Mapping Ecologies of Practice: A Framework for Reflective Teaching and Academic Development in Higher Education

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Critical reflection on teaching is essential for educators to develop a strong rationale for their practice. However, fully grasping the complexity of social practices within the classroom requires a more nuanced approach. Educators must reflect on the dynamic interplay between teaching, learning, and assessment practices, as well as the conditioning factors that influence them. This paper proposes an enhancement-focused framework for educators to identify, analyze and, crucially, reflect on these intricate ecologies of practice. The framework emerged from a study examining how social practices are constituted and shaped across nine university course sites. It serves as a practical tool for unpacking interconnected practices and understanding the factors that condition them. Using a specific example, this paper demonstrates how the framework can inform and support reflective teaching practices. It also shows how academic developers can employ the framework to enhance teaching practice in their institutions.

Keywords: ecologies of practice, university teaching, conceptual model, reflection

INTRODUCTION

Theorising pedagogy and education is complex and challenging. Despite this complexity, understanding the depiction of social reality in university classrooms is beneficial. Such understanding can help educators engage in reflective teaching and provide valuable insights for academic developers in supporting and guiding educators' professional development. This study explicitly examines the enactment of practices and the conditioning factors influencing educators and students by using nine university courses (referred to as 'course-sites') as case studies for observation. Similar studies also argue that academic contexts can be investigated as microcultures using a socio-cultural approach to understand how they function (Roxå & Mårtensson, 2013). It calls for a practice-based approach shifting the focus from practitioners to practices and

considering both ontological and epistemological views (Schatzki, 2001; Nicolini, 2012). Taking this approach directs our attention to the university environment in "all its materiality and actuality, not just in terms of what practitioners' know." (Kemmis et al., 2014: 218).

Reflection

There is a danger in the term 'reflection' of simply using it as a synonym for 'thinking'. To counter this, we draw on the empirically-derived categorisation of types of reflection set out by Vicki Trowler et al (2020). As they say (1247), "not all reflection leads to insight or learning", and their aim is to unpick the types which do lead to those outcomes. Drawing on their data and a wealth of literature, but cleaving particularly towards Stenhouse (1975) and Grant et al (2002), they identify four types of reflection, only one of which – the Action approach – leads to productive, change-oriented outcomes based on purposive depth of reflection and on an internal locus of control. Crucially, the Action form of reflection involves the individual being inducted into appropriate culture and "thought systems" prior to engaging in change-focused reflection. Thus, while a 'can-do' approach, an internal locus of control, is involved there is also an outward focus which involves applying these thought systems and an understanding of local cultural characteristics to the real world. This is in contrast to the other categories of reflection they identify: 'rumination', 'selfie' and 'quick fix'. In this paper we offer a framework, a linked constellation of concepts – a thought system – which scaffolds academic teachers' reflection, ensuring it adopts productive, enhancement-focused characteristics. We also unpick the concept of 'culture', disaggregating it into more tangible notion of practices, making it easier to integrate into the reflective process. We turn to this next.

Practice and practice architecture

A unified definition of practice is uncommon, so this study adopts a view based on advances in practice theory (Schatzki, 2005; Kemmis, 2009; Gherardi, 2012; Hui, Schatzki & Shove, 2017), focusing on its application specifically to university settings. It examines educators and students' organized actions and sequences of performances within classrooms providing insights into practices and their interconnected constellation of activities (Hui, Schatzki, & Shove, 2017). Moreover, this approach also uncovers how educators and students co-construct a shared but bounded reality through fairly consistent patterns of interaction and actions, shaped by the material elements of the course-site. (Trowler, 2020). Schatzki's (2005) concept of site ontologies is used to study consistent patterns and practices in university classrooms. It helps to draw out and uncover the uniqueness of the site, its practices and how those practices are supported by a specific set of arrangements or practice architectures (Kemmis et al., 2014). It also illuminates the local nuances of enacted practices informed by the sayings, doings, knowings, and relatings that are specific to each microculture—course-specific, context-specific, and time-specific (Mockler, 2017; Roxå & Mårtensson, 2013; Trowler, 2020).

At the same time, theories of subjectivation are essential to explain how practices are transmitted, reproduced, and accomplished in situated praxis. Not only should education and educational practice be focused on knowledge, but also on what happens through embodied individuals in the course-sites. These theories help clarify existing practices, how they are shaped, mediated, and connected and how embodied individuals make meaning, form identities, and enact order-producing activities (Nicolini, 2012). A greater emphasis is therefore placed on the situated practices, the recurrent behaviours and the structured dispositions rather than limiting the observations to their individual actions, behaviours, and choices (Trowler, 2020).

Therefore, understanding how teaching, learning, assessment and grading practices within these university courses relate to and connect with one another to form a nexus of practices becomes paramount. Hence, a focus on this nexus of practices as being central to the understanding of social process is taken in this paper.

A practice-based knowing (PBK) approach can reveal the dynamic interplay of how educators and students participate in classroom practices and how their practices are shaped by material and discursive forces. PBK offers new ways of illuminating current educational practices emphasizing the specific arrangements—cultural-discursive, material-economic, and social-political—that support these practices within course-sites (Kemmis et al., 2014). The unsustainable or untoward practices also become evident in this process (Mahon et al., 2017). Trowler (2020) describes this as a recurrent social process, where educators and students continually negotiate their competence and performance over time. They are shaped by proto-practice reservoirs, which embody, empower, and are socially and historically constructed to define the practices they engage in (Higgs, 2012). To thoroughly examine this complexity, we use three concurrent lenses: (i) a theoretical lens to comprehend practices; (ii) an analytical lens to reveal conditions that enable and/or constrain practices; and (iii) a transformational lens to understand factors that influence changes in practice.

Social practice theory for university contexts

The embodiment of ideas and knowledge, the practitioners' engagement with the nexus of interconnected practices, and the discourses that unfold in the day-to-day practices within university classrooms can be discovered using social practice theory (Grootenboer et al., 2017). While the benefits of applying social practice theory in education are evident, its application within the university context is relatively recent and limited. Trowler's social practice theory is a valuable framework for understanding

how individuals gain agency in shaping practices while taking into account the teleo-affective and material influences. Three key characteristics are applied to university contexts: social practices, proto-practice reservoirs, and teaching and learning regimes (TLRs). These three elements are intertwined; the proto-practice reservoirs shape the dispositions that infuse practices determined by the moments of a TLR.

The nine course sites examined in this study produce multiple cultural configurations characterized by diverse clusters of social practices that yield a highly contextualized mix of features, concepts, and social characteristics (Trowler, 2012). The evolution of practices across different social contexts—such as lectures, seminars, tutorials, labs, group work, and individual study—reveals valuable insights into "practice-as-entity" and their underlying patterns of performance (Trowler, 2014). They enable for meso-level analysis of workgroup engagement in everyday classroom activities and the (re-)shaping of individual subjectivities. The interplay of power relations among workgroups, discourses, tools, and rules (Trowler & Knight, 2002) are also evident in these sites.

Individuals have unique personal trajectories that are inherently unstable and evolving within practices (Warde, 2005). They are influenced by how they integrate artefacts and create meaning, reflecting the material influences on practices. Exploring their individual histories, backstories and past experiences provide insights into their roles in the (re-)production of practices. These long-term social interactions of workgroups in universities are the TLRs, and they emerge from a unique constellation of practices that collectively create and enact culture (Roxå & Mårtensson, 2013; Trowler & Cooper, 2002). In classrooms, educators and students develop distinct approaches to learning and teaching as they collaborate over time. Taking an analytical perspective on the TLR concept can help recognize the bundled and nested nature of the

social practices. It also reveals the recurring workgroup behaviors, underlying tacit theories, assumptions, rules, meanings, emotional responses, as well as the significance of different ideological positions of the groups (Trowler, 2020). TLRs are, therefore, highly porous, dynamically constructed, and possess blurred boundaries.

TLRs is thus utilized in this study to visualize how the nine course-sites (or microcultures) operate and examine how the practices are filtered through the different moments within them. Using the eleven TLR moments as an investigative tool, the data gathered from classroom observations and interviews are analysed. Special consideration was given to the socially produced and reproduced meanings and practices of educators and students within the material and structural conditions of these microcultures. They reveal how teaching, learning, assessment, and grading practices are shaped by the bundling and nesting of other practices. The eleven TLR moments include:

(1) Power relations: how patterns of power emerge, regulate themselves, and shape workgroup practices.
(2) Implicit theories of teaching and learning: workgroups' underlying assumptions that inform their teaching and learning practice.
(3) Conventions of appropriateness: workgroups' understanding of appropriate or divergent behaviour in relation to teaching, learning, assessment, and grading.
(4) Recurrent practices: the established ways of doing things within the site.
(5) Tacit assumptions: taken-for-granted practices, collective assumptions, and meanings that guide how workgroups operate.
(6) Codes of signification: socially conditioned meanings attributed to concepts, terms, and activities within a particular site, encompassing cognitive and affective dimensions.

(7) Discursive repertoires: ways of talking about teaching and learning practices that reflect specific ways of thinking about these processes.
(8) Subjectivities in interaction: how personal and professional identities of workgroup members are negotiated in different practice contexts.
(9) Materiality in interaction: how practices are conditioned by physical environment, artefacts, and layouts.
(10) Backstories in process: the historical, institutional, and national contexts that influence current practices and shape individual subjectivities.
(11) Regimes in interaction: contextual features that extend beyond the boundaries of specific regime(s) of interest.

In the next section, we present the practical framework that helps in identifying ecologies of practices and analyzing how those practices are shaped and sustained in academic microcultures within universities. Positioned to support educators in their reflective teaching practices and academic developers who study, support, and enhance these practices, the framework is informed by data from observations, educator interviews, student focus groups, and researchers' own reflections. It advocates for a deliberate model mapping exercise that generates summary models of practices, capturing educators' epistemological stances and their PBK, while also illustrating the course-sites' sayings, doings, and relatings. Subsequently, one of the course-sites, the course HGE2204 taught by Grace, is taken as an example to explain and unpack how the microculture's complexity is captured through this model.

Framework for reflective teaching and academic development

The framework depicts and unpacks site-based teaching and learning practices by representing thematic responses from participant observations, dialogic interviews,

artefacts, and focus groups. The framework (see Figure 1) summarises and illustrates conceptualizations and enactments of PBK across diverse course-sites and comprises two key elements. At the core of the framework is the *ecologies of practices* element derived from the intersection of the three key aspects of site-based social practices: what teachers say (intended practices), what students do (experienced practices), and what is observed (enacted practices). It represents the interconnected mutually necessary activities that sustain or change the practices within the context of that course-site. It also reveals the epistemological stances of educators, highlighting the interconnections between practices, and how their ideologies about teaching, learning, and assessment also shapes the academic microculture. Thus, the *ecologies of practices* is unique to each course-site.

The second key element of the framework is the detailed representation of the *significant TLR moments, and their interactions*, showing how they impact the practices at the course-site. Not only does this illustration draw out the TLR moments, but also highlights the congruences and tensions between them. Arrows are used depict these relationships; moving beyond a linear structure to illustrate the complex, interconnected nature of the moments and their influence on practices.

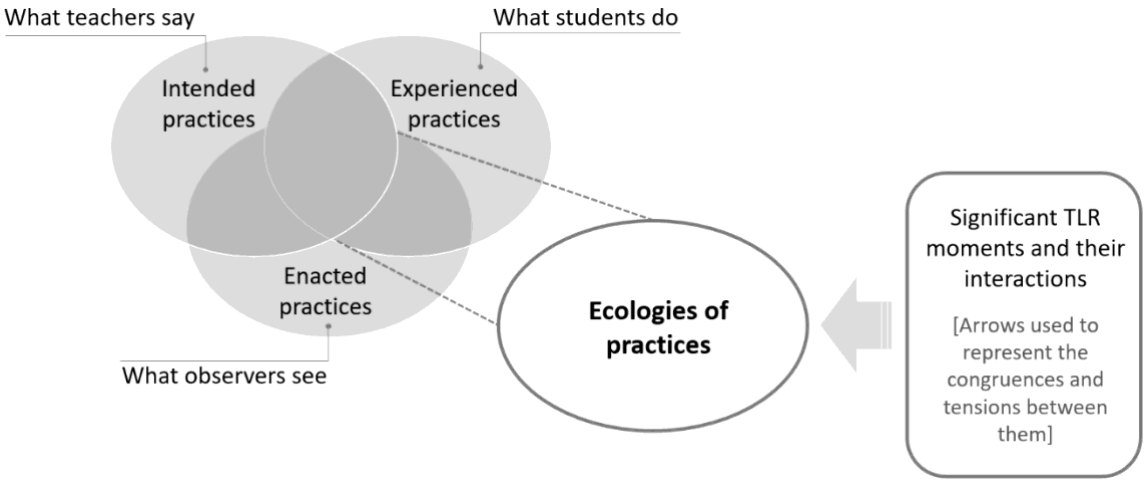

Figure 1 Framework to map the interconnected ecologies of practices and significant TLR moments

This framework has important applications for reflective teaching and academic development. Critical reflection is crucial for educators to develop a rationale for their practice, understand the underlying reasons behind their beliefs, and take informed actions on their practice (Brookfield, 2017). By encouraging this reflective process, the framework empowers educators to assess their approaches and adapt them to better meet the needs of their students. Academic development in universities is offered to ensure that institutions function effectively as teaching and learning communities (Felten et al, 2007). By integrating this framework into academic development initiatives, institutions can foster environments that promote collaboration, innovation, and continuous improvement in teaching practices, ultimately enhancing the overall learning experience for students. Thus, the framework serves as a valuable resource for educators and institutions striving for excellence in teaching and learning.

For university educators, this framework serves as a valuable self-reflection tool to explore site-based practices within their courses, acting as a heuristic for planning, understanding, and reflecting on their teaching. Regularly mapping the practices and TLR moments to the framework, helps educators develop the habit of clarifying and explaining why they're doing what they're doing and articulating the reasons behind why they're asking students to engage in specific learning practices. This process not only establishes their credibility but also builds trust with students. Educators can easily populate the framework by drawing from readily available sources of evidence—their teaching philosophy (intended practices: what teachers say), their peer observation reports (enacted practices: what observers see), and their student evaluations of teaching (experienced practices: what students do). Such mapping allows for a comprehensive understanding of their practices and its educational impact on the learning practices. Identifying TLR moments provides insight into the material and situational factors that

shape the teaching, learning, assessment and grading practices. As Brookfield (2017) argues, gaining this critical rationale for practice is a "psychological, pedagogic, professional, and political necessity." This ongoing introspection into their assumptions and beliefs arising from examined experience will guide their actions, even in unpredictable situations. For this purpose, the framework is an excellent tool.

Additionally, using the framework for critical reflection can foster a reimagining of education. It provides a structured pathway for examining, reviewing, and potentially transforming site-based practices by interrogating teaching and learning needs. It can also be used as comparative tool; educators and university administrators can learn from each other's model mappings, enhancing shared understandings and strengthening their community of practice.

In academic development, the framework supports meaningful conversations between academic developers, educators, and university leaders. It provides a systematic language and structure for consultations, facilitating efforts to "change perspectives and practices" (Little and Palmer, 2011). By offering a lens through which to explore teaching goals and institutional priorities, the framework can also inform future discussions on academic development practices and provide insights for further research in the field.

Finally, the framework can be a mapping tool for practice-focused ethnographic researchers in universities, revealing the interconnections and dependencies among practices while identifying key TLR moments in course sites. It allows for the mapping the (1) intended practices—what is planned in terms of educational goals and learning outcomes; (2) the experienced practices—what students experience when they engage with the intended, enacted, and unintended aspects of the practice and what they learn through that engagement and experience; (3) the enacted practices—what is carried out

by both teachers and students; and (4) the TLR moments that shape and inform practices and interactions. This model provides a comprehensive view of how intended practices and material conditions influence student learning experiences and outcomes.

While the framework is undoubtedly useful, it does have some limitations. The porous nature of TLR moments can cause certain moments to become more prominent than others, making it challenging to define boundaries or distinguish between them. As Trowler (2020) notes, TLR moments may appear "inseparably entangled and mutually infused" (p. 71), underscoring the importance of assessing the extent to which these moments influence practices. To enhance the framework in the future, assigning weights to each TLR moment could provide clearer interpretations during the model mapping exercise. Adopting a longitudinal study could address also these challenges by tracking TLR moments over time within the same course-sites, offering insights into how these moments evolve, change, and interact.

Study context

Selection of course-sites as cases

The academic course-sites (or microcultures) used in this study, specifically employed a hybrid graded/gradeless practice. In this system, grades are still awarded for every completed course, but students have the freedom to make it gradeless—a pass or fail—for specific courses of their choice. This model of employing student-specific, retroactive gradeless approach makes it a hybrid graded/gradeless practice (see Ragupathi, 2022 for details).

Empirical data on practices occurring in these nine course-sites were collected. The cases were purposively selected based on specific criteria. Each case represented a course within the university (see Appendix 1A). First, courses were identified based on

their use of hybrid graded/gradeless practices. Second, the courses had to be taught by a full-time academic, as they are typically better positioned to shape, modify, or challenge curriculum and assessment design. Third, the selected courses spanned major disciplines within the university, with varying class sizes. Additionally, factors such as the educator's experience, academic track, rank, local/international status, and gender were considered to ensure diversity among the selected cases, reflecting the institution's broader representation.

Pseudonyms were assigned to the courses and participants involved in the study. For each selected case, additional materials were gathered about the departments in which the course-sites were situated. These materials were incorporated into the case records, rather than creating separate reports for departments or disciplines. This supplementary information was used to enhance the understanding of how practices within each discipline were shaped by the pre-existing intersubjective spaces, as well as how individuals within these spaces interact and engage with one another.

Methodology

A practice-focused ethnography was employed to access the multiple dimensions of social practice—the sayings, doings, relatings, feelings, and valuing—that unfold within these unique classroom settings. These course-sites are, in themselves, points of social interaction where educators and students engage in unique sets of practices that often result in recurrent social patterns of behaviors and meanings.

To capture the thick descriptions (Geertz, 1973; 1983) of participants' social relations, behaviors, discourses, ways of thinking, emotional responses, and motivations, a flexible yet systematic data collection approach was employed. Using a combination of deductive and inductive thematic analysis (Braun & Clarke, 2022), the following data were analyzed:

(1) classroom observations from nine courses over seven to thirteen weeks, capturing the physical setting, social interactions (formal/informal, planned/unplanned, verbal/non-verbal), and the pedagogical environment, including teaching styles, curricula, and resources.
(2) dialogic semi-structured interviews with nine educators exploring their practices, experiences, values, and beliefs, offering insights into their teaching approaches.
(3) twelve student focus groups uncovering individual and group actions, revealing key moments of practice and their shared experiences (see Appendix 1B).
(4) personal artefacts from educators and students (e.g., syllabi, course materials, student work, and learning journals) that illustrated their practice and stimulated deeper conversations during interviews and focus groups.

The data analysis placed specific emphasis on what the educators and students actually do, the everydayness as they immerse in the activities and the factors and structures that conditioned their educational practices. Hence, Sedlačko's (2017) four-part methodology was adopted to (i) examine their actions, interactions, and their relationship to spaces and material artefacts; (ii) analyze the situatedness of practice, focusing on the taken-for-granted aspects of social reality; (iii) reconstruct/deconstruct the complex socio-material arrangements to explain their interconnectedness; and (4) build thick textual renditions of these connected practices. Inductive coding also revealed underlying educator ideologies—particularly educational and assessment-related—and highlighted how these educational ideologies shaped their teaching conceptions (for classification, see Ragupathi, 2022: 35–38; Trowler, 1998, 2010).

The research was approved by the Lancaster University's ethics committee and the National University of Singapore's Institutional Review Board.

Ecologies of practices and related TLR moments in course-sites

Teaching and learning practices within the academic course-sites are inherently social. They are influenced by various factors that shape the doings, sayings, interactions, and relationships as educators and students engage in activities both inside and outside the classroom. Findings from the nine course sites indicate that site-based teaching and learning practices are deeply intertwined with practice architectures. Summary diagrams (see Figure 2 for a sample) were generated based on the framework to fully encapsulate the complexity of these practices, illustrating the relationships between them and how key TLR moments and their interactions influence those practices.

To explain and unpack how this complexity is captured using the framework, we will examine one of the nine course sites: HGE2204, taught by Grace. In this course, the educator's clear purpose—to initiate students into becoming scientists— was evident. She envisioned the course as an "exploration and discovery" journey, with fieldwork as a central component to achieve her goal. The course-site emphasized hands-on fieldwork, allowing students to select personal field study sites—a practice that mirrors the approach of subject experts in her field. Students were introduced to essential field method and /skills, accompanied by weekly prompts that grace confirmed facilitated experiential and discovery learning. However, students rarely reported this as a discovery process or experiential process, but instead attributed it to a fieldwork learning practice.

Central to this PBK approach was the 'Singapore tree study' project, in which students observed two tree species, formulated hypotheses, collected and analyzed data. This hands-on experience significantly enhanced their learning practice, allowing them to engage with scientific methodology in its simplest form: asking a good question,

defining research goals, employing appropriate methods, analyzing data, visualizing results, and reporting findings—practices that closely mirror real-world scientific work.

In the summary diagram for HGE2204 (see Figure 2), the coded data from classroom observations are mapped to "what is observed," the coded data from interviews with educators to "what the teacher says," and the coded data from student focus groups to "what students do." The intersection of these three data sets forms the course site's ecologies of practice.

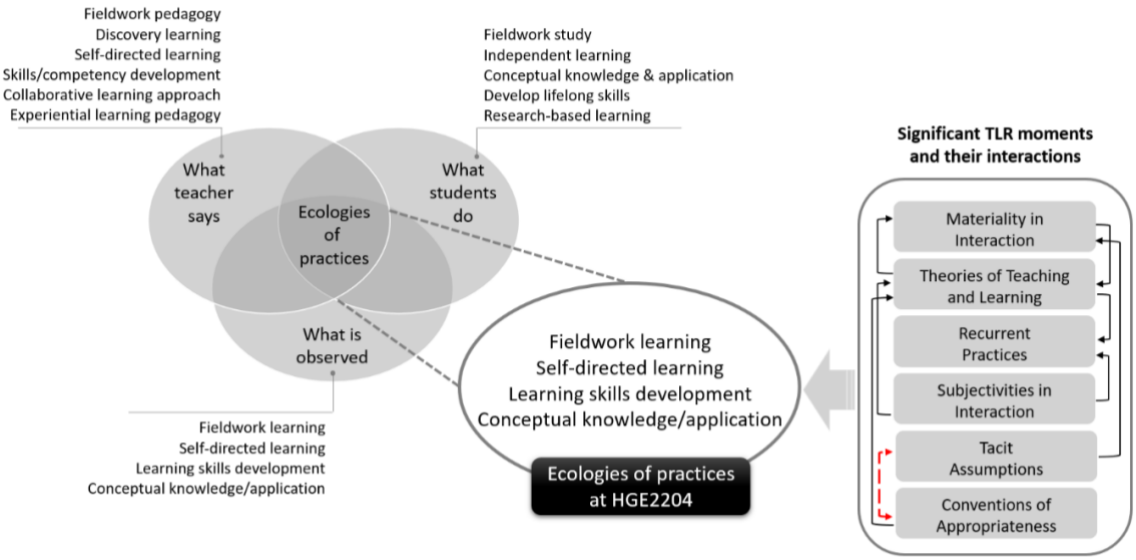

Figure 2: Summary diagram mapping the ecologies of practices and TLR moments in HGE2204

Grace's theory of teaching and learning is fieldwork pedagogy. From the researcher's classroom observations and her own reflections, it was apparent that her pedagogy was deeply influenced by her own professional background, reflecting her identity and interdisciplinary expertise that emphasised prioritizing diverse student identities. These condition her subjectivities, as well as that of her students. They in turn shape her conceptions about what it is to study geography, and what the future might hold as a result for her students. These embody and confirm her theories about how teaching and learning happens, thereby influence how she scaffolds and structures the

fieldwork practice. Not only does this TLR moment informs the theory but also underpins the practices being recurrently performed. The arrows originating from subjectivities in interaction to the theories of teaching and learning and to recurrent practices represents how her identity influences the fieldwork pedagogy, emphasizing the need for instituting recurrent practices for her students to strengthen their expertise. The field notebook was the key tool for manifesting recurrent fieldwork practice and fostering independent exploration and learning. Through field notebook assignments, students repeatedly practiced doing observations, conducting interviews, and interpreting landscapes and performing archival research.

This conceptualisation was a result of her assumptions, generally tacit, that her students may face exhaustion in the latter half of the course, and the priorities that they may have at that point require constant encouragement and motivation from her. Her tacit assumptions do not come from nowhere, it is tied to her past experiences and backstories. This is represented by the interconnecting arrow between tacit assumptions and materialities in interaction, illustrating how her assumption that students needed repetitive practice but also motivation allowed her to create a guided environment that conditions her students' practice by keeping them engaged, on task, and aligned with course goals.

PBK in this course focused on developing skills and methods in the field that students could practice and use in their future workplace. This illustrates the way in which practices are conditioned by the conventions of appropriateness, and in turn shapes her fieldwork pedagogy as the theory of teaching, as represented by the arrow between the two. However, these are also limited by what is feasible in a large enrolment class during the pandemic without the availability of TAs to facilitate group work and field work. The lack of TAs was conditioned by her assumption that the

pandemic restrictions inhibited field work, which in turn only attracted a very small number of graduate students to the department. The red arrow highlights the tension that occurs between her own convention of appropriateness and her tacit assumptions. Even though Grace recognized the importance of enabling fieldwork practice through necessary scaffolds, her multiple conflicting assumptions about the lack of TAs and her students' divergent behaviors in completing their field notebooks influenced how she redesigned her field notebook assignment. The socio-material constraints of the pandemic made these adaptations even more pronounced, reshaping practices as class sizes grew and collaborative work was restricted. Though the students in this study did not explicitly talk about the significance of material artefacts in the interaction between field notebook, the physical trees that they studied as part of their fieldwork, and their learning practice of applying the methods and skills, their influence was evident from the data. This materiality in interaction TLR moment also indirectly underpin the practices recurrently performed and are significant as practices.

The socio-material conditions of the course-site shaped an appropriate PBK approach, helping students connect with the discipline's professional identity. These shifts were pivotal as the teaching landscape transitioned through the pandemic, as illustrated by the interconnections between TLR moments in the course as captured by the arrows in the summary diagram (Figure 2). These interconnected arrows clearly illustrate how the different TLR moments interweave in the classroom.

Conclusion

In this paper, we introduced a framework that captures the intricate ecologies of practice across diverse course sites, highlighting the factors, structures, and academic subjectivities that shape teaching, learning, and assessment practices. The framework serves as a valuable tool for educators, academic developers, and

ethnographic researchers to reflect on and then illuminate the interconnections between these practices and identify pivotal TLR moments that define the teaching and learning. The purpose of that is to understand practices better as a prelude to changing them for the better in an intentional and meaningful manner.

The framework acts as a constellation of concepts—a cohesive thought system—that supports academic teachers' reflection with a focus on enhancement and growth. We also highlighted how breaking down the concept of 'culture' into tangible practices enables educators and academic developers to more readily integrate these reflections into their daily work.

Ultimately, this study demonstrates that for educators to engage in systematic, critical reflection on their teaching, they must first map the dynamic interplay between teaching, learning, and assessment practices. They then need to identify the underlying factors influencing these relationships by applying the thought systems and purposively reflecting on the local cultural characteristics to the real world. This enables educators to gain richer insights into their own practices, empowering them to make more informed, effective decisions that enhance their educational environments. Through this Action approach, we hope to inspire a thoughtful and adaptable pathway for continuous improvement in teaching and learning.

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Appendix 1A: List of nine course-sites

Course-site	Teacher					Class Size	Course type
	Pseudo-name	Gender	Local/ International	Teaching experience	Discipline		
HRC2101	**Aidan**	Male	International	5-10 years	Biomedical Engineering	31	HGL
ERC1101	**Bryan**	Male	International	<5 years	Public Policy	17	EGL
HGE1101	**Charles**	Male	Local	10-15 years	Physics	193	HGL
HGE1102	**Ethan**	Male	Local	5-10 years	English Language	163	HGL
HGE2204	**Grace**	Female	International	10-15 years	Environmental studies	81	HGL
HFM1101	**Harvey**	Male	Local	>20 years	Geography	60	HGL
ERC1102	**Sophie**	Female	Local	>20 years	Marketing	28	EGL
HFM1301	**Nicole**	Female	Local	<5 years	Biology	175	HGL
HID1000	**William**	Male	International	>20 years	Chemistry	1200	HGL

Appendix 1B: Breakdown of focus groups

Course-site	Number of students (Gender Breakdown)	Disciplines	Breakdown by years
HRC2101	Four (3 Male, 1 Female)	Sociology, Psychology + Life Sciences, Engineering, Computing	Year 2 – (4)
	Four (3 Male, 1 Female)	Economics + Political Science, Economics + Analytics, Business, Computing	Year 2 – (4)
ERC1101	Three (2 Male, 1 Female)	Economics, Computing and Statistics	Year 1 – (3)
HGE1101	Four (2 Male, 2 Female)	Computing (2), Food Science, Engineering	Year 2 – (4)
HGE1102	Four (2 Male, 2 Female)	Geography (2), Global affairs, Business/Communication	Year 2 – (2) Year 3 – (2)
	Three (1 Male, 2 Female)	Computing, Engineering/Economics, Liberal Arts	Year 2 – (2) Year 4 – (1)
HGE2204	Nine (3 Male, 6 Female)	Global studies, Geography (6), Chemical engineering, Statistics	Year 2 – (7) Year 4 – (2)
HFM1101	Four (2 Male, 2 Female)	Geography (2), Engineering, Global studies + Geography	Year 2 – (4)
	Five (4 Male, 1 Female)	Geography (3), Geography + Southeast Asia, Statistics	Year 1 – (4) Year 4 – (1)
ERC1102	Three (2 Male, 1 Female)	Law, Engineering, Accounting	Year 1 – (3)
HFM1301	Three (1 Male, 2 Female)	Environmental Science, Psychology + Life Sciences, Geography	Year 1 – (3)
	Five (2 Male, 3 Female)	Environmental Science (2), Computing (2), Engineering	Year 1 – (4) Year 4 – (1)
HID1000		Student learning journals	Year 1