# ASCILITE 2026

***The Future is Connection:***

*Collaboration, Creativity and Compassion in a Digital Society*


# What holds and what breaks: Boundary objects in AI-enabled curriculum governance


**Scott Bradey**
James Cook University



Universities govern AI adoption through artefacts. Policies, rubrics, assessment briefs, vendor evaluation frameworks, and design templates cross organisational boundaries and carry meaning differently in each context. This paper applies the concept of boundary objects within a cultural-historical activity theory (CHAT) framework to analyse which artefacts effectively mediate AI governance across academic, institutional, and commercial activity systems, and which fail. Drawing on the author's framework for negotiated legitimacy in interacting activity systems and reflexive practitioner experience as an education design leader, the paper develops a typology of AI governance boundary objects classified by origin, interpretive flexibility, and failure mode. The analysis identifies three structural conditions that determine whether a boundary object supports or undermines the legitimacy of learning designers who broker AI adoption across systems. These are co-design across activity systems, support for transformation rather than coordination alone, and resistance to capture by a single system's logic. It also identifies a failure dynamic specific to generative AI, in which an unstable referent causes artefacts to decay. The paper offers practical design principles for governance artefacts and connects them to a wider question, namely how institutions keep human and pedagogical judgement central as they adopt digital technologies.



*Keywords:* boundary objects, AI governance, learning design, activity theory, professional legitimacy


## Introduction

When a university adopts a generative AI tool, the decision materialises in artefacts. A policy turns institutional intent into rules. An assessment brief says where AI is permitted and where it is not, and a rubric carries that expectation through to the student. Behind them sit the vendor evaluation framework that shaped the selection and the design template that guides the redesign. None of this is administrative residue. These artefacts are the material infrastructure through which competing interests are negotiated, and they are what learning designers spend much of their time creating, adapting, and defending.

The 2025 ASCILITE panel on professional standards for learning design (Henderson et al., 2025) identified the absence of shared standards as a barrier to professional recognition. This paper addresses a related but distinct problem. The artefacts through which learning designers do their boundary-spanning work are rarely analysed as objects with structural properties that determine their effectiveness. Some artefacts hold across organisational boundaries and others break. The difference follows a pattern. Whether an artefact holds or breaks is a structural matter, traceable to how it was made and how it is maintained.

This focus speaks to the conference theme of connection, because governance artefacts are the means through which connection across organisational systems either succeeds or fails. It speaks most directly to the sub-theme of rebalancing the algorithm, which asks how human agency and an ethic of care can guide the adoption of digital technologies. Governance artefacts are where that rebalancing is won or lost, because they determine whether pedagogical judgement holds its ground or gives way to a single system's commercial or compliance logic.

The paper uses the concept of boundary objects (Star & Griesemer, 1989; Carlile, 2004) within a CHAT framework (Engeström, 1987, 2001) to ask what makes an AI governance artefact effective at mediating across activity systems, and what causes it to fail. The analysis draws on the author's framework (Bradey, in press), which models AI-enabled curriculum design as the intersection of three activity systems, the academic and disciplinary, the institutional and IT services, and the vendor and commercial.

## Approach

This is a conceptual paper. It develops theory through structured analysis of an existing body of work rather than through the collection of new data. Three sources inform it. The first is the boundary object literature and cultural-historical activity theory. The second is the author's reflexive experience as an education design leader in an Australian university, used in the tradition of critically reflexive autoethnographic positioning as motivation and illustration rather than as primary data. The third is the set of institutional cases analysed in the negotiated legitimacy framework (Bradey, in press).

The typology in Table 1 and the three conditions that follow are offered as testable propositions rather than empirical findings. No human participants were involved and no identifiable personal or institutional data were collected or analysed, so ethics approval was not required under the National Statement on Ethical Conduct in Human Research.

## Theoretical framework

Three layers of theory operate in this paper, and each does distinct analytical work. Cultural-historical activity theory supplies the meta-theoretical lens. From third-generation cultural-historical activity theory (CHAT) the analysis takes interacting activity systems as the unit of analysis, mediating artefacts as constitutive of activity, and contradictions as generative (Engeström, 1987, 2001). The negotiated legitimacy framework (Bradey, in press) applies that lens to AI-enabled curriculum design and specifies the three systems that interact in this setting, together with the position of the boundary spanner between them. Boundary object theory (Carlile, 2002, 2004; Star & Griesemer, 1989) supplies the analytical vocabulary for the artefacts themselves. This paper takes the boundary object mechanism identified in that framework and develops it into a standalone typology, which is the contribution offered here.

### Boundary objects in activity systems

Star and Griesemer (1989) introduced boundary objects as entities that inhabit several intersecting social worlds, maintaining enough common identity to be recognisable across them while remaining plastic enough to adapt to local needs. Carlile (2002, 2004) distinguished syntactic boundaries, where shared terminology suffices, semantic boundaries, where interpretation differs and must be negotiated, and pragmatic boundaries, where interests diverge and objects must transform practice to be effective. In AI-enabled curriculum design, the boundaries are typically pragmatic. An AI-use policy means something different to an academic concerned about disciplinary voice, an IT architect managing data governance, and a vendor positioning product capabilities. The same artefact must hold meaning across all three interpretations without being captured by any single one.

Akkerman and Bakker (2011) identify four learning mechanisms at boundaries, namely identification, coordination, reflection, and transformation. These provide analytical categories for assessing boundary object effectiveness. An artefact that supports only coordination, by establishing shared procedures, without supporting transformation, by generating new hybrid practices, will be structurally limited.

### The three-system model

The author's framework (Bradey, in press) identifies three interacting activity systems. In the academic system, disciplinary norms and assessment integrity drive tool-use decisions. The institutional and IT services system answers to data governance, procurement and integration, which between them settle what is available and how it is supported. Vendors work to a different object again, one where commercial logic and licensing position AI tools as the answer to a problem the vendor has defined. Learning designers operate at the intersection of all three.

The argument here is specific to generative AI in one structural respect. Earlier educational technologies mediated the production of curriculum. A learning management system delivered materials that academics wrote. Generative AI participates in producing both the curriculum artefact and the student work, and the

sector has begun to mark this distinction between generative systems and systems that execute tasks autonomously (Lodge, Bower, et al., 2025). The commercial system therefore acquires a stake in the object of academic activity rather than servicing its means. Decisions taken commercially, about training data, guardrails, and which capabilities sit at which licence tier, become decisions about what assessment can be. This is why the vendor system is modelled separately here, and why capture by a single system's logic is a live risk rather than a theoretical one.

## A typology of AI governance boundary objects

Five artefacts recur as the material infrastructure of AI governance, both in the author's institutional experience and across the cases examined in Bradey (in press). Table 1 classifies each by the systems it mediates, its typical origin, and its observed failure mode. Figure 1 then maps these artefacts onto the activity systems they bridge, with the learning designer positioned as broker at the centre, and marks the point at which the vendor's model reaches the academic object.

Table 1
*AI governance boundary objects: functions and failure modes*

| Boundary object | Systems mediated | Typical origin | Failure mode |
|---|---|---|---|
| AI-use policy | Academic, IT/Services | IT/Services or governance (imposed) | Becomes a compliance document disconnected from teaching practice. |
| Assessment brief with AI boundaries | Academic, IT/Services, Vendor | Academic or learning designer (variable) | Over-specified (constrains) or under-specified (provides no guidance). |
| Rubric with AI criteria | Academic, Student | Academic, often with designer support | Treated as a bolt-on rather than integrated into learning design. |
| Vendor evaluation framework | IT/Services, Vendor, Academic | IT/Services (imposed) | Dominated by technical and commercial criteria; pedagogy absent. |
| Design template or exemplar | Academic, IT/Services | Learning designer (co-designed or imposed) | Rigid and resistant to disciplinary adaptation. |

The pattern is consistent. Artefacts that originate in a single activity system and are imposed on others tend toward their characteristic failure mode. Artefacts that are co-designed across systems show greater resilience, because the co-design process itself enacts the reflection and transformation mechanisms that Akkerman and Bakker (2011) identify as necessary for learning at boundaries. The lens does more than recommend collaboration. It predicts how each specific artefact will fail, and why. The failure-mode column in Table 1 is what a generic appeal to good governance cannot supply.

One further failure dynamic is specific to generative AI and cuts across all five artefacts. Boundary objects hold by staying recognisable across social worlds, which presupposes a referent stable enough to be recognised. Generative AI capability changes between teaching periods, often without institutional notice. A policy or brief written against a model that is subsequently revised does not simply date. It becomes differently interpretable in each system at once, because each system reads the gap between the document and the tool through its own object. Artefacts specifying AI use therefore need renegotiation on cycles much shorter than institutional review assumes, and that maintenance work falls by default to the learning designer.

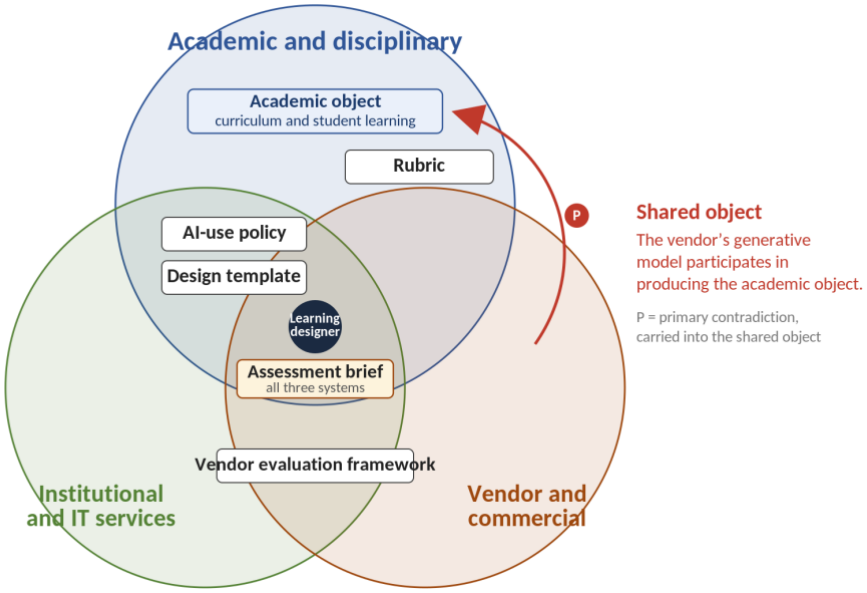



*Figure 1.* Governance boundary objects at the intersection of three activity systems, and the point at which the vendor's model reaches the academic object.

## Three conditions for effectiveness

Three structural conditions determine whether a boundary object supports effective AI governance or collapses into a single system's logic.

The first condition is co-design across activity systems. Objects developed collaboratively by actors from multiple systems carry the interpretive flexibility that Star and Griesemer (1989) identified as essential. When a learning designer co-designs an assessment brief with the discipline academic and the IT team, the resulting artefact carries traces of all three perspectives. When an AI-use policy is drafted by a governance committee without academic or design input, it lacks the interpretive resources to hold meaning across systems. This is a structural matter rather than a question of consultation alone. Co-design is a general property of effective boundary objects rather than a feature peculiar to AI. The dynamics that are specific to generative AI are the shared object and the instability of the referent, and they are what make these conditions urgent in this setting.

The second condition is support for transformation, and not coordination on its own. Most AI governance artefacts achieve coordination by establishing shared procedures and approvals. Fewer achieve transformation, the generation of genuinely new practices that could not have emerged within any single system. A vendor evaluation framework that builds in pedagogical criteria alongside technical and commercial ones has the potential to transform how selection decisions are made. Learning designers, by virtue of their cross-system position, are well placed to push artefacts from coordination toward transformation.

The third condition is resistance to system capture. Boundary objects are under constant pressure to be captured by the system with the most institutional power, typically through its control of resources, procurement, and sign-off authority. AI-use policies drift toward compliance, vendor frameworks toward feature comparison, and assessment briefs toward risk mitigation. Effective objects resist capture because they contain structural features, such as criteria and sign-off drawn from multiple stakeholders, that make single-system capture difficult. Resistance is sustained through ongoing stewardship of the artefact rather than through its initial creation alone. This condition is where the rebalancing the algorithm sub-theme becomes concrete, because resisting capture is how pedagogical and human judgement holds its place against commercial and compliance pressure.

## Implications

For learning designers, the analysis reframes professional practice. The artefacts they produce and maintain are not administrative outputs. They are the boundary objects through which AI governance is negotiated, and they place learning designers in what Whitchurch (2008) terms a *third space* between established professional domains. This widens what counts as professional expertise. It now includes the capacity to create and sustain artefacts that hold across competing organisational logics, alongside knowledge of pedagogy and technology. Boundary object stewardship emerges as a core capability, which supports the professional standards agenda advanced by Henderson et al. (2025).

At the institutional level, the effectiveness of AI governance depends less on the quality of individual policies than on the structural properties of the artefacts through which governance is enacted. Institutions that mandate co-design across systems, build review processes that surface competing interpretations, and resource ongoing stewardship will see more effective adoption, and will be better placed to enact the assessment reform the sector is now being asked to demonstrate (Lodge, Bearman, et al., 2025).

For researchers, the typology and conditions provide a testable framework. Comparative case studies could examine whether co-designed boundary objects produce better governance outcomes than imposed ones, and whether learning designer involvement correlates with the transformation mechanism that Akkerman and Bakker (2011) describe.

## Conclusion

AI governance in higher education is enacted through artefacts. What separates governance that works across organisational boundaries from governance that collapses into a single system's logic is structural rather than administrative. Boundary objects that are co-designed across activity systems, that support transformation rather than coordination alone, and that resist capture by a single system's logic are more effective at mediating the competing interests that AI adoption surfaces. Learning designers, as the professionals who create and maintain these artefacts, are doing governance work whether or not their institutions recognise it as such. Rebalancing the adoption of digital technologies toward human and pedagogical agency happens, or fails to happen, in these artefacts. If the future of educational technology is one of connection across systems, the artefacts that carry that connection deserve to be designed and stewarded with care, and the professional standards conversation needs to account for the people who do that work.

## References

Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169. https://doi.org/10.3102/0034654311404435

Bradey, S. (in press). Negotiating legitimacy in the third space: A cultural-historical activity theory framework for analysing boundary spanners in AI-enabled curriculum design. *Australasian Journal of Educational Technology*.

Carlile, P. R. (2002). A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization Science, 13*(4), 442–455. https://doi.org/10.1287/orsc.13.4.442.2953

Carlile, P. R. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization Science, 15*(5), 555–568. https://doi.org/10.1287/orsc.1040.0094

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Orienta-Konsultit.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work, 14*(1), 133–156. https://doi.org/10.1080/13639080020028747

Henderson, M., Heggart, K., Nguyen, N., Paxton, S., Trebilco, J., Bradey, S., & Azouz, L. (2025, November 30–December 3). Professional standards for learning design: Mapping values, practices and professional identity [Panel presentation]. ASCILITE 2025, Adelaide, Australia. https://doi.org/10.65106/apubs.2025.2772

Lodge, J. M., Bearman, M., Dawson, P., Gniel, H., Harper, R., Liu, D., McLean, J., Ucnik, L., & Associates. (2025). *Enacting assessment reform in a time of artificial intelligence*. Tertiary Education Quality and Standards Agency. https://www.teqsa.gov.au/guides-resources/resources/corporate-publications/enacting-assessment-reform-time-artificial-intelligence

Lodge, J. M., Bower, M., Gulson, K., Henderson, M., Slade, C., & Southgate, E. (2025). *Australian Framework for Artificial Intelligence in Higher Education*. Australian Centre for Student Equity and Success. https://www.acses.edu.au/publication/australian-framework-for-artificial-intelligence-in-higher-education/

Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, "translations" and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science, 19*(3), 387–420. https://doi.org/10.1177/030631289019003001

Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of third space professionals in UK higher education. *Higher Education Quarterly, 62*(4), 377–396. https://doi.org/10.1111/j.1468-2273.2008.00387.x



Bradey, S. (2026). What holds and what breaks: Boundary objects in AI-enabled curriculum governance. In Cochrane, T., Narayan, V., Poole, T., Lai, P., Lake, P., Moore, O., & Li, L. (Eds.), *The Future is Connection: Collaboration, Creativity and Compassion in a Digital Society*. Proceedings ASCILITE 2026. Brisbane (pp. 510–515). https://doi.org/10.65106/apubs.2026.3126



Note: All published papers are refereed, having undergone a double-blind peer-review process.
The author(s) assign a Creative Commons by attribution license enabling others to distribute, remix, tweak, and build upon their work, even commercially, as long as credit is given to the author(s) for the original creation.

© Bradey, S. 2026