entangled within a rapidly evolving digital environment (Fawns 2022). Some of the discourse surrounding GenAI in higher education practices invokes embattled academics locked in an existential struggle: “us” vs. “it.” This struggle seeks to defend ethical high-ground, academic integrity, disciplinary identity, and students’ freedom to learn. There are also luminaries, sympathizers, and apologists on the side of GenAI (Darvishi et al. 2024; Mollick 2024; Newell et al. 2024). By choosing a middle path, we seek to maintain human agency and empowerment and to value context. This, we suggest, is a multidisciplinary, context conscious way to navigate SoTL in a world with GenAI.

The field of SoTL¹ has grappled with a shifting and flexible identity since its inception, partly due to the diverse disciplinary backgrounds of its practitioners, evolving epistemologies of teaching and learning, and changing local and global contexts. The most recent contextual change, or upheaval, is the interest in and uptake of GenAI, prompted by the introduction of ChatGPT in November 2022. Artificial Intelligence (AI) is a broad field focused on creating intelligent machines that mimic human cognition. A subset, GenAI, creates models able to generate text, images, audio, and code through training on existing data. Accessible, fast, and offering increasingly convincing outputs, it is likely that what we have previously seen or see now is the worst GenAI will ever perform (Mollick 2023). GenAI is reframing the context of learning, teaching, and assessment by reframing relationships between effort, mastery, and output. This early stage of exploring GenAI in education raises more questions than answers.

Evolving through distinct waves, SoTL has always responded to challenges and shifts in higher education (Webb 2020). Each wave has reconceptualized SoTL, developing new standards and paradigms within an emergent and developing field. An enduring commitment to openness with methodological and theoretical pluralism (Felten 2013) seems well positioned to respond to the inherent messiness of education. As Biesta has argued, education is complex, open, recursive, relational, situated, and human, and it involves individual pedagogical and epistemological beliefs

that cannot be predicted or accounted for (Biesta 2007; Osberg and Biesta 2008). It also seems well placed to respond to the challenges of a volatile, uncertain, complex, and ambiguous (VUCA) world. However, appearances have been deceptive. Despite its theoretical openness, an enduring gap between SoTL in theory and SoTL in practice remains (Booth and Woollacott 2018). The epistemological trading zone, the methodological “big tent,” is narrower than it might first appear, tending to be dominated by local studies, based on a single source of data, most frequently student self-reports of learning which lack coherent theoretical foundations and cultural diversity (Carstens and Gray 2023; Divan et al. 2017; Hewson and Easton 2022; Manarin et al. 2021; Mårtensson and Schrum 2024; McSweeney and Schurr 2023; Miller-Young and Yeo 2015; Moghtader et al. 2022; Tierney 2020; Tight 2018). We suggest that the gap between SoTL’s aspirational flexibility and its actual practice becomes especially important to examine in light of the profound disruption GenAI has brought to higher education.

In 2020, Bass revisited his 1999 paper (Bass 1999) on the problem of the scholarship of teaching and learning, seeking to open SoTL to new ways of being, knowing, and doing (Bass 2020). Bass (2020) re-stresses the need for education to respond “to the world as it erupts and intrudes, prepping the next generation of problem-solvers to handle the most existential challenges” (19). The need to explore the “problem of learning,” the traditional focus of SoTL, has evolved into a need to think of higher education “as a complex wicked problem” (Bass 2020, 6). Complex, wicked problems often evade definition, commonality, causality, endpoints, or simple solutions. Deeply rooted in complex systems, including social contexts, wicked problems are profoundly resistant to change (Rittel and Webber 1973). They are characterized as difficult or impossible to solve due to, in isolation or in combination, incomplete or contradictory knowledge, the number of people and opinions involved, a large economic burden, and the interconnected nature of these problems with other problems (Austin Center for Design n.d.). With global issues of political upheaval, conflict, social injustice, catastrophic climate events, the spread of misinformation, and rapid development of technology affecting teaching and learning contexts, Bass argues that “. . . we don’t just need new approaches; we need new approaches to developing new approaches” (Bass 2020, 14). Alongside many others (Chick 2023; Felten and Geertsema 2023; Godbold, Matthews, and Gannaway 2023; Schrum and Mårtensson 2023), we are responding to Bass’s call.

We do this by presenting the dynamic challenges presented by the rise of GenAI and the questions that it poses for scholarly inquiry in the field of higher education teaching, learning, and assessment. We set out imperatives for change and outline how our SoTL past might foreshadow potential SoTL futures. Additionally, we share how theoretical models devised from posthumanism, such as diffraction, help us navigate a GenAI-enabled pedagogic landscape and its wicked challenges. We end with five propositions for a new approach to pedagogic inquiry: Diffractive GenAI SoTL.

Education in uncertain times requires responsive SoTL

Our ideas about what humanity entails carry a range of possible futures shaped by complex real-world dynamics, post-pandemic educational mindscapes, discursive divergence around technological terminology, and the cultural imaginaries of cyborg utopias and dystopias. These interconnected forces create the volatile context through which GenAI emerges as a challenge and opportunity for higher education. Understanding how GenAI reshapes SoTL requires examining each of these intersecting dynamics.

Fallout from the COVID-19 global pandemic continues via the ongoing digital transformation of higher education (Bisri, Putri, and Rosmansyah 2023; Hanelt et al. 2021; Kamarudin et al. 2023) and of SoTL (Cruz and Grodziak 2021). This has resulted in the acceleration and amplification of

conversations around humanizing digital higher education in a world of physical and social distance. The transformations scoped by HE institutions during the pandemic are nowhere near the anticipated potential for transformation brought by GenAI. The GenAI world presents an immediate and critical challenge to education and society more broadly, a wicked challenge, where we find ourselves considering how GenAI impacts us as humans. An expansive conception of “humanity,” beyond the inherent humanity of education as a relational practice, has long been implicit in SoTL. In Hutching’s taxonomy (2000) “visions of the possible” pose “what if” questions in order to unlock the potential of education that is world-changing, identity-forming, holistic, and ripe with opportunities for affect and joy, a fully human experience. These questions, which can lead us to teach, learn, and assess “as if the world mattered” (Felten and Geertsema 2023; Kreber 2013, 13) demand new theories, new ways of inquiring, new methodologies, and new discourses. We also need to pay attention to the nature of that world, which despite being interconnected and technologically enabled also threatens to make us “fragmented, insular, and individual” (Carstens and Gray 2023, 17).

One of the ongoing challenges of the fourth industrial revolution is its discursive volatility—where rival terminologies vie for attention. For over half a century we have variously described this new era as “post-industrial society” (Bell 1973), “knowledge society” (Drucker 1969), “network society,” “information age” (Castells 1996), “age of discontinuity” (Drucker 2017), “disinformation age” (Napoli 2019; Rothkopf 1999), “post-truth” (Keyes 2004), “Industry 4.0” or “4IR” (Schwab 2016), “Society 5.0” (Fukuyama 2018), and more recently the “AI era” (Nature Human Behaviour 2023). This terminological uncertainty is not merely semantic but reflects our collective struggle to conceptualize rapidly evolving human-technology relationships. It is symptomatic of the wicked problem we face with GenAI: how to establish stable conceptual frameworks which mirror the fluid nature of our entanglement with these technologies. Respect for conceptual flux can be seen in journals specializing in “post-humanism” and “post-digital” studies with some editors refusing to define the key terms describing their journals on the grounds that they are an “open concept” (Veletsianos et al. 2024).

The concept of a GenAI world stimulates all kinds of imagined futures spanning the dystopian (techno-feudalism) and the techno-utopian—posthuman worlds populated by intelligence services, cyborgs, and robots. Human-like machines have populated science fiction for decades and inhabited human culture and imagination for millennia. The core dilemma presented by “non-human humans” is one of agency and the question of who or what is ultimately in control (Bozkurt et al. 2023; Rahwan et al. 2019). The impact of GenAI across these domains has yet to be fully experienced. Early signals do suggest that a profound paradigm shift is underway in the production and dissemination of knowledge (Bozkurt 2023; Lim et al. 2023; Rawas 2023). Speculative futures intersect with more immediate concerns about how GenAI transforms fundamental educational processes. The widespread influence of LLMs that began with OpenAI’s ChatGPT is a direct challenge to conventional methods of assessment and quality assurance in global education (Popenici et al. 2023).

Given the profound impact of LLMs, or algorithmic models that are trained on vast amounts of textual data to predict and generate content, it is arguable that we are entering a “post-literate” era. By this, we mean a shift where traditional reading and writing skills may be fundamentally transformed as AI increasingly mediates our relationship with texts. If processes of thinking, understanding, and demonstration of mastery are from understanding and producing text, does literacy as we know it lose its central value in education? If devalued, does it become deprioritized in our educational culture and systems? Moreover, does the multi-modal power of GenAI take us beyond media, multimedia literacy, and visual literacy into an entirely new paradigm of knowledge creation and demonstration? This paradigm shift directly challenges the human-centeredness that has been

fundamental to SoTL inquiry, as the very skills we have traditionally used to demonstrate learning undergo transformation.

Emerging models such as the iSTAR Framework (Huang et al. 2023) extend beyond notions of human-computer interaction, making human-machine collaboration explicit. In such a relationship, technology is more than just a tool; dialogue and synergy are pivotal. In providing guidance for educators, this framework presents core considerations of design, ethics, learning, teaching, and assessment that are required in designing safe, responsible, and ethical learning opportunities. Perhaps the encouraging feature of this framework is that like our increasingly technology-embedded world, it highlights human agency as what matters most, even in a post-literate educational landscape.

This raises a multitude of questions around how we engage with AI. If we focus on learning in a GenAI world, it is apparent that new pedagogies are required (Carvalho et al. 2022), as are new ways of working with machine learning (Huang et al. 2023; Rahwan et al. 2019). With that comes an imperative to develop new ways of understanding those pedagogies. Turn of the century SoTL employed a multi-dimensional model to make the process of making learning possible transparent: SoTL as research “informed dimension,” as praxis “reflective dimension,” dissemination “communication dimension,” and conceptualization “conception dimension” (Trigwell et al. 2000). Learning is moving even further from the simple relationship between instructional strategy and students’ learning of the material that is taught envisaged in early SoTL models (Kreber 2005; Manarin et al. 2021). The nature of this change will therefore need to shape new models to make their processes visible to a new generation of SoTL researchers.

Why SoTL needs to be reconceptualized in response to AI

There are a few concepts that are truly new and defined by GenAI in the context of learning: the ability to provide personalized learning experiences at scale, adaptive support feedback in real-time, accessibility and inclusivity through personalized accommodations, and data-driven insights for continuous improvement (Escotet 2023; Stewart 2023). These advancements fundamentally alter the learning journey because they transform the nature of learning. This in turn unequivocally moves us toward integrating digital and GenAI technologies into established protocols for pedagogical practice. If “education is concerned with preparing people to navigate complex futures” (Gašević, Siemens, and Sadiq 2023, 1), then we need to fully engage with GenAI and develop our own mastery. GenAI can have a positive impact and transform practice; however, we must remain focused on the opportunities (Crawford et al. 2023) and less on the hype. As educators, we must identify how to optimize human agency in its new entanglement with GenAI (Koh et al. 2022).

Indeed Chiu (2023) emphasizes the importance of higher education, leading the way in AI literacy to ensure learners are ready for the challenges of AI in society more broadly. Potter, Welsh, and Milne (2023), reflecting on the importance of the wider community for developing educators’ knowledge and understanding around GenAI, suggest that shared leadership will create the culture needed to manage this major change in education practice. Of course, we need an applied understanding of GenAI rather than rarefied technical knowledge, which can support our pedagogic knowledge and practice. These two bodies of knowledge are entangled (Fawns 2022), and shared pedagogic leadership will emerge from an understanding of these points of intersection. In practice, this may involve ensuring that those leading the academic direction within higher education institutions understand the complexities embedded in the AI-student learning space. Knowledge, and its precursor inquiry, need to be responsive to this pedagogic-technological entanglement whilst nurturing the space for human intelligence.

To write these educational futures, we will need to know the ways in which we are fully human. Establishing educational research protocols that enable us to center our humanity in an algorithmic, machine-learning, knowledge economy will bring new questions. If we are asking different questions, we need new theories, ways of inquiring, methodologies, and principles of good practice. Felten's *Principles of Good Practice in SoTL* (2013) have served as "a heuristic for understanding and evaluating work" in the field (122) and have been operationalized through *Teaching & Learning Inquiry* (Felten and Geertsema 2023):

- inquiry focused on student learning;
- grounded in context;
- methodologically sound;
- conducted in partnership with students;
- appropriately public.

To be truly grounded in contemporary context, we suggest, as a minimum, that it is necessary to rethink and reconceptualize our approaches to the other four principles. As we have argued, we will need to conceive learning differently within new and unpredictable educational contexts. What should happen to methodology when fluidity is not fluid enough to maintain theoretical alignment and integrity, when methodological stasis reproduces the status quo (St. Pierre 2016, 2021a, 2021b), or when belief in the borrowed credibility bestowed by the social sciences ceases to be credible (Huisman 2024)? Recent work by Löfgreen (2023) shows the power of theory-informed approaches, and how underpinning inquiry with novel theories transports us to new, different places. Partnership with students expands to include partnership with non-human entities (Beynen 2024; Eaton 2021; Luo 2024), so how do we maintain agency and empowerment for both educators and students in order that humans interact productively and ethically with AI and technology?

These questions reveal the limitations of traditional reflective approaches to SoTL. Like LLMs, reflective practice can only mirror back existing patterns rather than generate genuinely new thinking: its capacity for creating something new is constrained by the "what is" and limits visions of the possible. It assumes stable conditions and predictable relationships, exactly what GenAI disrupts. We therefore need to orientate our work within that inherent unpredictability in order to embrace the entangled nature of human-AI collaboration.

Diffractional SoTL for a GenAI era

Diffractional SoTL is a progressive approach that reshapes our understanding of SoTL. GenAI presents an opportunity, and perhaps even constitutes an imperative, to extend SoTL beyond reflective practice and engage in new, innovative approaches in the sense identified by Bass (2020). Donna Haraway (1988) and Karen Barad (2007) have adapted diffraction, originally a physics concept, into a methodology that moves beyond emphasizing difference between texts or between human and nonhuman entities. Instead of reading texts "against" one another, which creates distance between theories and separates the researcher from their subject, diffractional methodology reads texts and individuals "through" one another in an attentive and generative practice that recognizes entanglement. The non-binary nature of diffraction simultaneously views waves as moving "around" obstacles and "through" gaps, providing the needed flexibility for diffractional reading through existing SoTL texts while navigating around limiting frameworks that may not work in an AI world. Set against reflection, which reinstates the boundaries it encounters, diffraction creates patterns of difference, generating interference patterns and therefore creating new understandings. Knowledge emerges not through separation, whether oppositional ("this so that") or causal ("this causes that") but through

“intra-action” and connection: “this and also this.” Diffractive methodology rejects both the notion that knowledge advances by overthrowing previous ideas and the assumption that phenomena result from linear cause-effect relationships between pre-existing entities. Instead, it emphasizes the interrelationship and entanglement of theoretical concepts across disciplines and the researchers, thereby acknowledging the role of theory beyond the confines of education and learning.

Diffractive thinking and SoTL similarly view learning as an active practice that bends understanding into new shapes. In diffractive SoTL, the educator is no longer conceived as an objective observer measuring the change in the student as a subject. Instead, educator and student are both entangled in what Barad (2014) calls a “phenomenon” and Massumi (2011) calls an “event,” an encounter defined by “a relational sharing of what comes between, from different angles of insertions into a single unfolding” (112). This captures how learning emerges not from separate entities interacting across boundaries but through diffractive reading of each through the other: teacher through student, student through subject matter, subject matter through lived experience. The educational encounter becomes a pattern of interference where knowledge doesn’t transfer but transforms, creating unexpected insights that couldn’t exist in isolation or in opposition.

Reframing the scene of SoTL in this way moves pedagogy away from the more familiar territory of reflection and quantification and into a conceptual re-invention, modification, or re-complication in response to current problems (Bozalek, Newfield, and Romano 2023). Rather than measuring fixed outcomes, this approach embraces a uniquely human capacity for adaptive meaning-making that emerges when we acknowledge our entanglement with each other and the material world, including GenAI.

GenAI has emerged as a rippling wave of pedagogical complexity, signaling the need for new approaches to SoTL. Like light through a slit, ideas converge and interact, constructing new insights that are greater than their parts. Just as GenAI draws upon a larger set of pre-existing understanding, diffractive SoTL would draw upon the scholarship that precedes it and embraces our now inevitable human and nonhuman entanglement, fostering new pedagogical practices and patterns of knowledge production.

Diffractive SoTL involves reading SoTL or pedagogical approaches through one another to interrogate how they intersect and interact in educational contexts (Murriss and Bozalek 2019a). Like how all output from GenAI looks to its larger training model to make new predictions, a diffractive approach seeks to view SoTL in the context of how education interacts with the world. It is a recognition of interconnectedness that can be missing from traditional, reflective approaches to SoTL (Bozalek and Zembylas 2017). Diffractive SoTL moves beyond mere reflection of what has been done before to (necessarily?) create new ways of teaching and learning that will better respond to the challenges of higher education in a world with GenAI.

Unlike reflective practice, which may compare approaches to identify contradictions or limitations, diffractive SoTL examines how pedagogical approaches interact to enhance one another (Murriss and Bozalek 2019b). Importantly, this approach to SoTL asks the educator not to try to “fix” or identify faults in previous approaches (Murriss and Bozalek 2019a). Instead, diffractive SoTL encourages practitioners to consider themselves in partnership with previous SoTL texts, engaging in a kind of conversation. Texts and practitioners are dynamically intertwined in a process of imagining something new and emerging (Chappell et al. 2019). In this diffractive space it becomes possible to produce something entirely new. Using GenAI as an analogy, a diffractive approach to SoTL involves integrating and comparing everything we have in our higher education training dataset and articulating the relations between its elements to develop new output and continuously refine our inquiries through active dialogue.

Further, diffractive SoTL offers what conventional approaches cannot; it is about integrating and comparing everything that we have in our personal training dataset and how that intra-acts and connects with our students, our context, and the myriad failures, encounters, experiences, and becomings. While traditional SoTL might isolate variables or establish causal relationships, diffractive SoTL recognizes how fragments of a song, a memory from childhood, or a new discovery in our discipline enables us to generate new “texts” for learning and teaching. Where conventional SoTL might measure discrete outcomes, diffractive SoTL allows us to trace patterns, to predict and replicate effective approaches and practices, all while retaining the possibility of flight. This approach is uniquely suited to understanding GenAI in education precisely because it refuses the binary separations between human/machine, content/process, academy/world, and teacher/learner that more conventional frameworks rely upon and replicate.

In practice, diffractive SoTL re-focuses enquiry, reframing questions to find new places for understanding with emphasis on mutuality and agency. While conventional SoTL might examine how students use GenAI tools or measure impact on learning outcomes, diffractive SoTL aims to reveal the mutual constitution of human and non-human actors within higher education. It attends to how GenAI and humans are not separate entities that interact but entangled phenomena that emerge through intra-action. This perspective illuminates how learning environments are fundamentally reconfigured, not just augmented or diminished, by GenAI’s presence. So, going back to learning outcomes, diffractive GenAI SoTL might explore how these intersections give rise to ongoing shifts in how learning outcomes are interpreted, adjusted, produced, and measured. Barad’s (2007) notion that human and non-human factors intra-act to produce the world as experienced is echoed in the application of Actor-Network Theory (ANT) to educational research by scholars such as Fenwick and Edwards (2010), who argue that ANT allows us to attend to “not only the importance of things, to the non-human, in all educational endeavors, but also to the intimate associations between objects and all human attributes, capacities, and activities” (4). From this perspective, educators and students do not passively acquire and meet learning outcomes or use GenAI to achieve outcomes, but they are actors in the continuing evolution of these objectives.

Barad’s (2007) philosophical propositions challenge traditional ways of thinking about the relationship between humans, technology, and knowledge. Technology is not simply instrumental but agential—playing an active role in shaping the phenomena under investigation. For this context, there is an implied “intra-action” between GenAI systems and learners, suggesting they mutually shape each other within the learning process. This highlights that GenAI training data is never neutral. Instead, it carries cultural and historical biases that influence the output of any GenAI model. Barad’s philosophy urges educators to critically examine GenAI systems, to question their underlying assumptions, and to acknowledge inherent biases and their role in shaping our understanding. So, learners and GenAI should not be seen as isolated entities, and data must be understood as entangled with social and historical contexts. Meaning is co-produced through the collaboration between human and technology. From this perspective, educators and students don’t simply use GenAI to achieve predetermined outcomes; rather, all actors, human and non-human, contribute to redefining what learning and knowledge mean within this evolving educational ecology. Whereas traditional SoTL might aim to control for AI’s influence, a diffractive SoTL approach embraces these entanglements as the very site where new pedagogical insights emerge. The remainder of this paper aims to seed such entanglement, offering a site where collective human and non-human insights might take shape.

PROPOSITIONS

Bozalek, Newfield, and Romano (2023) assert that “propositions” (as opposed to “frameworks”) give rise to innovative directions in pedagogical research, because they are investigations in thinking that are focused on what might be rather than what is. The propositions challenge the arbitrary theory/practice divide dominating SoTL (Divan et al. 2017; Murris and Bozalek 2019a). As such, we offer the following propositions to guide the design of SoTL research, using diffractive methodologies in response to the GenAI context. The following propositions for diffractive GenAI SoTL are themselves diffracted from the principles outlined by Murris and Bozalek (2019a, b) and the insights provided by Barad (2007).

After each proposition, we build on the concept of entanglement “becoming with” technology, diffraction and collaboration with non-human intelligence by providing a prompt for you, dear reader, to use with GenAI in order to generate ideas and examples tailored to your practice. We invite you to “choose your own adventure,” a modest endeavor to disrupt the epistemological stability of peer-reviewed, verified, journaled “knowledge” and to revel in becomingness, connection, and intra-action.²

Begin each AI conversation with a brief outline of your context (discipline, level, institutional setting) and previous, current, or future SoTL project/s (if applicable).

Proposition 1: Design through diffraction

Barad (2007) calls for “reading through” methodologies or concepts, where the aim is to discover points of conceptual entanglement between and among texts or theories. In your research design, explore how other disciplines, near or distant, offer valuable insights. This result could emerge from an interdisciplinary or transdisciplinary lens, or it could be achieved by collaborating across and reading through SoTL from other disciplines, rethinking what counts as SoTL, and/or reading through the eyes of others—human and non-human. Diffractive approaches invite you to consider reading through and working across varied research methodologies and non-methodologies, creating dynamic and iterative disciplinary boundaries, and allowing for new patterns of engagement.

Proposition 1: Prompt

I’d like you to help me explore a diffractive approach to SoTL. Using Barad’s concept of reading through show me how SoTL inquiry in my context might transform when viewed simultaneously through multiple entangled perspectives, including:

- concepts from disciplines both adjacent to and distant from my own;
- human and non-human ways of knowing and being;
- traditional research methodologies alongside non-methodological approaches.

As we collaborate, help me identify:

1. What new patterns of understanding emerge at these intersections that weren’t visible within my discipline alone?
2. How does our human/non-human conversation itself demonstrate knowledge creation through entanglement?
3. How might these boundary crossings reconfigure what “counts” as legitimate inquiry in my context?

I’m interested not just in borrowing methods but in how these entanglements might fundamentally transform how I understand teaching and learning in my field.

Proposition 2: Acknowledge your positionality as both fixed and flexible

You cannot be an external observer to your research, so consider how your social, cultural, and institutional influences as well as your physical being in and of the world, shape your perspective, proposed research question/s, and methodologies. In the tradition of “reflexivity” (as understood by Braun and Clarke 2022), this is not about identifying and mitigating bias but understanding that our interpretation of events is shaped by our previous experiences, our positionality (culture, context, insider status), and our becoming. Remain open to how these dimensions will be revised by the pedagogical event just as your understanding and positionality will be changed by the experience. Tracing this pattern of movement can give rise to new configurations of knowledge.

Proposition 2: Prompt

Help me explore how my positionality shapes my Scholarship of Teaching and Learning in both fixed and flexible ways. Consider:

1. How my social, cultural, institutional, and physical being influence my research questions and methodologies.
2. Ways I might be transformed by the pedagogical events I’m studying, even as I study them.
3. How acknowledging this entanglement between researcher and research might strengthen my scholarship.

How can I move beyond simply identifying bias toward understanding my SoTL work as a process of mutual becoming?

Proposition 3: Attend to the complexity of material interaction

Diffractional GenAI SoTL involves both examining and embracing how GenAI and humans are mutually connected. It requires an acknowledgement that conventional boundaries between subject/object or human/machine are challenged by what Kember and Zylinska (2012) call the “being in, and becoming with, the technological world” (xv). We must also be attentive to the growing complexity of the digital environment where, arguably, we serve as agents in data production and we can be understood as “tools” within the technology space. This is particularly relevant when our own use of GenAI feeds into the development of the models as training data. Similarly, GenAI applications are not tools or “just technology.” They are active agents in SoTL research. Referring to GenAI as “tools” ascribes agency only to the human participants, but the capabilities of the digital environment make clear that the distribution of agency is much more complex.

Proposition 3: Prompt

Help me explore the mutual constitution of human and GenAI in my teaching and scholarship. Consider:

1. How might my SoTL research acknowledge the blurred boundaries between human/machine agency rather than positioning GenAI as simply “tools”?
2. In what specific ways is my teaching practice “already becoming” with technology rather than just using it?
3. How might acknowledging this distributed agency change my research questions, methodologies, and interpretations?

Suggest an approach that moves beyond treating GenAI as either neutral tools or threatening replacements and toward understanding our entangled co-evolution.

Proposition 4: Engage the affective dimension of the pedagogical event

Acknowledging Barad's (2007) emphasis on the interaction between ontology and epistemology, diffractive GenAI SoTL exists at the intersection between how your research disrupts and reinforces traditional notions of knowledge production. Those effects are not free from affective valence. Indeed, embodied and emotional responses to technology in the pedagogical event are vital to the ethical dimensions of your research, because they reveal the sites of individual and shared values. In unpacking these responses, consider the power dynamics, biases, and exclusions that GenAI might perpetuate or challenge within SoTL. The values perpetuated by technology and its applications will intersect and sometimes conflict with the values of students, the institutions, and SoTL researchers. Recognizing and articulating these affective dimensions provides an important map of meaning within the pedagogical event.

Proposition 4: Prompt

Help me explore the affective dimensions of integrating GenAI into my teaching and scholarship. Consider:

1. What emotional responses (curiosity, excitement, resistance, anxiety) might emerge for me, my students, and my colleagues as we engage with GenAI in the classroom?
2. How do these affective responses reveal underlying values, power dynamics, and assumptions about knowledge production?
3. Where might the values embedded in GenAI technologies align with or challenge the values of students, my discipline, and the institution?

How can attending to these embodied and emotional dimensions enhance the ethical awareness in my SoTL research rather than treating technology integration as purely technical or cognitive?

Proposition 5: Consider multiple futures

Arising from the concept of spatial diffraction in physics, the related concept of temporal diffraction can be applied to diffractive GenAI SoTL. It is possible that multiple outcomes are simultaneously unfolding in any pedagogical event, just as multiple futures are possible and are being actively constructed through your SoTL. Consider the potential futures that diffractive GenAI SoTL is making possible, constraining, and/or eliding. Are we asking new questions in old ways, old questions in new ways, limiting or liberating our pedagogic imaginations? Does orientating future teaching practices around including or occluding regular, active engagement with GenAI mean that GenAI is always already a collaborator in inquiry, intra-acting with the materiality of the classroom through its presence or its absence? Your SoTL future may not center or utilize GenAI directly, but the act of removing inquiry to historic pre-GenAI "beforetimes" is itself an act of futuring mediated by the materiality of GenAI. The possibility of not engaging with GenAI may also be a hallucination given that the evidence base is/will be rich (or contaminated depending upon your perspective) with GenAI collaborations in the literature (Gray 2024) and in AI training data (Xing et al. 2024) or hidden deep within your data, "polluting" the purity of student learning. Remaining open to all these possibilities as you move through your research gives you the flexibility to revise and perhaps even reverse when you encounter obstacles.

Proposition 5: Prompt

Help me explore multiple possible futures for my teaching and scholarship in relation to GenAI. Consider:

1. What futures am I actively constructing or foreclosing through my current approach to GenAI in my teaching practice?
2. How might GenAI be “intra-acting” with my classroom even when I attempt to exclude it or maintain pre-AI approaches?
3. What new questions or pedagogical possibilities might emerge if I view GenAI not as a tool to use or avoid but as an always-already collaborator in knowledge creation?

Help me think beyond binary framings of adoption/rejection and toward understanding how multiple futures are simultaneously unfolding in my teaching context.

These propositions and prompts may facilitate teaching and learning by offering an alternative SoTL approach for novice or expert SoTL scholars to consider in response to the opportunities afforded by GenAI and emerging technologies. Like the propositions outlined in Murriss and Bozalek (2019a), this is a non-hierarchical list; their order is not reflective of the order that educators should approach them. Educators are encouraged to reconsider established SoTL paradigms through a diffractive approach; by engaging with AI as a collaborator rather than a tool we invite you to experience the entanglement our propositions describe. SoTL in a GenAI era requires amplifying the “patterns of difference” that are generated through these ongoing interactions or “within phenomena,” as Barad (2014) frames it, rather than just identifying that different patterns exist. In diffractive GenAI SoTL, technology is not viewed as an individual variable in the education context, but as a key participant.

Just as the mode of engagement should not be seen as an individual contributor of variation to the learning environment, disciplinary knowledge must also be carefully contextualized within the phenomenon, as part of an interconnected perspective that emerges through the event. As such, diffractive GenAI SoTL requires researchers to read across disciplines and through the entanglement of shared concepts in order to find where they interact to produce new interdependencies (Hickey-Moody, Palmer, and Sayers 2016). Much like diffractive pedagogy asks SoTL to read approaches or disciplinary understandings through one another and consider how interdependent factors of the learning environment are facilitating learning, we must also acknowledge the interactions between values as they interact in this GenAI era of education.

CONCLUSION

The integration of GenAI into higher education ushers in a new era of teaching, learning, and assessment. Traditional educational frameworks, built on clear distinctions between students versus technology, original versus assisted work, knowledge creation versus knowledge reproduction, teaching versus assessment, are struggling to accommodate the changes that GenAI signals. The unprecedented opportunities and challenges of GenAI create a “wicked problem” for higher education, for learners, and for educators, signaling a paradigm shift demanding “new approaches to developing new approaches” (Bass 2020, 14).

Diffractive GenAI SoTL responds directly to Bass’s call by offering not just a new approach, but a novel way of conceptualizing approaches themselves. Rather than providing fixed methodologies that merely adapt existing practices, diffractive thinking creates what Barad might call an “agential cut,” an intervention in established patterns of educational research that creates the possibility for new entanglements. This manifests in actionable pedagogy through practices that embrace knowledge as emergent from intra-actions rather than pre-existing, position GenAI as an active agent rather than a tool, and attend to how values and power relations are embedded within technological entanglements.

This wave of technological change crashes in alongside equally urgent re-conceptualizations of SoTL which respond to global crises and the imperatives of decolonization, equity, and social justice that play out with real-world implications in classrooms across the world. The interference of these two waves, GenAI and “fifth wave” SoTL, necessitates new ways of thinking and theorizing. Diffractive thinking offers a way forward, enabling us to reconceptualize SoTL in order to meet the imperatives of our current context as a GenAI-enabled world.

What makes diffractive GenAI SoTL particularly suited to our current moment is how it matches the level of disruption GenAI presents. The contemporary educational landscape necessitates more than adaptation to a new tool; it demands the reconceptualization of teaching, learning, and assessment in an environment where boundaries between human and technology are increasingly blurred. Diffractive SoTL offers a meaningful way into pedagogic transformation across multiple key domains: assessment design that values human-AI collaborations, pedagogical identity that acknowledges transformation through technological engagement, curriculum development alive to multiple futures simultaneously, and learning design that transcends disciplinary silos.

Diffractive GenAI SoTL invites educators to move beyond reflection, encouraging them to bend their understanding of teaching and learning through multidisciplinary lenses. This approach honors the collective SoTL body of knowledge, while actively reimagining the field within the evolving context of GenAI. Embracing inter- and trans-disciplinarity and multi- and anti-methodological approaches, diffractive GenAI SoTL facilitates human and non-human collaboration in ways that safeguard human agency and promote empowerment. The proposed propositions aim to support SoTL educators and researchers as they navigate the complexities of the GenAI environment while using this technology to engage meaningfully and support student learning even as the higher education landscape changes.

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AUTHOR BIOGRAPHIES

Jennie Mills (GBR) is an associate professor in the Academic Development Centre at the University of Warwick. Her work explores arts-based, post-qualitative pedagogies, practices, and research methodologies, as well as how AI-human entanglements intra-act with higher education contexts.

Tina Beynen (CAN) has a PhD in applied linguistics from Carleton University and is an independent researcher, writing coach, and certified English language instructor. Her research interests include the intersection of student assessment and other literacies, GenAI, and academic integrity.

Ivy Chia (SGP) is an associate professor of education at the Singapore University of Social Sciences. She pursues cross-disciplinary research on AI-enhanced learning, improvisational pedagogy, and practice-based inquiry.

Rachel Fitzgerald (AUS) is an associate professor and associate dean (academic) at the University of Queensland. She is acclaimed for her extensive knowledge of online education, advancing digital learning, researching educational innovation, and improving the student learning experience.

Kimberly A. Hall (USA) is an associate professor in English and digital media studies at Wofford College. Her research areas include social media discourse, culture and media, and information literacy.

Evelyn Lai (AUS) is an education-focused lecturer in banking and finance at the University of New South Wales. Her research interests focus on assessment and feedback design to encourage sustainable learning, edTech, and data-driven student learning experiences.

Jon Mason (AUS) is an associate professor in education at Charles Darwin University, where he lectures in digital technologies and teaches in higher education. His work spans the frontiers of digital technology innovation and sense-making.

Samantha Newell (AUS) is a lecturer in psychology at the University of Adelaide. Her publications advance online learning through rapport, enhancing asynchronous engagement, promoting student voice, and facilitating student co-creation of learning spaces.

NOTES

1. An indicator of this shifting and flexible identity is the enduring debate about whether SoTL is a field, a movement, or a framework. SoTL is almost universally glossed as a movement (Canning and Masika 2022, Divan et al. 2017, Godbold, Matthews, and Gannaway 2023; Tight 2018; Webb 2020; Webb and Tierney 2020) which coalesces around the belief that teaching and learning should be taken seriously. SoTL as “movement” is also perhaps defined by consciousness of its place in the margins of dominant academic cultures, the uninvited frog prince of the fairy tale watching mutely as princess researchers play with their golden ball (Boshier 2009, 12–13; Tierney 2020). It is focused on teaching without being teaching and on research without being research insofar as it sits outside disciplinary research cultures and lacks traditional markers of esteem. It is beyond the scope of this paper to contribute to these debates, glossing SoTL as a field seeks to sidestep these political and ideological markers and claim the space as fully academic.
2. With thanks to our reviewers who doubly inspired this intervention through an authentic recollection of an unwanted AI entanglement and through an overlooked textual fragment of human/non-human intra-action in knowledge-creation.

DISCLOSURE

This paper was developed in collaborative conversation with Claude AI models (Anthropic) throughout the research and writing process from October 2023 to May 2025, including Claude 2, Claude 3 family models (Haiku, Sonnet, and Opus), Claude 3.5 models, and Claude Sonnet 4. We collaborated with AI to refine thinking through critical dialogue, testing reasoning, proofreading, and editing drafts. All core work, analysis, literature identification and review, and substantive content remained the authors’ original work.

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